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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/407,222	04/07/2003	Paul Poniatowski	16593

CONFIRMATION NO. 2604

PAUL PONIATOWSKI
12 - 11 KENIGA UL.
WARSAW, 02-495
POLAND

POA ACCEPTANCE LETTER

OC000000039866635

Date Mailed: 01/28/2010

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/19/2010.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/sleutchit/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IPR2024-00731
APPLE EX1008 Page 1

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/407,222	04/07/2003	Paul Poniatowski	16593

CONFIRMATION NO. 2604

POWER OF ATTORNEY NOTICE

293
DOWELL & DOWELL P.C.
103 Oronoco St.
Suite 220
Alexandria, VA 22314

OC000000039866539

Date Mailed: 01/28/2010

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/19/2010.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/sleutchit/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IPR2024-00731
APPLE EX1008 Page 2

PATENT POWER OF ATTORNEY
OR
REVOCATION OF POWER OF ATTORNEY
WITH A NEW POWER OF ATTORNEY
AND
CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	
Issue Date	
First Named Inventor	
Title	
Attorney Docket Number	

I hereby revoke all previous powers of attorney given in the above-identified patent.

☒ A Power of Attorney is submitted herewith.

OR

☐ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

☒

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Practitioner(s) Name	Registration Number

Please change the correspondence address for the above-identified patent to:

☐ The address associated with the aforementioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☒ Person Individual Name	
Address	
City	State Zip
Country	
Telephone	Email

I am the:

☒ Patentee, having ownership of the patent.

OR

☐ Patent owner.

Statement under 37 CFR 3.73(c) that I am the owner is enclosed herewith or was previously submitted on

SIGNATURE of Inventor or Patent Owner

Signature		Date	
Name		Telephone	
Title and Company			

NOTE: Signature of all the inventors or patent owners of the entire interest is required in accordance with 37 CFR 1.324. Submit multiple forms if more than one signature is required, see below.

☒ *Total of 1 forms are submitted

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is used by the public to submit (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

*If more than one applicant is completing this form, see 37 CFR 1.4(d)(2) and 1.33(b).

Electronic Acknowledgement Receipt

EFS ID:	6841189
Application Number:	10407222
International Application Number:	
Confirmation Number:	2604
Title of Invention:	AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
First Named Inventor/Applicant Name:	Paul Poniatowski
Customer Number:	00293
Filer:	Paul Poniatowski
Filer Authorized By:	
Attorney Docket Number:	16593
Receipt Date:	19-JAN-2010
Filing Date:	07-APR-2003
Time Stamp:	20:32:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	SCAN0073s.pdf	984879 67c0873f8dc9e0c8d2ccefa90026445367842266	no	1

Warnings:	
Information:	

Total Files Size (in bytes):	984879

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	10/20/2009	7606215	16593	2604

293 7590 09/30/2009

DOWELL & DOWELL P.C.
103 Oronoco St.
Suite 220
Alexandria, VA 22314

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 867 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Paul Poniatowski, Toronto, CANADA;

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/407,222	04/07/2003	Paul Poniatowski	16017-5

CONFIRMATION NO. 2604

293
DOWELL & DOWELL P.C.
103 Oronoco St.
Suite 220
Alexandria, VA 22314

POA ACCEPTANCE LETTER

OC000000037880993

Date Mailed: 09/18/2009

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/10/2009.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/fbrown,iii/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/407,222	04/07/2003	Paul Poniatowski	16017-5

CONFIRMATION NO. 2604

POWER OF ATTORNEY NOTICE

PAUL PONIATOWSKI
74 GLEN AGAR DR.
ETOBICOKE, ON M9B-5N1
CANADA

OC00000037880973

Date Mailed: 09/18/2009

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/10/2009.

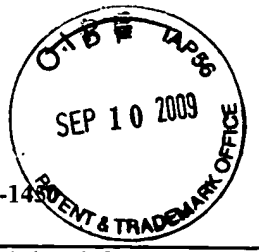
- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/fbrown,iii/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IPR2024-00731
APPLE EX1008 Page 8

PART B - FEE(S) TRANSMITTAL



Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

DOWELL & DOWELL, P.C.
SUITE 220
103 ORONOCO STREET
ALEXANDRIA, VA 22314

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017.5	3604

TITLE OF INVENTION: AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

09/11/2009 LNGUYEN2 00000022 10407222

01 FC:2501 755.00 OP
02 FC:1504 300.00 OP

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	10/28/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DEANE JR, WILLIAM J	2614	370-352000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Dowell & Dowell,P.C.
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☑ Issue Fee
- ☑ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☑ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
- ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date September 10, 2009

Typed or printed name Ralph A. Dowell Registration No. 26868

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

IPR2024-00731
APPLE EX1008 Page 9

OIPE TAP56 SEP 10 2009 PATENT & TRADEMARK OFFICE

OIPE CANCELLED JAN 2 2009 PATENT & TRADEMARK OFFICE

Electronic Form

PTO/SB/81 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	Paul Pontarelli
Title	AUDIO/VISUAL DISSEMINATION SYSTEM
Art Unit	2614
Examiner Name	Dunn Jr., William J.
Attorney Docket Number	16593

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 000293

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☒ Applicant/Inventor.

OR

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____

SIGNATURE of Applicant or Assignee of Record

Signature		Date	01/21/2009
Name	Paul Pontarelli	Telephone	
Title and Company	Inventor		

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 07/28/2009

PAUL PONIATOWSKI
74 GLEN AGAR DR.
ETOBICOKE, ON M9B-5N1
CANADA

EXAMINER	
DEANE JR, WILLIAM J	
ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 07/28/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017-5	2604

TITLE OF INVENTION: AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	10/28/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

IPR2024-00731
APPLE EX1008 Page 11

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7590 07/28/2009

PAUL PONIATOWSKI
74 GLEN AGAR DR.
ETOBICOKE, ON M9B-5N1
CANADA

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017-5	2604

TITLE OF INVENTION: AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	10/28/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DEANE JR, WILLIAM J	2614	370-352000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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IPR2024-00731
APPLE EX1008 Page 12

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017-5	2604

7590 07/28/2009

PAUL PONIATOWSKI
74 GLEN AGAR DR.
ETOBICOKE, ON M9B-5N1
CANADA

EXAMINER	
DEANE JR, WILLIAM J	
ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 07/28/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 867 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 867 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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Notice of Allowability	Application No.	Applicant(s)	
	10/407,222	PONIATOWSKI, PAUL	
	Examiner	Art Unit	
	William J. Deane	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *07/10/2009*.

2. ☒ The allowed claim(s) is/are *1-11and 14-18*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/William J Deane/
Primary Examiner, Art Unit 2614

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(network adj hub and audio and video and video adj display and video adj distribution adj hub and code and audio adj distribution adj hub).clm.	US-PGPUB; USPAT; EPO	OR	ON	2009/07/20 06:55

7/20/2009 6:56:37 AM

OIPE IAP42
JUL 10 2009
PATENT & TRADEMARK OFFICE

PTO/SB/08a (06-09)
Approved for use through 07/31/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	PONIATOWSKI
Art Unit	2614
Examiner Name	William J. Dean, Jr.
Attorney Docket Number	16593

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/W.D./		US- 5896129	04-20-1999	Murphy et al	
		US-			
		US-			
		US-			
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
/W.D./		WO 98/11686	03-19-1998	Troxel et al		
/W.D./		WO 02/084909	10-24-2002	Koplar et al		
/W.D./		CN 2179993	10-19-1994	Zhanjun eet al		

Examiner Signature	/William Deane Jr/	Date Considered	07/20/2009

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/17/2008	04/11/2009	07/20/2009						
1	1	✓	✓	=						
2	2	✓	✓	=						
3	3	✓	✓	=						
4	4	✓	✓	=						
5	5	✓	✓	=						
6	6	✓	✓	=						
7	7	✓	✓	=						
8	8	✓	✓	=						
9	9	✓	✓	=						
10	10	✓	✓	=						
11	11	✓	✓	=						
	12	✓	-							
	13	✓	-							
12	14	✓	✓	=						
13	15	✓	✓	=						
14	16	✓	✓	=						
15	17	✓	✓	=						
16	18	✓	✓	=						
	19	✓	-							
	20	✓	-							
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	29	✓	-							
	30	✓	-							
	31	✓	-							
	32	✓	-							
	33	✓	-							
	34	✓	-							
	35	✓	-							
	36	✓	-							

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/17/2008	04/11/2009	07/20/2009						
	37	✓	-							

Issue Classification

Application/Control No.	Applicant(s)/Patent Under Reexamination
10407222	PONIATOWSKI, PAUL
Examiner	**Art Unit**
William J Deane	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION															
CLASS	SUBCLASS	CLAIMED										NON-CLAIMED					
370	352	H	0	4	L	12 / 66 (2006.01.01)											
CROSS REFERENCE(S)		H	0	4	M	1 / 00 (2006.01.01)											
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																
455	566																

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	15	17		33										
2	2	16	18		34										
3	3		19		35										
4	4		20		36										
5	5		21		37										
6	6		22												
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	12		28												
	13		29												
12	14		30												
13	15		31												
14	16		32												

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 16
/William J Deane/ Primary Examiner.Art Unit 2614 20Jul2009 (Primary Examiner) (Date)	O.G. Print Claim(s): 1 O.G. Print Figure: 1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

SEARCHED			
Class	Subclass	Date	Examiner
	Updated prior search	17Aug2008	WJD
	Updated the prior search.	11Apr2009	WJD
	Updated the search	19Jul2009	WJD

SEARCH NOTES		
Search Notes	Date	Examiner
USPGPUB Interference search (see printout)	20Jul2009	WJD

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
370	352	20Jul2009	WJD
455	566		

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OIPE JUL 10 2009 PATENT & TRADEMARK OFFICE

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PTO/SB/30 (06-09)
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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	PONIATOWSKI
Art Unit	2614
Examiner Name	William J. Deane, Jr.
Attorney Docket Number	16593

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

   a. ☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☑ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☑ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   a. ☑ The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to Deposit Account No. 04-1577.

      i. ☐ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☑ Other any deficiencies 07/13/2009 JADD01 00000079 10407222 405.00 OP

   b. ☑ Check in the amount of $ 585.00 enclosed 01 FC:2801

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature		Date	July 10, 2009
Name (Print/Type)	Ralph A. Dowell	Registration No.	26868

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature			
Name (Print/Type)		Date	

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

OIPE
JUL 10 2009
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Paul Poniatowski
Appl. No. : 10/407,222
Filed : 04/07/2003
Title : AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

Grp./A.U. : 2614
Examiner : Deane Jr., William J.

New Docket No.: 16593

Honorable Commissioner of Patents
Alexandria, VA 22313-1450

RESPONSE TO FINAL OFFICE ACTION

In response to the Final Office Action mailed April 13, 2009, the following is submitted:

An amendment to and a complete listing of claims begins at page 2 of this response; and

Remarks/Arguments begin at page 9 of this response.

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In the Claims:

The following is an amendment to and a complete listing of claims that replaces all prior listings and versions of claims in this application.

1.(currently amended) A system for distributing information to the public, wherein the information includes at least one video feed and a plurality of audio feeds, the system comprising:

a network hub for receiving audio and video information from a source to be distributed to the public;

a plurality of publicly viewable video display screens;

at least one video distribution hub, each video distribution hub receiving at least one video feed from said network hub and including transmitter means for transmitting said at least one video feed that is [[to be]] displayed to the public to at least one of said display screens, and the at least one video feed including at least one code for prompting a viewer to use a telephone to access audio information;

at least one audio distribution hub, each audio distribution hub receiving a plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users by way of a code [[codes]] entered into end users' telephones after the code is visually displayed on said at least one of said display screens

and at least one of the audio feeds relates to the at least one video feed that is being displayed to the public;

a telephone interface including means for receiving an end user telephone call for accessing said plurality of audio feeds and such that an end user ~~may input a selected~~ inputs the code for selection of at least one audio feed from the plurality of audio fees, said telephone interface communicating with said at least one audio distribution hub, said telephone interface automatically routing [[an]] a selected audio feed from said at least one audio distribution hub to said end user's telephone based on the end user's input, and

at least one of the plurality of audio feeds is synchronized with the at least one video feed that is [[to be]] being displayed to the public.

2. (currently amended) A system according to claim 1 wherein said network hub receives [[said]] the information from the source as separate video and audio feeds.

3.(previously presented) A system according to claim 1 wherein at least one audio feed received by said network hub is a thermal audio feed.

4.(original) A system according to claim 1 wherein at least one of said plurality of publicly viewable display screens

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receives a video feed from said video distribution hub by wireless means.

5.(original) A system according to claim 1 wherein at least one of said plurality of publicly viewable display screens receives a video feed from said video distribution hub through a closed circuit network.

6.(currently amended) A system according to claim 4 wherein said at least one of said plurality of publicly viewable display screens is deployed on an outside of a vehicle.

7.(currently amended) A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screen is deployed on an inside of a vehicle.

8.(previously presented) A system according to claim 1 wherein said network hub receives multiple video feeds, each of said multiple video feeds being transmitted to said video display screens located in different geographic regions.

9.(original) A system according to claim 1 wherein said at least one video feed is provided with closed circuit captioning.

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10.(original) A system according to claim 1 wherein said at least one video feed is provided with advertisements.

11.(currently amended) A system for providing at least one audio feed to end users based at least in part on a video feed being displayed to the public, the system comprising:

a network hub for receiving a plurality of audio feeds, wherein at least one of said plurality of audio [[fees]] feeds is synchronized with a video feed also being received by the network hub;

a video distribution hub for receiving video feed from the network hub and for transmitting the video feed to at least one publicly viewable display screen so that the video feed is displayed publicly;

at least one audio distribution hub receiving said at least one audio feed from said network hub; and

a telephone interface for receiving telephone calls from [[said]] end users viewing the at least one publicly viewable display screen and calling at least one telephone number shown on the video feed being displayed on that at least one publicly viewable display screen, said telephone interface having means [[and]] for selection of at least one audio feed from said plurality of audio feeds based upon input from end users calling into the telephone interface, said telephone interface

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communicating with said at least one audio distribution hub and said telephone interface automatically routing said at least one audio feed to ~~said telephone calls~~ end users based on input from [[said]] the end users.

12.(canceled)

13. (canceled)

14.(currently amended) A system ~~for providing advertising to one or more end users, the system comprising:~~ according to claim 11 wherein the video and audio feeds received by said [[a]] network hub ~~for receiving said~~ include advertisements from a source[[;]],

~~a plurality of publicly viewable video display screens used to display said advertisements;~~

~~at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;~~

~~at least one audio distribution hub, each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by one or more end users;~~

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[[a]] and said telephone interface ~~for receiving an end user telephone call for accessing said plurality of audio fees and for selecting at least one audio feed and~~ includes means for entering a promotional code related to ~~the displayed~~ video advertising being publicly displayed on the at least one display screen[[;]],

wherein entering the promotional code causes ~~the one or more~~ end users to be directed to a call center where the ~~one or more~~ end users ~~complete~~ may make a purchase.

15.(currently amended) A system ~~for allowing one or more end users to purchase merchandise, the system comprising:~~ according to claim 11 wherein the audio and video feeds being received by said [[a]] network hub ~~for receiving information from a source,~~

~~a plurality of publicly viewable video display screens used to display~~ include information about one or more items of merchandise for sale[[;]],

~~at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;~~

~~at least one audio distribution hub, each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users; and~~

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[[a]] and said telephone interface ~~for receiving an end user telephone call for accessing said plurality of audio feeds and for selecting at least one audio feed and~~ includes means to enter commands to purchase at least one of the one or more items of merchandise.

16.(currently amended) The system of claim 15, wherein the ~~one or more~~ end users have [[a]] user ~~account used~~ accounts associated with said telephone interface to purchase the merchandise.

17.(currently amended) The system of claim 16 wherein [[the]] each user account is adapted to store credit card information, an end user address, and a personal identification number.

18.(currently amended) The system of claim 15, wherein the ~~one or more~~ end users specify a personal identification number to authorize the purchase of the merchandise.

19.-37.(canceled)

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Remarks/Arguments

This application has been carefully considered in light of the Final Office Action which was mailed April 13, 2009 and in light of an interview with the Examiner whose courtesy and cooperation in conducting the interview is greatly appreciated.

In the Final Office Action, all pending claims have been rejected with respect to US published patent application 2002/0194264 to Uchiyama et al. when considered in view of the teachings of US Patent 6,222,826 to Faynberg et al. Responsive to the rejection, an interview was conducted between the Examiner, the undersigned attorney of record and the inventor on June 11, 2009. At the interview, the amendment to claim 1 which is submitted herewith was discussed as it is believed to be distinguishing with respect to the prior art.

As discussed at the interview, the present invention is directed to a communications system wherein a network hub receives information sources which are to be distributed to the public. Network hub is connected to a plurality of publicly viewable display screens and provides a video feed to a video distribution hub which hub is connected to provide the information to be displayed to the public to at least one of the display screens. The network hub also provides audio feeds to at least one audio

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Network hub is connected to a plurality of publicly viewable display screens and provides a video feed to a video distribution hub which hub is connected to provide the information to be displayed to the public to at least one of the display screens. The network hub also provides audio feeds to at least one audio distribution hub. The audio distribution hub is accessible by individuals by entry of codes which are displayed on the at least one display screen on which a video is being displayed. As discussed, the access to the audio distribution hub is by way of a telephone and, in preferred embodiments, would be by way of an individual using a cell phone when riding on transit or in a public area wherein the video is being displayed. By allowing access to the audio distribution hub, the individual may enter a code and obtain a synchronized voice communication which relates to the video being displayed. In some embodiments, the individual may also select non-synchronized audio messages relating to advertising, news, alerts, sports information, songs and other audio information that can be made available to the public. *A unique feature of the present invention is that the audio feed from the audio distribution hub is directly to the individual's phone such that the individual may receive the audio feed without interference to others in the same location.*

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As disclosed within the body of the present application, the invention contemplates that the individual accessing the audio distribution hub may be invoiced for accessing the hub in some instances. In these instances, the system would provide for automatic billing to the individual's account based upon the entry of codes for pre-arranged accounts, the cell phone number itself, or special codes established while the individual is accessing the audio distribution hub.

It is respectfully submitted that neither of the primary or secondary references cited by the Examiner provide for the system set forth above wherein audio feeds are made directly into an individual's phone wherein the individual is prompted to access the audio feeds by viewing a publicly viewable video display. In this manner, individuals riding subways or other carriers may select to interact with audio feeds which relate directly to a displayed video or which are sponsored in relationship to the displayed video, such as an advertisement.

In the primary reference to Uchiyama et al., a communication system is provided wherein commercial establishments have one or more display screens which provide video information to customers. On the display screens various advertisements are placed which may entice a customer to select information such as a video or audio

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clip to be played within the commercial establishment. In this manner, the individual may access the control system for the communication system and, by entering codes or by responding to prompts in the system, may order video clips, audio clips and the like to be channelled to the video display screen and a speaker system associated with the display screen *at the commercial establishment*. In some embodiments, the audio portions may be publicly played and others the audio portions may be played to separate juke box type of players associated with various tables or booths in the commercial establishment. As taught in this reference, the individuals cellular telephone is used as an access or menu controlled device which may be used to input codes and numbers in order to order a specific item from the main server. In each instance, as an individual accesses the server, the individual responds to prompts shown on the visual displays within a commercial establishments or over the phone. The server will have accounting software which will arrange for billing the individual for whatever information is to be displayed either visually, audibly or in combination within the commercial establishment. After the order is made, the telephone is disconnected and there is no communication directed to the individual with respect to an audio feed as in the case with the present invention.

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In this respect, the reference to Uchiyama et al. is similar to a system where an individual can select movies from cable providers by calling on their telephone and entering certain codes. By entering codes, billing is established after which the caller is disconnected. The ordered video with audio is thereafter fed directly to the individual's cable box or to the individual's TV.

In view of the foregoing, the purpose of the present invention is clearly distinguishable with respect to what is taught in the prior art reference to Uchiyama et al. and there is nothing in the reference to suggest the provision of distributing audio information to an individual who is prompted to seek such audio information by a public video display and wherein the audio is directed directly to the individual's phone. In view of the foregoing, it is respectfully requested that there is not sufficient nexus between the reference to Uchiyama et al. and the present invention to establish a combination rejection together with the teachings of the reference to Faynberg et al.

The reference to Faynberg et al. was cited as disclosing a situation where a communication system synchronizes an audio feed with a video feed wherein the video feed is through an individual's computer by way of the internet while the audio feed

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is by way of a telephone. The synchronized system is admittedly state of the art as, in the present application, a situation wherein such a feed is used to present movies in aircraft is disclosed. What Faynberg et al is teaching is that if an individual wants to place a call to another individual, the individual must first pass through an advertising server wherein a video portion of the advertisement is sent to the individual's computer while the audio portion is sent to the individual's telephone. Once the advertisement has been presented to the individual, the call will be connected to the desired end receiver.

In view of the foregoing, it was generally agreed at the interview that the two prior art references did not disclose the present invention as set forth in amended claim 1. The Examiner did indicate that further search may be required. In view of this, submitted concurrently herewith is a Request for Continued Examination.

The applicant is also submitting an Information Disclosure Statement which sets forth references cited in corresponding applications in China and the European Patent Office. As discussed with the Examiner, the application in the European Patent Office has been allowed. Copies of non US Patent

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references are also being submitted for the Examiner's consideration. As this Information Disclosure Statement is being filed after the initial action on the merits but prior to the issuance of the Notice of Allowance, submitted herewith is the payment in the amount of $180.00 for the entry of the Information Disclosure Statement. The European Patent Application number is EP04726075.7 and the application no. for the Chinese application is 200480014883.6.

An earnest effort has been made to place this application in condition for allowance which action is respectfully solicited. Should the Examiner have any further questions regarding the amendment presented herewith or the allowability of the claims with respect to the prior art, it would be appreciated if the Examiner would contact the undersigned attorney of record at the telephone number shown below so that the further prosecution of this application may be expedited.

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Please direct all future correspondence to the new address and telephone numbers shown below.

Respectfully submitted,

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OIPE IAP42
JUL 10 2009
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Paul Poniatowski
Appl. No. : 10/407,222
Filed : 04/07/2003
Title : AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

Grp./A.U. : 2614
Examiner : Deane Jr., William J.

New Docket No.: 16593

Honorable Commissioner of Patents
Alexandria, VA 22313-1450

Sir:

INFORMATION DISCLOSURE STATEMENT

In accordance with 37 C.F.R. §§ 1.97-1.99, Applicant submits the following information which may be of interest to the Examiner in charge of the above-referenced application for patent. Copies of a non-US patent literature references listed on the attached Form PTO-SB08(a), List of Prior Art Cited by Applicant, are attached. As this Statement is being submitted more than three months after the citation of the documents, a check in the amount of $180.00 is attached as part of a check in payment of an RCE fee that is being filed concurrently herewith. Also attached is a copy of an office action from corresponding Chinese application 200480014883.6. A copy of an INPADOC legal status shows that a related application in the EPO has been granted 02/18/2009. The cited WO 98/11686 was the cited reference in the EPO as well as in China.

07/13/2009 JADD01 00000079 10407222
02 FC:1806 180.00 OP

Please note the new address and telephone number for the undersigned attorney of record.

Respectfully submitted,

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OIPE JAP42 JUL 10 2009 PATENT & TRADEMARK OFFICE

PTO/SB/08a (06-09)
Approved for use through 07/31/2009. OMB 0651-0031
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	PONIATOWSKI
Art Unit	2614
Examiner Name	William J. Dean, Jr.
Attorney Docket Number	16593

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5896129	04-20-1999	Murphy et al	
		US-			
		US-			
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		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 98/11686	03-19-1998	Troxel et al		
		WO 02/084909	10-24-2002	Koplar et al		
		CN 2179993	10-19-1994	Zhanjun eet al		

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Electronic display screen for vehicles

Publication number: CN2179993 (Y)
Publication date: 1994-10-19
Inventor(s): ZHANJUN DU [CN]; ZHIHE ZHANG [CN]; GUANGYUAN REN [CN]
Applicant(s): XINGUANG RADIO FACTORY SHENYAN [CN]
Classification:
- international: ***B60Q9/00; B60R13/00; G09F9/30;*** **B60Q9/00; B60R13/00; G09F9/30;** (IPC1-7): G09F9/30; B60Q9/00; B60R13/00
- European:
Application number: CN19932028461U 19930614
Priority number(s): CN19932028461U 19930614

Abstract not available for **CN 2179993 (Y)**

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[19]中华人民共和国专利局

[11] 授权公告号 CN 2179993Y

[12] 实用新型专利说明书

[21] ZL 专利号 93228461.2

[51]Int.Cl[5]
G09F 9/30

[45]授权公告日 1994 年 10 月 19 日

[22]申请日 93.6.14 [24]颁证日 94.8.24

[73]专利权人 沈阳市新光无线电厂
地址 110015辽宁省沈阳市文化东路16巷11号

[72]设计人 杜战军 张志和 任广远
耿继文 王德凯

[21]申请号 93228461.2

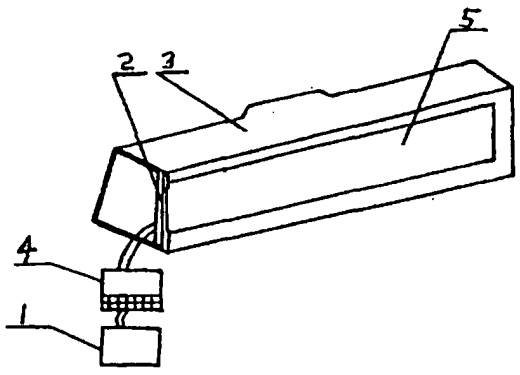
B60R 13/00 B60Q 9/00

说明书页数: 附图页数:

[54]实用新型名称 一种车用电子显示屏

[57]摘要

本实用新型属于电子显示屏，它即能在转弯和刹车时显示提醒后面车辆注意的内容，也能自动变换显示内容，采用汽车电瓶做电源和微机、电子扫描、显示驱动等电子电路和元器件。利用超高亮发光二极管通过显示屏显示，在室外阳光下也能看清。平时可根据用户需求显示不同内容，成为一个很好的流动广告车，传播范围大，灵活方便。



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权 利 要 求 书

1、一种车用电子显示屏，它由电瓶、元件座板、外壳、输入按钮、微机、扫描部分和显示屏组成，其特征在于；显示屏内元件座板上由电子原件接成显示缓冲电路、并一串转换电路，扫描电路、CPU电路、扫描驱动电路，串一并转换电路和驱动电路，所用电源由汽车电瓶供给。

2、根据权利要求1所述的车用电子显示屏，其特征在于显示屏显示是由超高亮发光二极管矩阵组成，每块矩阵由8×8个发光点构成。

一种车用电子显示屏

本实用新型属于一种电子显示屏，具体地说是一种汽车用的电子显示屏。

目前所见的电子显示屏大多使用在火车站、商场等其它室内公共场所，这种电子显示屏是由普通亮度发光二极管显示的，在室外阳光下使用不易看清显示内容，也有一种显示屏是使用在汽车上的，由发光二极管构成，但显示内容不能变换，只能显示固定的内容。

本实用新型的目的就是提供一种汽车用电子显示屏，不但能够自动变换显示内容，做为一个流动广告车使用，而且在汽车转弯时和刹车时也能显示提醒后面车辆注意的内容，如保持车距、右转弯等内容，并且在阳光下也能看清显示内容。

本实用新型是这样实现的，它由汽车上的电瓶1、元件座板2、显示屏外壳3、输入按钮4及装在元件底板2上的微机、扫描部分、显示部分和显示屏5组成，其特征在于：车用电子显示屏采用汽车电瓶做电源，显示屏内元件座板上由电子元件接成显示缓冲电路，并一串转换电路、扫描电路、CPU电路、扫描驱动电路，串一并转换电路、驱动电路，显示屏显示由超高亮发光二极管矩阵组成，每块矩阵由8×8个发光点构成。

本实用新型的优点是：可装在车内挡风玻璃后，或车外顶部，具有转弯指示，刹车指示等功能，平时可以根据用户需求显示不同的内容，成为一个流动广告车，传播范围大，灵活方便。

下面结合附图和实施例对本实用新型做进一步详细的描述。

图1为车用多功能电子显示屏示意图。

图2为系统框图。

图3为CPU电路图。

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图4为扫描电路图。

图5为扫描驱动电路和串一并转换电路图。

图6为驱动电路图。

图7为显示缓冲电路和并一串转换电路图。

图8为发光矩阵引脚排列图。

微机部分完成整个系统的控制，并对转向、刹车信号进行误别处理，以适时完成左转向、右转向、保持车距等信号的处理，根据用户对所显示的字附和图象信息进行传送与更新。微机部分由中央处理器CPU、存储器ROM、RAM、译码逻辑等组成，中央处理器、采用8031芯片，也可采用8085、6800、Z80等芯片。存储器ROM采用27512芯片， 存储器RAM放置显示过程中需要暂存等信息，采用2817A,译码逻辑采用与非门电路芯片74LS00、74LS04、74LS32等组成。扫描部分是本电子显示屏的中间环节，它一方面接收微机提供的信息，一方面将接受到的信息转换或串行点阵信息，并产生显示驱动所选择信息一并送到显示驱动电路部分。该部分实现由二选74157，扫描缓冲区RAM6116，并串转换74165、驱动接口74LS244、本振晶体(2MHZ)和74LS04、电容、电阻等组成，本振部分主要提供扫描部分的时钟，扫描部分由16V8完成。显示驱动部分由接口芯片 74374、串一并转换74LS164、译码芯片74138组成，驱动电路用2003A或三极管8550等均可。 显示屏部分由超高亮发光二极管矩阵组成，每块电8×8个发光点构成；显示屏具有16×64、16×80、16×96、16×112、 16×128五种点阵图形方式，即可做4个16×16点阵汉字， 5个16×16点阵汉字，6个16×16点阵汉字，7个16×16点阵汉字， 8个16×16点阵汉字，每个汉字的显示是由4块超高亮发光二极管矩阵组成的， 按照附图电路接好电器元件，装在显示屏元件座板上，将用户信息输入，即构成一个汽车用电子显示屏。

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说 明 书 附 图

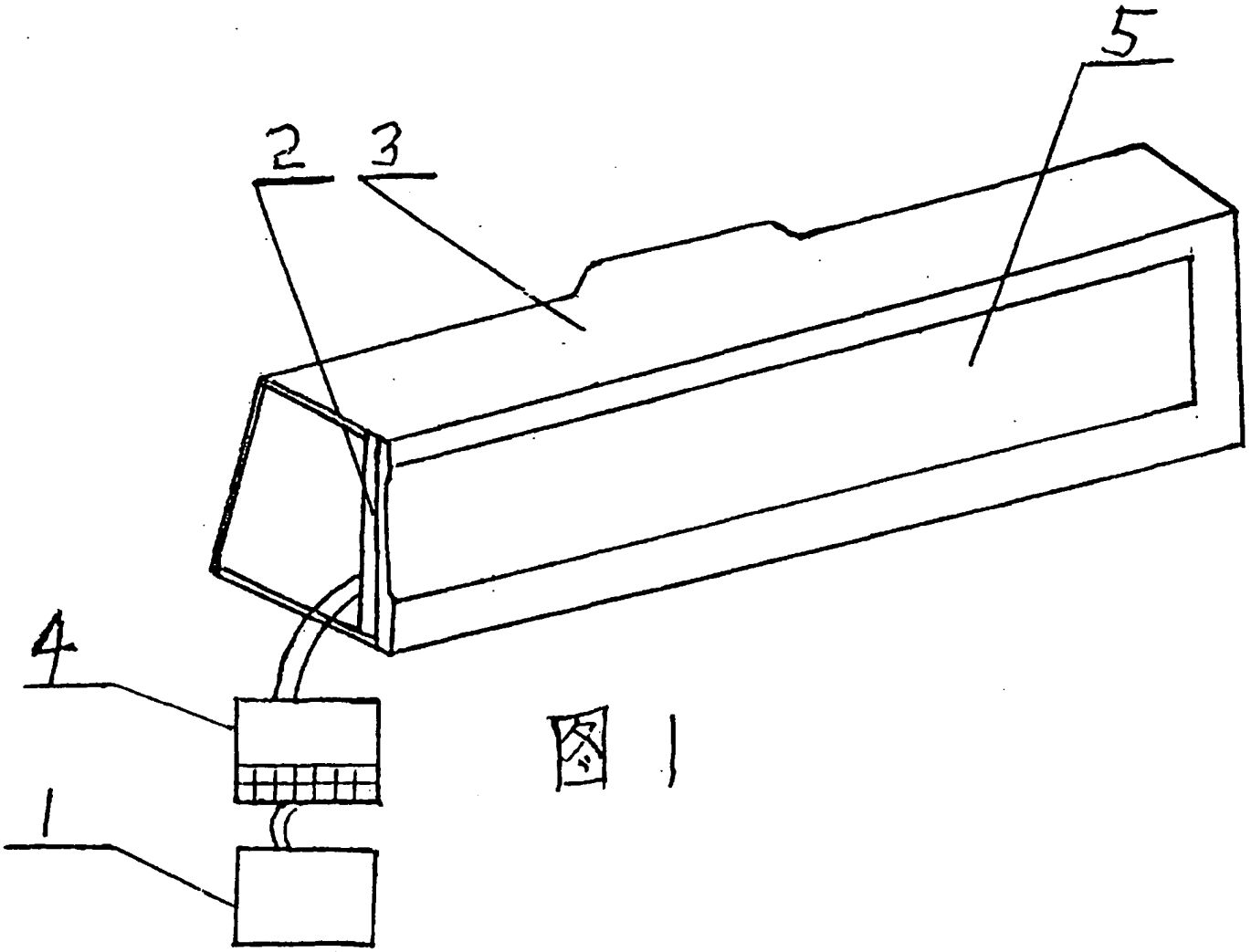


图 1

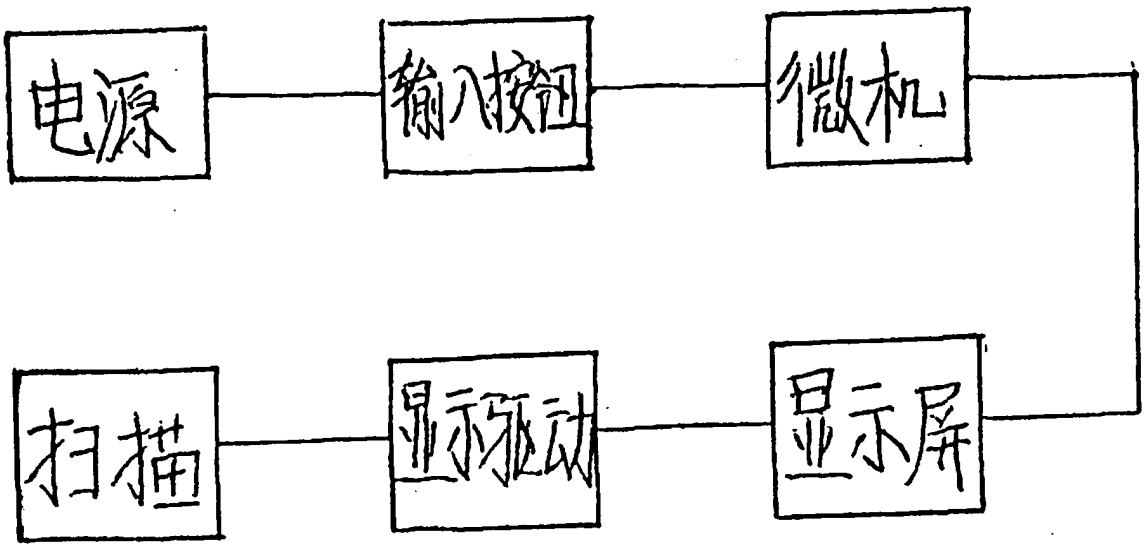


图 2

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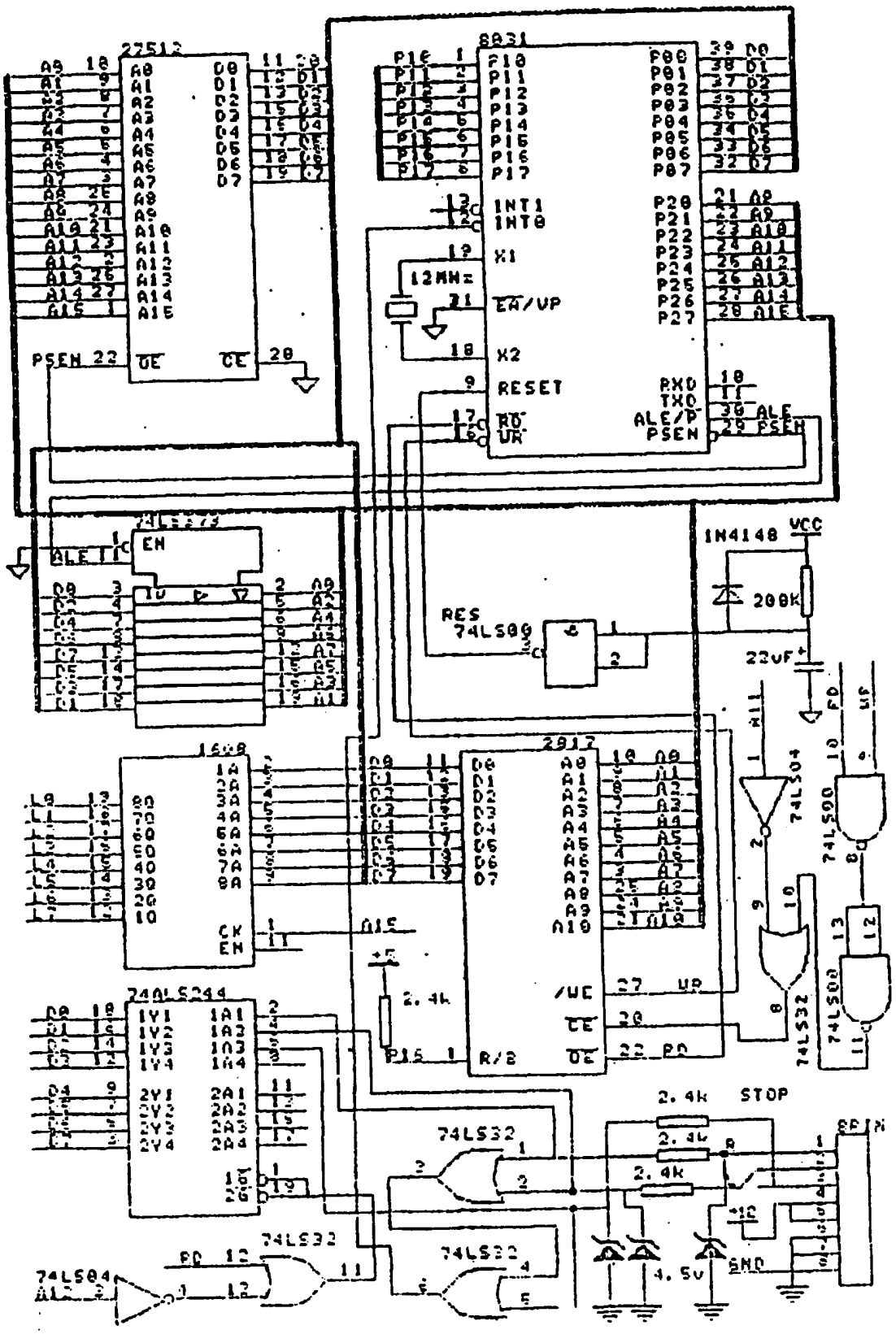

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74LS244
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74LS04
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74LS90
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IN4148
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RES
2.4k
STOP
4.5V
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RESET
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X2
INT1
INT0
RXD
TXD
ALE/P
R/B

图 3

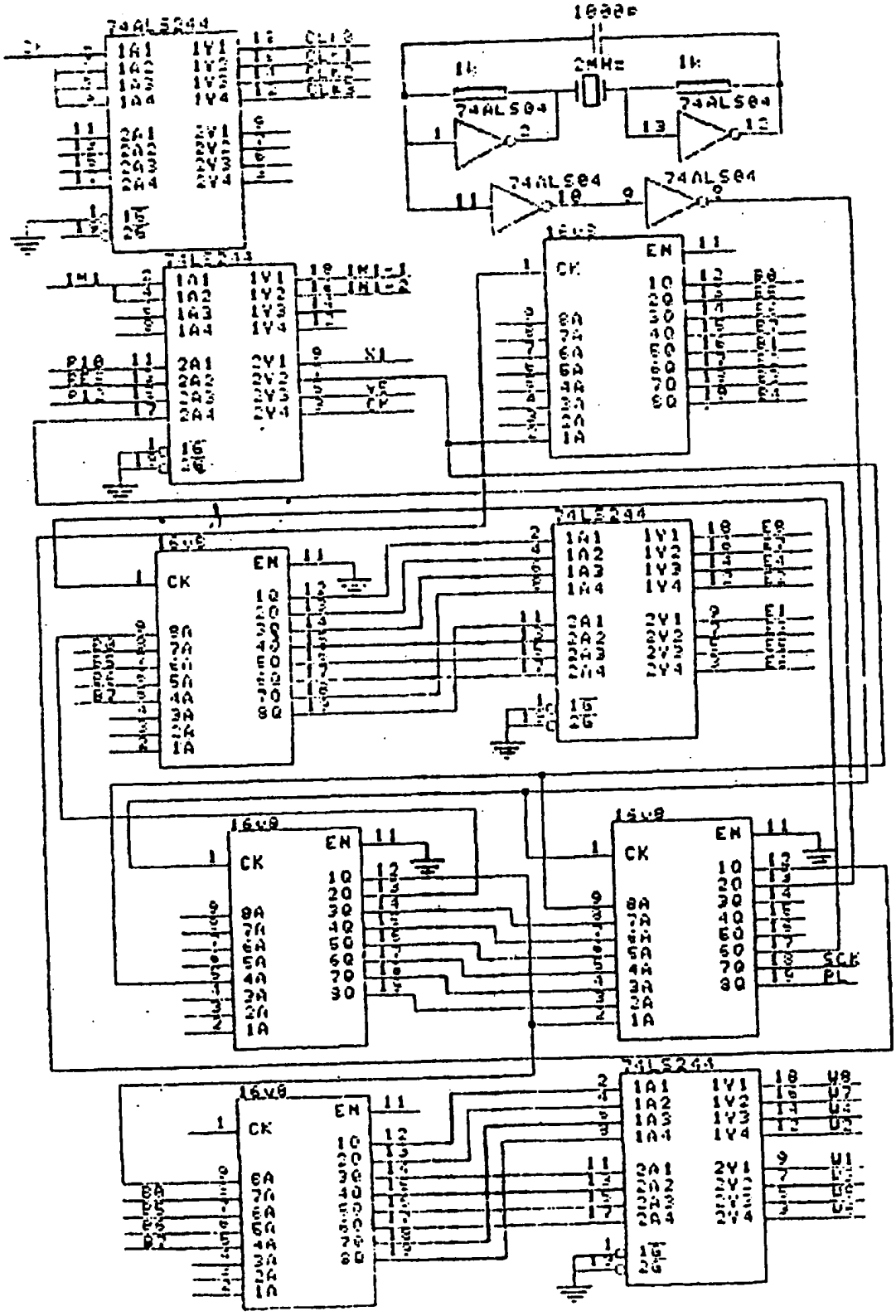


图 4

说 明 书 附 图

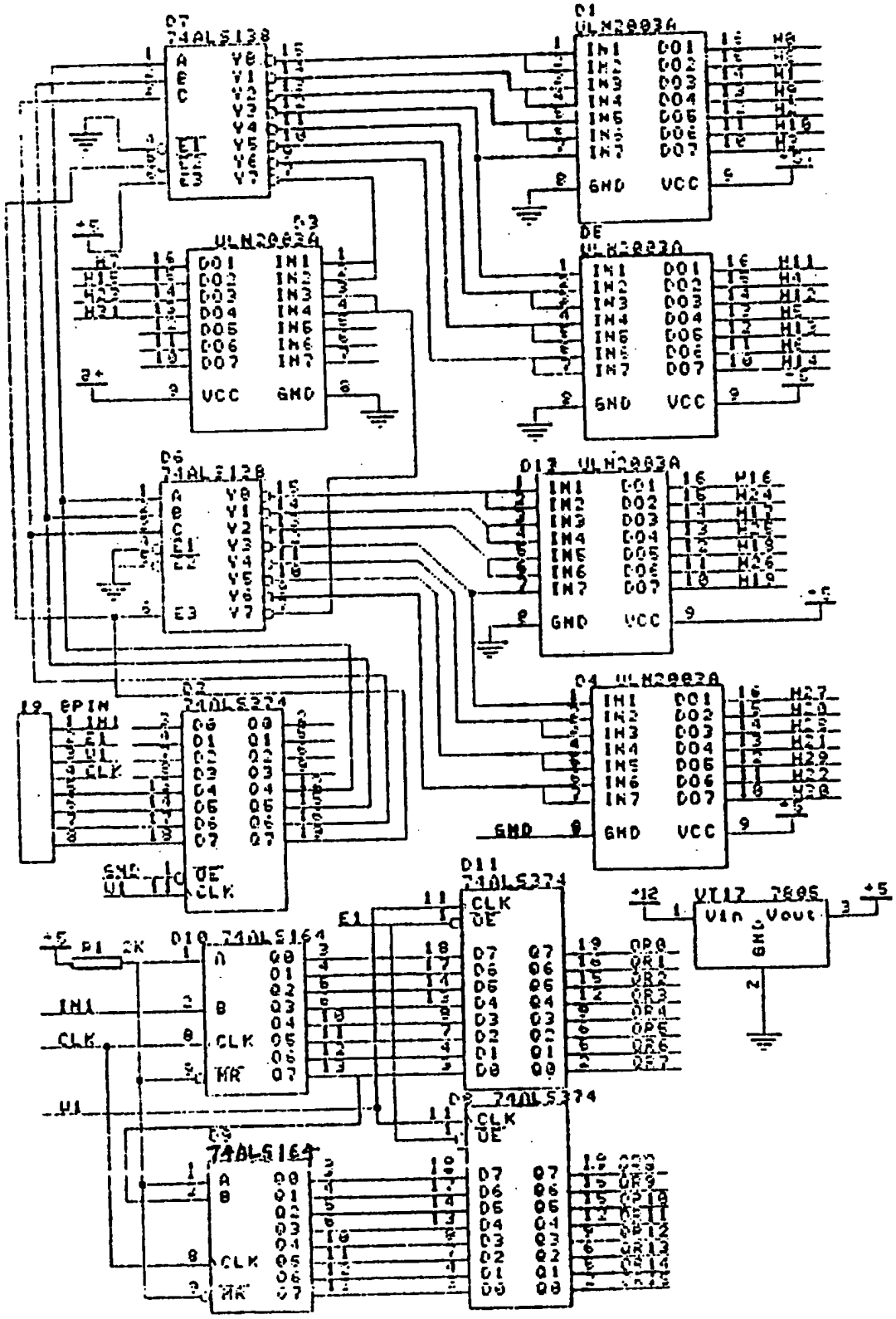

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VR12 7805
+5
+12
EPIN
INI
CLK
E1

图 5

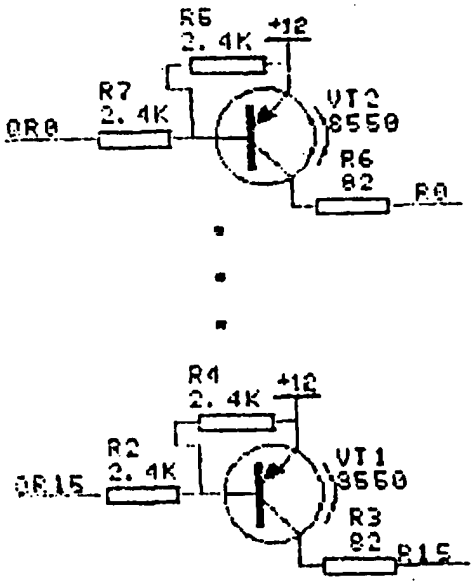

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DR0
VT0
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R6
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R15

图 6

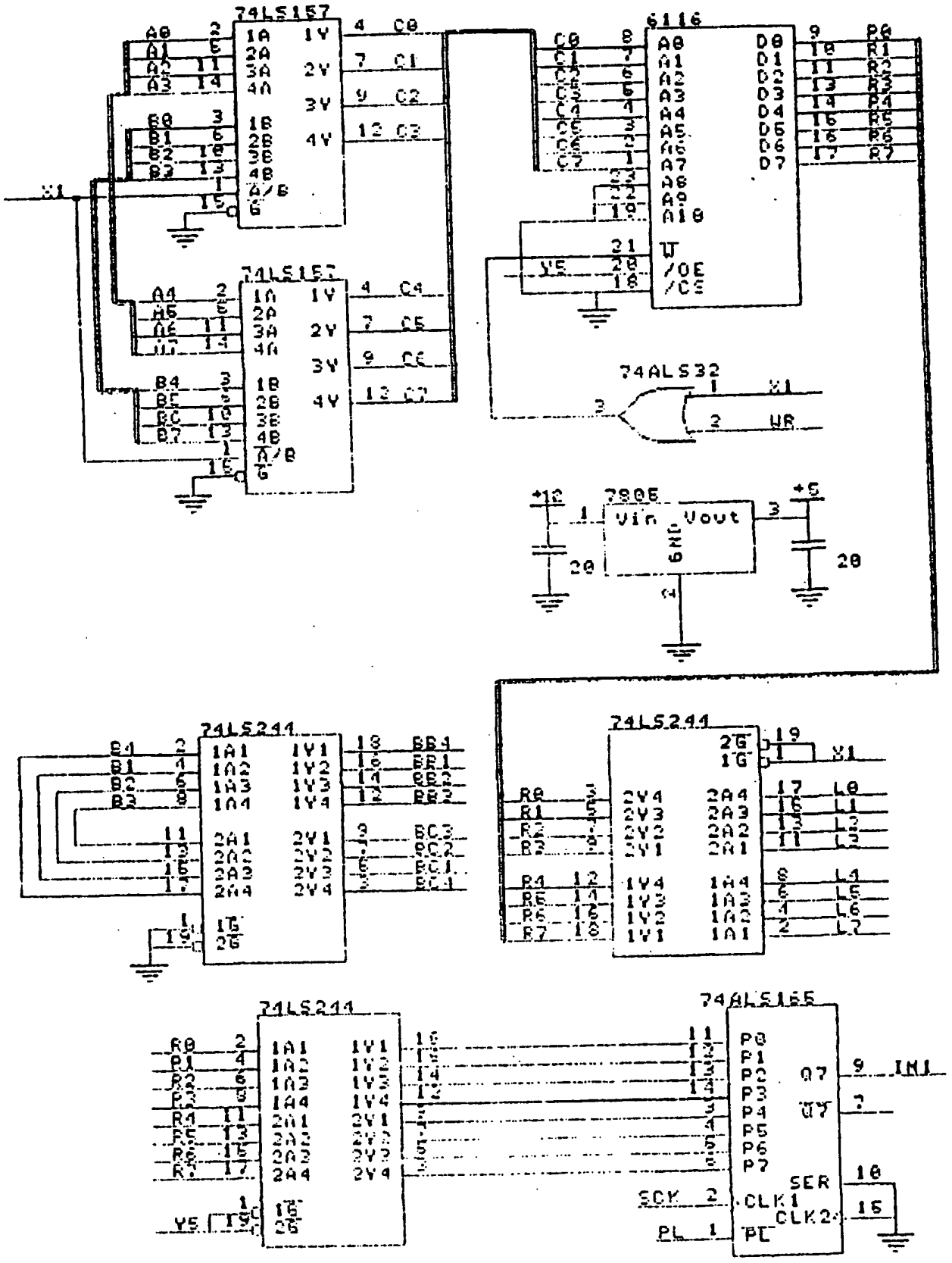


图 7

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说　明　书　附　图

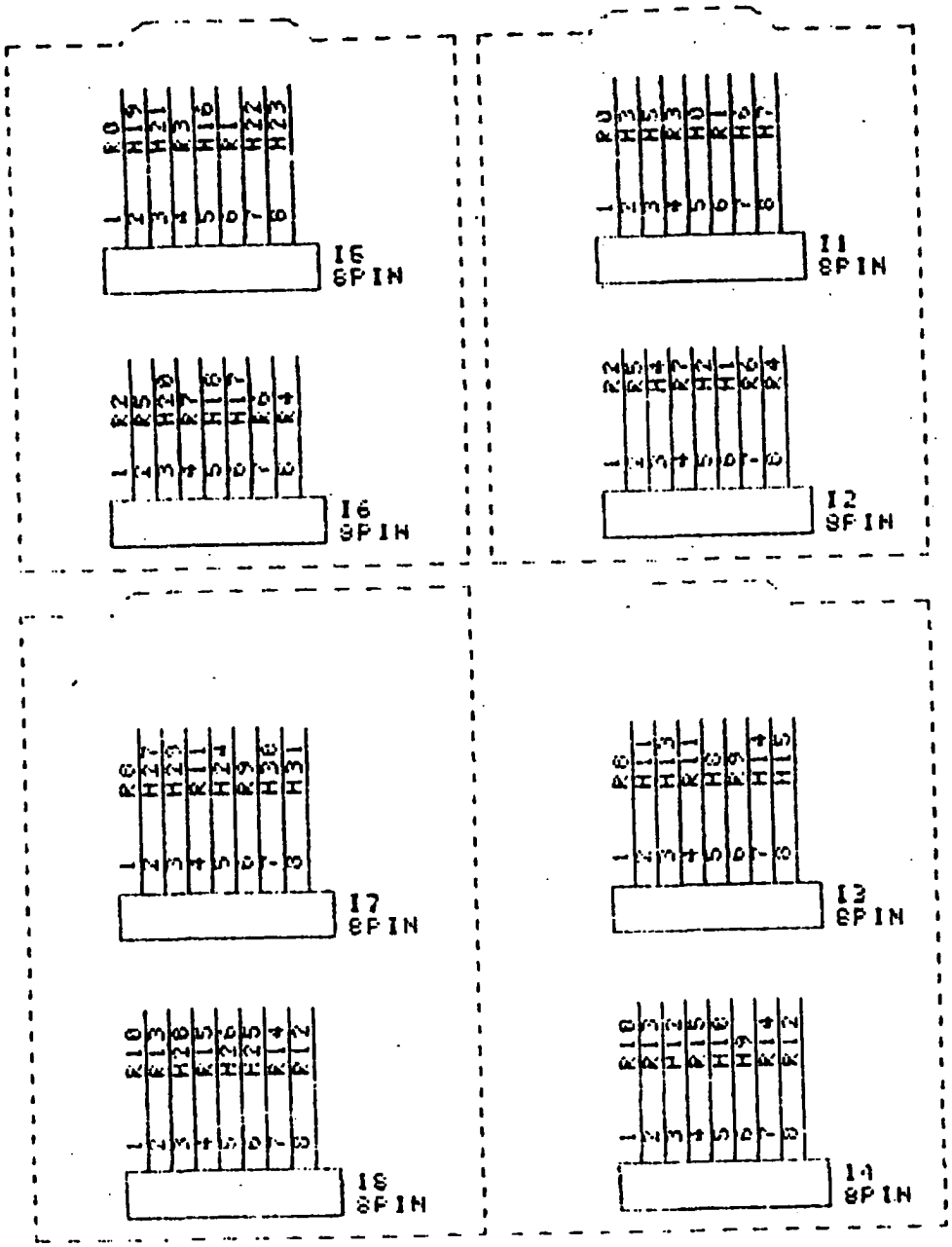


图 8

PCT

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International Bureau

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(51) International Patent Classification 6 :
H04H 1/02

A2

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08/714,772 16 September 1996 (16.09.96) US

(71) Applicant (*for all designated States except US*): SONY TRANS COM INC. [US/US]; 1833 Alton Avenue, Irvine, CA 92713 (US).

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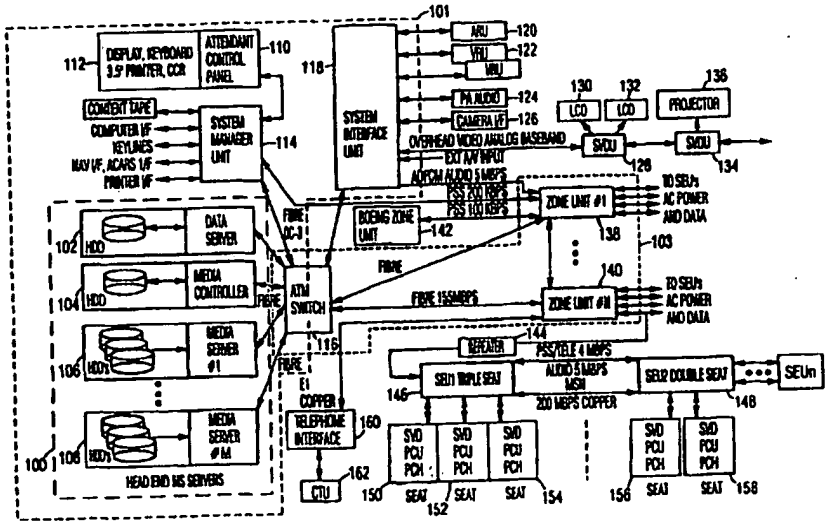
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(54) Title: COMBINED DIGITAL AUDIO/VIDEO ON DEMAND AND BROADCAST DISTRIBUTION SYSTEM

(57) Abstract

An in-flight passenger entertainment system has a first digital network for communication among components of a headend system including a data server, media controller, one or more media servers, system interface unit, system manager unit and attendant control panel. The in-flight entertainment system is coupled to an aircraft's existing systems through the system interface unit and the system manager unit. The components of the headend system are all coupled to a network switch for routing data within the first network. The network switch is also coupled to one or more zone bridge units, each of which is coupled to multiple seat electronics units. The zone bridge units and the seat electronics units together form a second digital network. The first digital network is preferably an ATM network with fibre optic cables used to carry the data. The second digital network is preferably an IEEE 1394 serial bus network. The zone bridge units control all communications between the networks, converting all communications into the format required by the respective network. All communications across the networks are transmitted as digital data and when necessary are converted to analog signals at the seat electronics units. Through passenger control sets coupled to the seat electronics units, a passenger has access to audio and video on demand, video games, gambling, telephone service and information services. A passenger also has the ability to fast forward, rewind and pause a video feature. An overhead audio and video distribution system is used to provide audio and video content as a backup to the video on demand system or as an alternative subsystem in zones of the aircraft in which there are passenger control sets with less than full capability. A first audio path for transmitting audio content from the headend system is routed to predetermined seat entertainment units through the network switch and the zone bridge units. A second audio path for transmitting audio from the system interface unit is routed to the seat entertainment units through the zone bridge units.



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COMBINED DIGITAL AUDIO/VIDEO ON DEMAND AND BROADCAST DISTRIBUTION SYSTEM

FIELD OF THE INVENTION:

The present invention relates to the field of audio and video on demand entertainment systems. More particularly, the present invention relates to the field of distributed network video on demand entertainment and broadcast distribution systems for use onboard an aircraft during flight.

BACKGROUND OF THE INVENTION:

In-flight entertainment on an airplane has traditionally consisted of the ability to watch a single video on an overhead screen and listen to one of multiple audio channels through a headset. The overhead screens are distributed throughout the airplane's cabin and are sometimes difficult to view from some seats within the cabin. The video is chosen by the airline and played simultaneously for viewing by all passengers. In most instances, a passenger desiring to hear the audio accompanying a featured film must rent or purchase a headset to be plugged into their seat console. A passenger who leaves their seat to stretch, go to the restroom or make a telephone call will end up missing a portion of the movie. Typically, the same feature film is played for a predetermined period of time on an airline, such as a calendar month, with different feature films played during travel in different directions within specific regions. For example, a first film will typically be played during travel within the United States in a western direction and a second film will be played during the same time period during travel within the United States in an eastern direction. Accordingly, for travellers travelling frequently during the same time period, it is highly likely that they will be on multiple flights featuring the same feature film. The airline is therefore losing potential revenue because it is likely that the passenger will not purchase a headset to view a movie that they have already watched.

Video on demand in-flight entertainment systems are being developed by multiple companies to provide numerous entertainment options to each passenger, thereby reducing the likelihood that a passenger has already viewed every option on the system. Video on demand entertainment systems typically include a control system and distributed individual video and audio systems of some form at each seat. Thus, each passenger with access to an individual video on demand entertainment unit has the ability to choose from among

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multiple movies, audio channels, video games, including gambling and other entertainment options. Previous video on demand systems have offered featured films at selected start increments during the airplane's flight, such as every ten minutes. With such systems, a passenger who leaves their seat to stretch, go to the restroom or make a telephone call, will still miss a portion of the movie. Each passenger however, is able to choose from among multiple feature films, reducing the likelihood that they have viewed all of the available movie options.

Some or all of these video on demand entertainment options are provided at an additional cost to the passenger. This cost can be collected through a credit card reader, integrated into the video on demand system, at each passenger's seat. The passenger can swipe their credit card through the credit card reader and can then choose the video on demand features which they desire to view or play. The cost of the chosen feature will then be automatically charged to the passenger's credit card. In this manner, gambling services can also be provided to passengers through the video on demand entertainment system, allowing a passenger to wager up to a specified limit, secured by authorization to charge their credit card. When the passenger is finished using the gambling services, the amount that the passenger has won or lost is credited or charged to their credit card.

One such video on demand in-flight entertainment system has been developed by Interactive Flight Technologies of Las Vegas, Nevada. This system is advertised to allow a passenger to choose from among thirty feature films, gambling, on-board shopping, video games and an Airshow feature. Airshow is a moving map display feature, provided by Airshow of Tustin, California, which allows the passenger to view the route of the current flight and the airplane's current position along that route. This video on demand system is controlled by cluster computers which serve groups of seats. Each seat is equipped with a 486 compatible computer with an integral hard drive and RAM, through which the user accesses the video on demand system.

Another video on demand in-flight entertainment system has been developed by B/E Aerospace of Irvine, California. This system is advertised to provide a passenger with over 500 channels for regular video programming such as movies, as well as live broadcast television and a variety of interactive features such as video games. This system also provides duty free and catalog shopping, information menus, and both ground-base and satellite in-cabin telephone distribution through an individual video on demand module at

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the passenger's seat. The control electronics for this system are installed in a former galley unit on the aircraft which has been retrofitted to house the video on demand system. The control electronics are then coupled to each individual video on demand module throughout the cabin by a star network, with separate data wires running between each individual module and the control electronics.

A safety video or demonstration is required to be performed for the passengers on an aircraft before the aircraft takes off. This safety demonstration is required by U.S. Federal law and provides instructions to the passengers regarding procedures to be followed in the event of an emergency. On smaller aircraft equipped for shorter flights, the text of this safety demonstration is read over the airplane's intercom system by one of the airline's staff, while other members of the staff demonstrate necessary functions of the airplane's safety and exit equipment for the passengers. On bigger airplanes equipped with video screens or monitors, a safety video is played for simultaneous viewing by all of the passengers. This safety video is prerecorded and includes the same required text and illustrations as the live safety demonstration. Sometimes, the flight attendants, in conjunction with the safety video. will also perform live equipment demonstrations during the playing of the video. Accordingly, it is important that all passengers are viewing the safety video simultaneously.

What is needed is a video on demand in-flight entertainment system which is fully interactive and can provide multiple features to a passenger through an individual module. What is further needed is a video on demand in-flight entertainment system which uses complete end-to-end digital delivery from the control system to the passenger seat units and also includes an overhead broadcast system. What is still further needed is a video on demand in-flight entertainment system which provides all entertainment features on demand to all passengers having access to a passenger seat unit at all authorized times. Additionally, what is needed is an in-flight entertainment system which incorporates a serial network and is therefore lighter. easier to maintain and easier to reconfigure than existing systems. What is also needed is an in-flight entertainment system which includes separate and redundant systems allowing a portion of the system to fail without rendering the entire system nonoperational.

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SUMMARY OF THE INVENTION:

An in-flight passenger entertainment system has a first digital network for communication among components of a headend system including a data server, media controller, one or more media servers, system interface unit, system manager unit and attendant control panel. The in-flight entertainment system is coupled to an aircraft's existing systems through the system interface unit and the system manager unit. The components of the headend system are all coupled to a network switch for routing data within the first network. The network switch is also coupled to one or more zone bridge units, each of which is coupled to multiple seat electronics units. The zone bridge units and the seat electronics units together form a second digital network. The first digital network is preferably an ATM network with fibre optic cables used to carry the data. The second digital network is preferably an IEEE 1394 serial bus network. The zone bridge units control all communications between the networks, converting all communications into the format required by the respective network. All communications across the networks are transmitted as digital data and when necessary are converted to analog signals at the seat electronics units. Through passenger control sets coupled to the seat electronics units, a passenger has access to audio and video on demand, video games, gambling, telephone service and information services. A passenger also has the ability to fast forward, rewind and pause a video feature. An overhead audio and video distribution system is used to provide audio and video content as a backup to the video on demand system or as an alternative subsystem in zones of the aircraft in which there are passenger control sets with less than full capability. A first audio path for transmitting audio content from the headend system is routed to predetermined seat entertainment units through the network switch and the zone bridge units. A second audio path for transmitting audio from the system interface unit is routed to the seat entertainment units through the zone bridge units.

BRIEF DESCRIPTION OF THE DRAWINGS:

Figure 1 illustrates a system block diagram of a digital video on demand and backup broadcast distribution system of the present invention.

Figure 2 illustrates the interface couplings between the in-flight entertainment system 200 of the present invention and the aircraft's existing systems.

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Figure 3 illustrates a detailed block diagram of the components within the preferred embodiment of the media server units.

Figure 4 illustrates a detailed block diagram of the components within the preferred embodiment of the media controller and the data server.

Figure 5 illustrates a detailed block diagram of the components within the preferred embodiment of the system manager unit.

Figure 6 illustrates a detailed block diagram of the preferred functional components and connections of the system manager unit and the attendant control panel.

Figure 7 illustrates a detailed block diagram of the preferred embodiment of the system interface unit.

Figure 8 illustrates a block diagram of the preferred embodiment of the ATM switch circuit.

Figure 9 illustrates a block diagram of the preferred embodiment of the zone bridge unit.

Figure 10 illustrates a block diagram of a triple seat electronics unit.

Figure 11 illustrates a block diagram of a preferred embodiment of a passenger set of seat peripherals.

Figure 12 illustrates an audio distribution path configuration within the in-flight entertainment system of the present invention.

Figure 13 illustrates an alternate audio distribution path configuration.

Figure 14 illustrates an alternate subsystem audio distribution path configuration.

Figure 15A illustrates a block diagram of a subsystem of the present invention without video on demand capabilities.

Figure 15B illustrates the additions to the subsystem of Figure 15A which are required to provide video on demand within the system of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT:

An in-flight entertainment system includes a headend system having a data server, a media controller, one or more media servers, a system interface unit, a system manager unit and an attendant control panel. The components of the headend system are coupled together for communications by a digital ATM network. Preferably, fibre optic cables are used to form the ATM network. The components of the headend system are all coupled,

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through the ATM network, to an ATM network switch, for routing data within the network. The network switch is also coupled to one or more zone bridge units. Each of the zone bridge units is coupled to multiple seat electronics units. Each seat electronics unit is coupled to control one or more passenger control sets through which passengers on the aircraft access the in-flight entertainment system of the present invention. The zone bridge units and the multiple seat electronics units are coupled together by an IEEE 1394 serial bus network. All communications across both of the networks are transmitted as digital data and when necessary, are converted to analog signals at the seat electronics units.

The in-flight entertainment system is coupled to the aircraft's existing systems through the system interface unit and the system manager unit. An overhead audio and video distribution system, controlled by the system interface unit, is used to provide audio and video content as a backup to the ATM/1394 network and as an alternate subsystem in zones of the aircraft in which there are passenger control sets with less than full capability. Audio and video content data for use at the seat electronics units is stored and delivered from the media servers. When requested by a passenger, this audio and video content data is transmitted from the media servers, over the ATM network to the appropriate zone bridge unit. This transmission is controlled by the media controller at the headend of the system. From the zone bridge unit, the data is then transmitted over the IEEE 1394 serial bus to the appropriate seat electronics unit. Through each passenger control set of seat peripherals, a passenger has access to audio and video on demand, video games, gambling, telephone service and information services, such as the airline's flight schedule. When utilizing the video on demand features, a passenger also has the ability to fast forward, rewind and pause a video feature.

Within the in-flight entertainment system of the present invention, data is collected, stored and arranged in data sets, in a conventional manner. It should be understood that, as used herein, data sets can include audio data, video data or both audio and video data, game information, purchasing information, gambling information, software and control data. It should also be understood that, as used herein, data sets can also include any other appropriate collection of data.

Dual audio distribution paths are maintained from the headend system to the seat electronics units. A first audio distribution path is routed from the headend servers

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through the ATM network switch to the zone bridge units. From the zone bridge units, the first audio path is then distributed to the seat electronics units. The first audio distribution path is used for the distribution of audio content from the media servers. A second audio distribution path is routed from the system interface unit to the zone bridge units and then to the seat electronics units. The second audio distribution path is used for the distribution of audio for public address announcements and for overhead entertainment audio. The second audio distribution path is provided to all of the seat electronics units. The first audio distribution path is provided to seat electronics units within selected zones where the audio and video on demand features of the in-flight entertainment system are available. As will be described below, an alternate embodiment of the present invention also allows a subsystem to be implemented with only the second audio distribution path. This subsystem can then be upgraded to include the first audio distribution path in those zones of the aircraft including video on demand features.

A system block diagram of an in-flight entertainment system including a digital video on demand and backup broadcast distribution system of the present invention is illustrated in Figure 1. Headend servers 100 of the system include a data server 102, a media controller 104 and multiple media servers 106 and 108. The data server 102 includes a hard disk drive which stores and transmits data necessary for playing video games at a passenger's seat electronics unit and also maintains the data and statistics related to the amount of money and time spent on different features at each individual passenger seat.

The media controller 104 preferably includes a hard disk drive and is responsible for the scheduling of continuous media streams from the headend servers 100 to the seat electronic units, loading of content to the media servers 106 and 108 and control of trick mode operation at each individual seat electronic unit. The trick mode operation includes the rescheduling of a data stream when a passenger sends fast forward, rewind, pause or stop instructions while viewing a video feature.

Each of the media servers includes one or more hard disk drives and stores data to support the video on demand and audio on demand features of the system, including data representing feature films and audio content. The number of media servers necessary is dependent upon both the content storage requirements and the number of simultaneous streams of data supported by the system. Constant bit rate, isochronous intervals are used

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to distribute data from the media servers 106 and 108 through the seat electronics units to the passenger sets of seat peripherals. The data server 102, the media controller 104 and the media servers 106 and 108 are all coupled to an asynchronous transfer mode (ATM) network switch 116, preferably by fibre optic cables.

A system manager unit 114 is also coupled to the ATM switch 116, preferably by a fibre optic cable. The system manager unit 114 is coupled to an attendant control panel 110 for receiving data from and providing data to a system attendant. The attendant control panel 110 is coupled to a set of input/output devices 112, including a display, a keyboard, a printer and a credit card reader. For purposes of this document, the term credit card reader will be understood to include smart card reader where appropriate. The system manager unit 114 provides the interface to the attendant control panel 110. The system manager unit 114 also includes a computer, for entering data into and reading data from the video on demand system, which is accessed through conventional electronic media readers such as a floppy disk drive, CD Rom drive or a magnetic tape drive. Content data for the video on demand system is loaded through the system manager unit 114 and decrypted before being stored on the appropriate one of either the data server 102, the media controller 104 and the media servers 106 and 108.

Data is provided to and extracted from the system through this computer. The system manager unit 114 also provides an interface to the aircraft's navigational system (NAV) and to an airline communication addressing response system (ACARS), which allows air to ground communication between the aircraft and the airline. The system manager unit 114 further provides an interface to a printer for extracting data reports and receipts from the system in printed form. The system manager unit 114 is also coupled to receive, generate and monitor keyline control signals for monitoring conditions of the airplane such as decompression and weight on the wheels. The system manager unit 114 is also coupled to a first zone bridge unit 138 for monitoring and controlling communications relating to the passenger service system (PSS).

A system interface unit 118 is also coupled to the ATM switch 116, preferably by a fibre optic cable. The system interface unit 118 is coupled to the aircraft's conventional entertainment system and drives the overhead display system including overhead video monitors and audio system, as will be described below. This overhead audio system a public address (PA) audio system. The system interface unit 118 and the overhead video

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monitors and audio system together provide an alternate and backup broadcast system which allows the airline flexibility in the design of the interior of the airplane's cabin and a backup system in the event of a failure of the video on demand entertainment system. The system interface unit 118 is coupled to an audio reproducer unit 120, which preferably includes a compact disk player with multiple compact disks containing audio data. The system interface unit 118 is also coupled to one or more video reproducer units 122, which each preferably include a video cassette player and the ability to output video content from inserted video cassettes. The video reproducer units 122 could also include one or more video disk players.

The system interface unit 118 is also coupled to the aircraft's public address audio system 124, over which the pilot, crew and flight attendants of the airplane can address the passengers. The system interface unit 118 implements an override condition which overrides any other audio content being presented to the passengers when the pilot or crew is using the PA audio system. The system interface unit 118 further provides a camera interface 126 to a camera which is mounted to the outside of the airplane and used for observation of certain aspects of the airplane's flight, such as takeoff and landing. Multiple smart video distribution units (SVDU) 128 and 134 are coupled to the system interface unit 118 in a daisy-chain configuration for controlling overhead video monitors 130 and 132, which may be LCDs as shown or any other substantially flat, light-weight display, or a projection system 136, depending on the configuration of the airplane. The system interface unit 118 is also coupled to receive an external audio/video input. The system interface unit 118 is further coupled to the first zone box unit 138.

The smart video display units 128 and 134 distribute video from the system interface unit 118 at the headend to the overhead displays 130 and 132 or a display system 136. The smart video display units 128 and 134 also provide power and display controls to the display system 136 and the overhead displays 130 and 132. The display system can be either a projection system or monitor depending on the configuration of the aircraft.

The data server 102, media controller 104, media servers 106 and 108, system management unit 114, attendant control panel 110 and system interface unit 118 are all components of the headend control system 101. Together, these components provide centralized storage of content, control of content delivery, system code storage, data storage, aircraft system interfaces, attendant station functions, network administration,

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maintenance management, billing services, live audio/video distribution and overhead audio/video generation and control.

Each of the zone bridge units 138 and 140 are coupled to the ATM switch 116, preferably by fibre optic cables. In addition, the zone bridge units 138 and 140 are coupled to one another, preferably by IEEE 1394 standard digital cables. Likewise, the zone bridge units 138 and 140 are coupled to a predetermined set of seat electronics units, preferably via an IEEE 1394 serial bus network. An IEEE 1394 serial bus network is therefore formed between the zone bridge units 138 and 140 and their respective seat electronics units for communicating with the system manager unit 114 and receiving data from the headend servers 100 through the ATM switch 116. Each zone bridge unit is coupled to the ATM switch 116 and to control multiple seat electronics units, including providing power and data to and from the seat electronics units. In the system of the preferred embodiment, each zone bridge unit is configured to control up to 50 seat electronics units. For illustration purposes, only a portion of the configuration of the zone bridge unit 140, relative to specific seat electronics units within its zone, is illustrated in Figure 1. It should be readily understood, that the remaining zone bridge units within the system and the remaining seat electronic unit ports of the zone bridge unit 140 will include similar configurations.

The zone bridge unit 140 is coupled to a repeater 144. The repeater 144 is coupled to a triple seat electronics unit 146. The triple seat electronics unit 146 is coupled to control and provide data to three sets of seat peripherals 150, 152 and 154. The triple seat electronics unit 146 is further coupled to a double seat electronics unit 148. The double seat electronics unit 148 is coupled to control and provide data to two sets of seat peripherals 156 and 158. The double seat electronics unit 148 is coupled to one or more additional seat electronics units 149, depending on the exact configuration of the aircraft. This exact configuration is representative only. Combinations of triple seat electronics units 146 and double seat electronics units 148 are used to cover numerous configurations of seats within the airplane's cabin, to allow an airline maximum flexibility to configure each individual aircraft.

Each set of seat peripherals 150, 152, 154, 156 and 158 include a seat video display, a passenger control unit and a passenger control handset and together with the controlling seat electronics unit effectively implement a personal computer, including

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internal memory, which receives content data based on the passenger's request, over the IEEE 1394 serial bus network. As will be described in detail below, communications between the seat electronics units, within this zone, and other components within the system are all transmitted using digital data through the ATM network switch 116 and the zone bridge unit 140. The seat electronics units then convert the digital data to analog data as necessary.

The zone bridge unit 140 is also coupled to a telephone interface circuit 160. Each telephone interface circuit 160 is coupled to a communications telephone unit 162, through which a passenger is connected to the aircraft's telephone system and is able to make an air to ground telephone call. Each of the passenger control handsets include a telephone handset. In the preferred embodiment, ten simultaneous telephone calls are permitted within a zone having 50 seat entertainment units.

The ATM switch unit 116 and the zone bridge units 138 and 140 together form a network distribution system 103. The network distribution system provides for and controls the delivery of data, such as stored content, code, application data, live content and control data, from the servers of the headend control system to the seat electronics units. The network distribution system also provides for and controls the delivery of data, such as, but not limited to, switch data, billing data and game data, from the seat electronics units to the servers of the headend control system. Between each of the components of the headend control system and the ATM switch 116, data is preferably transmitted in a digital format through fibre optic cables. Between each of the zone bridge units 138 and 140 and their respective seat electronics units 146 and 148, data is transmitted in a digital format through IEEE 1394 standard cables. Accordingly, an ATM network is formed between the components of the headend control system, the ATM switch 116 and the zone bridge units 138 and 140, while an IEEE 1394 serial bus network is formed between each zone bridge unit 138 and 140 and the seat electronics units to which it is coupled.

Data transmitted from the headend control system to the seats is sent over the ATM network, through the ATM switch 116 to the proper zone bridge unit 138 and 140, where it is adapted to the IEEE 1394 format and delivered to the proper seat electronics unit over the IEEE 1394 serial bus. Data sent from the seat electronics units to one of the headend servers or to the system manager unit travels over the IEEE 1394 serial bus to the

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appropriate zone bridge unit where it is adapted to the ATM network, sent to the ATM switch 116 and routed to the proper headend server. The IEEE standard. "P1394 Standard For A High Performance Serial Bus," Draft 8.01v1, June 16, 1995, is an international standard for implementing an inexpensive high-speed serial bus architecture which supports both asynchronous and isochronous format data transfers.

The passenger set of seat peripherals each provide passenger video display and audio listening capability. Each passenger is provided a control interface that includes a passenger control unit and preferably a handset. The passenger control handset preferably includes a telephone handset, a game controller, a content selection device and a credit card reader. The game controller provides an enhanced game interface. The credit card reader allows entry of billing information and provides security of payment for services and entertainment enjoyed by the passenger. While preferably the audio listening capability is provided through a conventional audio headset, alternatively, this capability can also be provided through a noise cancelling headset. Also, while preferably an LCD display is included within a passenger set of seat peripherals, other types of relatively light weight and relatively high brightness and definition displays are acceptable for use with the present invention, including, for example, goggle-type LCD displays such GLASTRON™ sold by Sony Corporation, Tokyo Japan.

The in-flight entertainment system of the present invention is designed to allow adaptability and flexibility in the configuration and design of the aircraft's cabin. The inclusion of the system interface unit 118, which interfaces to the overhead portion of the entertainment system allows the overhead system to be used in conjunction with or as a backup to the on-demand portion of the entertainment system of the present invention. This flexibility allows for the use of the video on demand entertainment system in one or more classes or zones of seats within the cabin and the use of the conventional overhead entertainment system in the remaining classes or zones of seats. Also, in the event of failure of the on-demand portion of the entertainment system, the overhead entertainment system is used as a backup to provide entertainment and other content features to the passengers.

In an alternate embodiment, illustrated in the block diagram of Figure 15A, only an overhead subsystem is implemented. This subsystem includes only the components necessary to provide entertainment through the overhead portion of the system. These

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components include the data server unit 102, the system manager unit 114, the system interface unit 118, the audio reproducer unit 120 and the attendant control panel 110, within the headend system 101. The subsystems also include the ATM switch 116, the zone bridge units 140, the seat electronics units 146 and the smart video display units 128 and 134 with either overhead monitors 130 and/or overhead projectors 136. In the implementation of this subsystem, each passenger set of seat peripherals includes only a passenger control unit 1104.

The modifications necessary to upgrade the subsystem of Figure 15A to a full video on demand system, according to the present invention, are illustrated in Figure 15B. These modifications are shown outlined in solid lines, while the components already included within the subsystem are shown in dotted lines. Within the headend system 101, these modifications include the addition of one or more media server units 106 and 108, and the addition of control boards within the data server unit 102, and MPEG encoder and decoder boards within the system interface unit 118. Within the ATM switch unit 116, the addition of network module boards is also required. A zone bridge module must also be added to each zone bridge unit 138. Each passenger set of seat peripherals must be upgraded to include the display unit 1102 and the passenger control handset 1108. Each seat electronics unit must be upgraded to include a daughter board. With these modifications, a subsystem, as illustrated in Figure 15A, can be upgraded to a full video on demand system, as illustrated in Figure 15B.

The interface couplings between the in-flight entertainment system 200 of the present invention and other existing systems within the aircraft are illustrated in Figure 2. The aircraft system and headend interface 202 is coupled to the in-flight entertainment system 200 by multiple audio signal lines, including the public address audio signal lines, the audio output from the video reproducer units and prerecorded announcement and boarding music (PRAM) audio. The aircraft system and headend interface 202 is also coupled to the in-flight entertainment system 200 by headend interface signals including public address related discrete control signals, decompression signals, configuration data signals, airplane mode signals and airplane operational discrete signals. A passenger service system (PSS) zone box 204 is coupled to the in-flight entertainment system 200 for communication of control signals related to the passenger service system. Signals from the aircraft's navigational system 206 are coupled to the in-flight entertainment system

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200. The aircraft's operating maintenance system 208 is coupled to the in-flight entertainment system 200 for providing communications related to the maintenance of the aircraft. The airline communication addressing response system (ACARS) 210 is also coupled to the in-flight entertainment system 200 for providing air to ground communications between the airline and the aircraft. The aircraft's cabin telecommunications unit 212 is also coupled to the in-flight entertainment system 200 for linking the telephone handsets at the seat electronics units to the aircraft's telephone system, thereby allowing passengers to make air to ground telephone calls from the aircraft, through a link to a satellite or through radios to the ground.

A detailed block diagram of the components within the media server units 106 and 108 is illustrated in Figure 3. A preferred media server is the Microsoft Media Server, available from Microsoft of Redmond, Washington. A control processor 300 is coupled to a data bus 302 for controlling communications and providing instructions within the media server unit. The data bus 302 may be configured as a Peripheral Component Interconnect (PCI) bus, an Industry Standard Architecture (ISA) bus or any other appropriate type of data bus. The control processor 300 is also coupled to a system hard drive 306, an internal random access memory (RAM) 304 and a temperature sensor which includes a fan control circuit 310. The temperature sensor and fan control circuit 310 is coupled to one or more fans 312 for controlling the temperature within the media server unit. The data bus 302 is coupled to an ATM network adapter 308. The ATM network adapter 308 is coupled to the ATM switch 116 for communicating over the ATM network with other components within the system. Preferably, the ATM network adapter 308 is coupled to the ATM switch 116 by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to couple the ATM network adapter 308 and the ATM switch 116. The data bus 302 is also coupled to one or more content disk drive adapters 318. Each content disk drive adapter 318 is coupled to one or more content disk drives 320 for storing data in and obtaining data from each of the content disk drives 320. The content disk drives 320 store audio and video content data to be accessed through the seat electronics units. A 115 volt, 400 Hertz, AC power line and a power disable keyline control signal are coupled to a power supply control circuit 314. The temperature sensor and fan control circuit 310 is also coupled to the power supply control circuit 314. The power supply control circuit 314 is coupled to a power supply circuit 316. The power supply circuit 316 is coupled to

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the temperature sensor and fan control circuit 310 and to the data bus 302 for providing power to the circuits within the media server unit.

A detailed block diagram of the components within the media controller server 104 and the data server 102 are illustrated in Figure 4. Within the preferred embodiment of the present invention, the media controller server 104 and the data server 102 are implemented within a single line replaceable unit. The data server unit 102 includes a control processor 400 which is coupled to a data bus 402 for controlling communications and providing instructions within the data server unit 102. The control processor 400 is also coupled to an internal RAM 408 and a system hard drive 404. The system hard drive 404 is coupled to a mirror hard drive 406 for providing redundancy and backup data. The data bus 402 is also coupled to an ATM network adapter 410. The ATM network adapter 410 is coupled to the ATM switch 116 for communicating over the ATM network. Preferably, the ATM network adapter 410 is coupled to the ATM switch 116 by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to couple the ATM network adapter 410 and the ATM switch 116.

A control processor 420 is coupled to a data bus 422 for controlling communications and providing instructions within the media controller unit 104. The control processor 420 is also coupled to an internal RAM 428 and a system hard drive 424. The system hard drive 424 is coupled to a mirror hard drive 426 for providing redundancy and backup data. In addition, the data bus 422 is coupled to an ATM network adapter 430. The ATM network adapter 430 is coupled to the ATM switch 116 for communicating over the ATM network with other components within the system. Preferably, the ATM network adapter 430 is coupled to the ATM switch 116 by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to coupled the ATM network adapter 430 and the ATM switch 116.

A 115 volt, 400 Hertz, AC power line and a power disable keyline control signal are coupled to a power supply control circuit 416. The power supply control circuit 416 is coupled to a power supply circuit 418. The power supply circuit 418 is coupled to the data bus 402, to the data bus 422 and to a temperature sensor and fan monitor circuit 412 for providing power to the circuits within the line replaceable unit including the data server unit 102 and the media controller unit 104. The temperature sensor and fan monitor circuit 412 is coupled to the control processor 400, to the control processor 420

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and to one or more fans 414 for controlling the temperature within the line replaceable unit. The temperature sensor and fan monitor circuit 412 is coupled to the power supply control circuit 416 to control the power if excessive temperature is detected.

A detailed block diagram of the components within the system manager unit 114 is illustrated in Figure 5. A control processor 500 is coupled to a backplane 502 through a data bus 510 for controlling communications and providing instructions to the components within the system manager unit 114. A power supply circuit 504 is also coupled to the backplane 502 for providing power to the components within the system manager unit 114. A power control circuit 519 is coupled to the power supply 504 and to the control processor 500, through the printer port 518. The control processor 500 is coupled to an internal RAM 506, a system hard drive 508 and a floppy disk drive 512. The control processor 500 is also coupled to a keyboard 524, through a keyboard interface circuit 522, to a maintenance port 208, through a RS-232 interface 516, and to a touch screen panel in a display 536, through a RS-232 interface 514. The backplane 502 is also coupled to an ATM network interface 526 by a PCI bus 528. The system manager unit 114 is coupled to the ATM switch 116 through the ATM network interface 526 for communications over the ATM network. The backplane 502 is also coupled to an MPEG video graphics adapter (VGA) interface 530 by a PCI bus 532. The MPEG VGA interface 530 is coupled to the system interface unit 118 for receiving audio and video input from the system interface unit. The MPEG VGA interface 530 is also coupled to the display 536 and to a set of audio headphones, through a display, headphone interface circuit 534 for communicating with an attendant.

The backplane 502 is further coupled to an Arinc 429 standard interface circuit 540, through an ISA bus 542, for communication with the systems within the aircraft, including the operational maintenance system, the navigational computer and the ACARS. The backplane 502 is also coupled to a RS-232 interface circuit 544, through an ISA bus 546, for communication with components of the attendant control panel 110, including a credit card and a receipt printer 520. The backplane 502 is also coupled to an Arinc 485 standard interface circuit 548, through an ISA bus 550, for communication with a cabin passenger management system (CPMS), a secondary attendant station, the aircraft's headend system and the passenger service system. The backplane 502 is also coupled to a

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power control keyline circuit 552. through an ISA bus 554, for providing power to disable keyline signals and coupling to other input/output keyline signals. The backplane 502 is further coupled to a SCSI-2 interface circuit 556, through a PCI bus 558, for coupling to and receiving data from a tape drive 560.

A detailed block diagram of the functional components and couplings of the system manager unit 114 and the attendant control panel 110 is illustrated in Figure 6. The system manager unit 114 includes multiple input/output devices, including a magnetic tape reader 606, a floppy disk drive 512 and a SCSI content loading interface 556 to which a tape drive or multiple tape drives can be connected to input content data to the in-flight entertainment system or to read data from the in-flight entertainment system. The attendant control panel 110 also includes multiple input/output devices, including a CD Rom drive 604, a credit card reader 602. one or more printers 520, a headphone port 538, a display 536 and a keyboard port 524. The keyboard which is coupled to the keyboard port 524 will preferably include an integral pointing device, such as a trackball. mouse or 'eraser head'. The credit card reader 602 allows attendants to read a passenger's credit card directly at the attendant station. Preferably, the credit card reader is part of the attendant control panel 110. A credit card receipt printer is used by an attendant to print a credit card receipt when a credit card is used by a passenger or entered by an attendant.

The display 536 is used by the attendant for menu navigation, through function or task menus, on the attendant control panel 110 and for movie previews. Preferably, the display 536 is a ten inch. liquid crystal display, having a resolution of 640 x 480 and incorporating active matrix color display technology. Additionally, the preferred embodiment of the display 536 includes a touch screen interface and function keys.

Content data, such as updated feature films and audio content, is loaded from a tape unit, onto the media servers 106, through the SCSI content loading interface 556 or the magnetic tape drive 606. This loading of content data onto the media servers is preferably performed while the aircraft is at the terminal being serviced. In this manner, an airline can maintain a portable tape drive system which is brought out to each aircraft during routine servicing, in order to update the content available through the in-flight entertainment system of the present invention. Preferably, the tape unit interface supports a minimum read throughput of 1.5 megabytes per second and the tape unit is SCSI-2 fast compatible. Alternatively, the system will include multiple tape unit interfaces, providing

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for concurrent loading of content data from multiple tape units. It should also be noted that the system of the present invention preferably, only allows content data to be uploaded into the system. In order to protect proprietary content programming and prevent unauthorized copying by unscrupulous persons, content data cannot be downloaded from the preferred embodiment of the system of the present invention.

Control data, used to configure and control the in-flight entertainment system, is loaded into the system through floppy disks read by the floppy disk drive 512 or through CD Roms read by the CD Rom drive 604. Preferably, the floppy disk drive 512 and the CD Rom drive 604 support a minimum read throughput of 500 kilobytes per second. Alternatively, control data can be loaded using any other available means, including an electronic data link.

A detailed block diagram of the system interface unit 118 is illustrated in Figure 7. A control processor 700 including memory is coupled to both a PCI bus 724 and an ISA bus 726 for communicating with the other components within the system interface unit 118. A hard disk drive 702 is also coupled to the control processor 700. A keyline interface circuit 706 is coupled to the ISA bus 726 to receive and send keyline control signals. An ATM network interface 704 is coupled to the ATM switch 116 and to the PCI bus 724, thereby allowing the system interface unit 118 to communicate over the ATM network. A first audio/video multiplexer 712 is coupled to receive both video and audio data from one or more video cameras positioned on the aircraft, the passenger flight information system, one or more video reproducer units and television signals. The first audio/video multiplexer 712 is also coupled to an MPEG encoder circuit 714 and to the ISA bus 726. The MPEG encoder circuit 714 is coupled to the PCI bus 724. A second audio/video multiplexer 710 is coupled to provide video signals to the one or more smart video distribution units and audio signals to a multiplexed audio interface. The second audio/video multiplexer 710 is also coupled to receive public address system audio signals. The second audio/video multiplexer 710 is further coupled to the first audio/video multiplexer 712, to an MPEG decoder circuit 708 and to the ISA bus 726. The MPEG decoder circuit 708 is coupled to the PCI bus 724. A power control and power supply circuit 716 is coupled to receive power control keyline signals and to provide power to the components within the system interface unit 118. An elapsed time indicator circuit 718 is coupled to the power control and power supply circuit 716, to a display 720 and to the

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ISA bus 726. An RS-485 standard interface circuit 722 is coupled to communicate with the video reproduce units. cameras and smart video distribution units. The RS-485 standard interface circuit 722 is also coupled to the ISA bus 726. The interfaces that are discussed above are explanatory only, and are related to the new standard aircraft interface. It will be apparent to one of ordinary skill in the art that other appropriate interfaces could be included.

A block diagram of the ATM switch circuit 116 is illustrated in Figure 8. A switch backplane 800 is coupled to one or more switch control processors 802. Each switch control processor 802 is coupled to one or more network modules 808. which each include multiple ATM network ports through which communications are transmitted and received. Each ATM port interfaces with an ATM network interface within a component of the system for directing communications over the ATM network. Each network module 808 preferably includes four ATM ports. The switch control processor 802 is also coupled to an RS-232 serial port 804. Alternatively, each switch control processor 802 is coupled to an ethernet port 806. A power control keyline signal is coupled to a power control circuit 812. The power control circuit 812 is coupled to a dual redundant power supply circuit 810. The power supply circuit 810 is coupled to receive a 115 volt AC, 400 Hertz, power line signal. The power supply circuit 810 is also coupled to the switch backplane circuit 800 for providing power to the components within the ATM switch circuit 116. A preferred ATM switch is available from Fore Systems of Warrendale, Pennsylvania. Alternatively, any appropriate ATM switch can be implemented.

The ATM switch 116 is the in-flight entertainment system's central switching fabric for the headend control system's ATM network. The ATM switch 116 is used for data switching between the components of the headend control system and the zone bridge units. The ATM switch 116 is also used for switch call processing and switch maintenance processing. The ATM switch 116 further provides power supply redundancy through the dual redundant power supply circuit 810.

A block diagram of a zone bridge unit is illustrated in Figure 9. An optical receiver link 902 is coupled to the ATM network for communicating over the network. Preferably, the optical receiver link 902 is coupled to the ATM network by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to couple the optical receiver link 902 to the ATM network. The optical receiver link 902 is coupled to an ATM

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segmentation and reassembly (SAR) device 904. The ATM SAR 904 is coupled to a control processor 906, to a memory circuit 908 and to a network link circuit 910 for communicating between the ATM network and the seat network. The network link circuit 910 is coupled to the seat network through a physical interface circuit 912 and for sending data to and receiving data from the seat electronic units within the zone. Overhead audio data is provided to the seat network through a buffer 914 within the zone bridge unit. A universal asynchronous receiver transmitter (UART) 916 is coupled to the passenger service system. The UART 916 is coupled to a control processor 920. to a memory circuit 922, to a digital signal processor 924 and to a buffer 918 for controlling communications between the passenger service system and the seat network. The buffer 918 is coupled to a combining circuit 926. Preferably, a CEPT-E1 standard circuit 930 is coupled to the aircraft's telephone system. The CEPT-E1 circuit 930 is coupled to the digital signal processor 924 and to a buffer 928 for controlling telephone communications from within the zone. Alternatively, any appropriate telecommunications link can be coupled to the aircraft's telephone system. The buffer 928 is coupled to the combining circuit 926. The combining circuit 926 is coupled to the seat network for controlling communications to and from the aircraft's passenger service system and telephone system.

A 115 volt, 400 Hertz, AC power line and a power disable keyline control signal are coupled to a power control circuit 940. The power control circuit 940 is coupled to the power supply circuit 942. The power control circuit 940 is coupled to seat electronics units within the zone for providing power signals to the seat electronics units.

Each of the zone bridge units bridge the high speed, fibre optic ATM network at the headend of the system to the IEEE 1394 serial bus seat distribution network for a particular zone within the aircraft. The zone bridge unit is responsible for managing the IEEE 1394 seat distribution network for a zone within the aircraft including the functions of IEEE 1394 bus management and IEEE 1394 bandwidth resource management. The zone bridge unit is further responsible for mapping IEEE 1394 addressing to ATM addressing as well as supporting broadcast and multicast functionality between the ATM network and the IEEE 1394 seat distribution network.

A block diagram of a triple seat electronics unit is illustrated in Figure 10. A peripheral interface 1000 is coupled to a system EEPROM 1002, to a buffer circuit 1004, to a buffer circuit 1012, to a passenger control unit for each of the three seat electronics

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units, to a video display bus and to a passenger service system, passenger address and telephone bus. The buffer circuit 1004 is coupled to a configuration EEPROM 1010, a RAM 1006 and a microcontroller circuit 1008. The buffer circuit 1012 is coupled to an ISA bus 1014 for each seat electronics unit controlled by the triple seat electronics box. The ISA bus 1014 for each seat electronics unit is coupled to a control processor/system DRAM, memory controller and bus bridge circuit 1016. The ISA bus 1014 for each seat electronics unit is also coupled to a MPEG decode and DRAM circuit 1020 and to an audio synthesizer 1022, including a wavetable ROM and audio DRAM. A graphics controller circuit 1018 is coupled between the control processor/system DRAM, memory controller and bus bridge circuit 1016 and the MPEG decode and DRAM circuit 1020. While, a triple seat electronics unit has been illustrated in Figure 10 for explanatory purposes, it should be apparent to those skilled in the art that a seat electronics unit could be implemented to provide an interface to any number of passenger sets of seat peripherals.

Each seat electronics unit provides the passenger electronics necessary to fully interface the features of the in-flight entertainment system of the present invention with the passenger at the seat. A block diagram of a seat electronics unit and accompanying peripherals is illustrated in Figure 11. The seat electronics unit 1100 is also coupled to up to three displays 1102 for providing video and graphics images to the passenger. Preferably, the display 1102 is an LCD. Alternatively, other types of relatively light weight and relatively high brightness and definition displays are acceptable for use with the present invention, including, for example, goggle-type LCD displays such GLASTRON™ sold by Sony Corporation, Tokyo Japan. The seat electronics unit 1100 is further coupled to up to three passenger control units 1104. The passenger control unit 1104 includes a modem jack to which a passenger's personal computer can be coupled. A headset 1106 is coupled to the passenger control unit 1104 for providing audio content to the passenger. While a conventional audio headset is preferred for use as the headset 1106, the audio headset 1106 can alternatively be a noise cancelling headset which includes a power connection to the headset in addition to the audio connections. A personal control handset 1108 is also coupled to the passenger control unit 1104. The personal control handset 1108 is coupled to the passenger control unit 1104 by a cord which is stored within and extends from the seat arm. A preferred passenger control

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handset 1108 includes an integral game controller, telephone handset and credit card reader. For additional details on one suitable embodiment of the passenger control handset 1108, see U.S. Patent No. 08/639,287, filed on April 25, 1996 and entitled An Integrated Electronic System Utilizing A Universal Interface To Support Telephone And Other Communication Services. The passenger control handset 1108 is used by the passenger to enter commands and data into the system. The seat electronics unit 1100 is coupled to the neighboring seat electronics units 1112 and 1114.

The seat video display 1102 provides the passenger with an LCD display for viewing personal entertainment data and information service data at their seat. Preferably, the seat video display 1102 is housed within a stowable seat display arm which is rotated out when in use and stored within an arm rest when not in use. Alternatively, the seat video display 1102 is located within the seatback or bulkhead in front of the passenger's seat. The viewing angle, high brightness and high contrast are characteristics which can be adjusted by a user in the preferred embodiment of the seat video display 1102. The data received by the seat electronics unit 1100, over the IEEE 1394 bus, is received in a digital format. Accordingly, the seat electronics unit 1100 includes one or more digital-to-analog converter circuits for converting the received digital data stream, representing the video and audio, to an analog data stream before it is transmitted to either the display 1102 or the headset 1106. While preferably the display is an LCD, other types of relatively light weight and relatively high brightness and definition displays are acceptable for use with the present invention, including, for example, goggle-type LCD displays such GLASTRON™ sold by Sony Corporation, Tokyo Japan. Also, while a conventional audio headset is preferred for use as the headset 1106, the audio headset 1106 can alternatively be a noise cancelling headset which includes a power connection to the headset in addition to the audio connection.

System configuration data is loaded from the floppy disk drive 512 of the system manager unit 114 or the CD Rom drive 604 of the attendant control panel 110 onto the data server 102, thereby forming a software configuration database. Once stored onto the data server 102, the software configuration database is writable to either the CD Rom drive 605 or to the floppy disk drive 512 for troubleshooting. If any configuration data is not loaded, is incorrectly loaded or loading is aborted, an error message will be displayed on the display 536 at the attendant control panel 110.

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The system configuration data includes specific cabin management data, expected system configuration, flight information data and billing system inputs. The specific cabin management data includes the data related to the overhead video selection and audio channel assignments, zone programming assignment and aircraft seat class assignment for the flight. The cabin management data also includes the data relating to customer menus and languages, including a greeting menu which is displayed with the airline's colors and logo. Alternatively, the cabin management data will also include the data for inventory management of meals, drinks and duty free items, as well as system usage statistics.

The expected system configuration data includes the data related to the specific hardware and software in use within the aircraft and the configuration of the hardware, including the number of seats, seat boxes, zones, servers and attendant stations and the specific seat arrangement. The flight information data contains the data on the passengers, including the passenger's names, where each passenger is sitting, their frequent flyer number, whether or not they are flying with a group and their pre-authorized spending account balances on the in-flight entertainment system. The billing system inputs include data on the billing system rates, currency exchange rates for international flights, prices of each product and service, list of free products and services and packages of products and services, an encrypted table of invalid credit card numbers and a list of statistics to be collected on use of the system during the flight.

Using the components of the system manager unit 114 and the attendant control panel 110, an attendant can obtain information from the in-flight entertainment system including maintenance data, passenger financial account data, passenger transaction log, system hardware and software identification, system content and configuration data, usage statistics, inventory management data and system error log files. This data can be loaded onto removable electronic media such as a floppy disk using the floppy disk drive 512 or onto a magnetic tape using the magnetic tape drive 606. Alternatively, this data can also be downloaded using an electronic data link. Again, it should be noted that the system of the present invention preferably allows content data to be only uploaded into the system. In order to protect proprietary content programming and prevent unauthorized copying by unscrupulous person, content data cannot be downloaded from the preferred embodiment of the system of the present invention.

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A block diagram showing the audio distribution paths of the entertainment system of the present invention is illustrated in Figure 12. The first audio distribution path 1220 is routed from the ATM network switch 116 to the headend servers 100 and to each of the zone bridge units 138, 140 and 1200. The second audio distribution path is routed from the system interface unit 118 to each of the zone bridge units 138, 140 and 1200. The first and second audio paths are then routed from the zone bridge units 1200, 1202 and 1204 to each seat electronics unit within the respective zones.

The first audio path is used to distribute audio content from the media servers 106 and 108 to the seat electronics units. The second audio path is used to distribute audio for the PA system and the overhead system to the seat electronics units. The second audio path is therefore provided to all seat electronics units within the aircraft. The first audio path is provided selectively to zones of the aircraft equipped with the video and audio on demand system. The seat electronics units within zones of the aircraft which are not equipped with the video and audio on demand system are only capable of receiving the audio content from the second audio path. The passengers in these zones will only receive video content from the overhead distribution system. The seat electronics units within zones of the aircraft that are equipped with the video and audio on demand system, are described in detail below, and are capable of receiving audio content from both the first and second audio paths. The seat electronics units within zones of the aircraft equipped with the video and audio on demand system include a display, an audio output, an input device, a telephone handset and a credit card reader, allowing a passenger to have access to audio and video on demand, video games, gambling, telephone service and information services, if implemented in a given embodiment. Seats which only receive audio content from the second path are not equipped with displays, but receive audio content through the second audio path and a set of headphones.

A block diagram showing the selective distribution of the first audio path is illustrated in Figure 13. The distribution of the audio paths are as described above in reference to Figure 12, with the exception that the first audio path is not provided to the zone 3 bridge unit 140 and the seat electronics units 1214 and 1216 coupled to the zone 3 bridge unit 1204. In this configuration, only the second audio path is provided to the zone 3 bridge unit 1204 and the seat electronics units 1214 and 1216 within that zone. In this

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manner, the first and second zones of the airplane, which could be first and business class, are provided with both the first and second audio paths. The third zone of the airplane, which could be economy class, is only provided with the second audio path. The passengers within the third zone will therefore only have access to the PA audio and entertainment audio provided from the system interface unit 118, while the passengers within the first and second zones will additionally have access to video and audio content from the media servers 106 and 108, as well as games and interactive services from the data server 102.

A block diagram showing an implementation of audio distribution within the subsystem of Figure 15A without on-demand features is illustrated in Figure 14. In this subsystem only the second audio path from the system interface unit 118 to the zone bridge units 138, 140 and 1200 and then to the seat electronics 1206, 1208, 1210, 1212, 1214 and 1216, is included.

DATA TRANSFERS TO THE SEAT ELECTRONICS UNITS

As described above, an IEEE 1394 network is formed between the zone bridge units and the seat electronics units for the communication of data within the zone. The IEEE standard, "P1394 Standard For A High Performance Serial Bus," Draft 8.01v1, June 16, 1995, is an international standard for implementing an inexpensive high-speed serial bus architecture which supports both asynchronous and isochronous format data transfers. Isochronous data transfers are real-time transfers which take place such that the time intervals between significant instances have the same duration at both the transmitting and receiving applications. Each packet of data transferred isochronously is transferred in its own time period. The IEEE 1394 standard bus architecture provides multiple channels for isochronous data transfer between applications. A six bit channel number is broadcast with the data to ensure reception by the appropriate application. This allows multiple applications to simultaneously transmit isochronous data across the bus structure. Asynchronous transfers are traditional data transfer operations which take place as soon as possible and transfer an amount of data from a source to a destination.

The IEEE 1394 standard provides a high-speed serial bus for interconnecting digital devices thereby providing a universal I/O connection. The IEEE 1394 standard defines a digital interface for the applications thereby eliminating the need for an application to

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convert digital data to analog data before it is transmitted across the bus. Correspondingly, a receiving application will receive digital data from the bus, not analog data, and will therefore not be required to convert analog data to digital data. Devices can be added and removed from an IEEE 1394 bus while the bus is active. If a device is so added or removed the bus will then automatically reconfigure itself for transmitting data between the then existing nodes. A node is considered a logical entity with a unique address on the bus structure. In the in-flight entertainment system of the present invention each seat electronic unit forms a node on the IEEE 1394 bus within its zone.

The in-flight entertainment system of the present invention provides both multicast and broadcast distribution of data to the seat electronics units in addition to the individualized streams of data supporting the video and audio on demand features. Multicast distribution of data is used to deliver common data, such as video from the observation camera or data from the passenger flight information system, to only those passengers who wish to receive it. Broadcast distribution of data is used to deliver public address announcement audio data and video content such as the safety video simultaneously to all of the seats. The broadcast data has priority over any other transfer of data on the network.

When transmitting the broadcast data, especially the safety video, it is important that all of the passengers within the aircraft receive the data stream simultaneously, in order that the video viewed by each passenger is synchronized to any live demonstrations by the flight attendants. Using the ATM network and the ATM switch 116, data broadcast through the ATM switch 116 is synchronized by setting up a multipoint to multipoint connection through the ATM switch 116. The ATM switch 116 combines the time multiplexed data stream coming in on several input ports of the distributed servers within the headend. The ATM switch 116 then copies the data to each output port coupled to a zone bridge unit. Thus, each zone bridge unit only receives a single copy of the broadcast data stream. The broadcast data stream passes through the zone bridge unit which routes the data to the seat network. The IEEE 1394 seat network then broadcasts this stream of data to each seat on each seat column output of the zone bridge unit. This secondary broadcast from the zone bridge unit uses a point to multipoint broadcast connection technique, with each seat electronics unit only seeing one copy of the data stream. This technique eliminates network bottlenecks and allows the server to broadcast a single data

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stream over an ATM network to all of the seat electronics units in synchronization. The few copies of the data stream within the network avoids flooding the network with stream copies guaranteeing a low distribution latency for the system. Using this multipoint to multipoint virtual channel connection between the headend servers and the seat electronics units, the entire aircraft can receive the same data stream in synchronization.

OPERATION OF THE VIDEO AND AUDIO ON DEMAND FUNCTIONS

The media controller 104 (Figure 1) is responsible for controlling the delivery of video and audio content data from the media servers 106 and 108 to a seat electronics unit. When a passenger selects a program for viewing or listening, a request is sent to the media controller 104. Once the media controller 104 receives such a request, a play slot is scheduled for the passenger. The media controller 104 then adds the passenger to the play schedule and sends a request to the media servers 106 to output data to the address of the passenger's seat electronics unit. Commands from the passenger, such as stop, pause, fast forward and rewind, are also sent to the media controller 104, which then modifies the play schedule for that passenger appropriately. The media controller 104 maintains a list of the available content on the media servers 106 and 108 which is updated whenever content on the media servers is changed.

Video content on the media servers is preferably stored in MPEG format, with support for multiple languages and subtitle information. The language or subtitle display is selected by the passenger via on screen menus when the video is initially selected. The content data is stored across multiple media servers. Each media server also stores a portion of each program as a redundant data block for fault recovery in the event a single disk should fail. Redundant data blocks are always stored on different media servers from the primary block. Should a disk fail, that part of a program which was stored on the failed disk can be retrieved from the redundant data blocks on the remaining servers.

To play a video or audio program, a passenger makes a selection at their passenger set of seat peripherals. This program request initiates a call setup to the media controller 104. The media controller 104 then schedules the program to be played with the media servers 106 and 108. A program connection to the passenger's set of seat peripherals consists of three virtual channels: one channel is used for transmission of the data stream; another channel is kept open for the transmission of control signals; and a third channel is

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kept open for ATM network management signals. The content data is read from the media servers 106 and 108 and sent to the ATM switch 116. At the ATM switch 116, the content data arrives on different ports from each media server. The ATM switch 116 then performs a multipoint to point recombination of the content data, thereby creating a single in-sequence data stream which is addressed to the passenger's seat electronics unit.

Content data streams for each seat electronics unit coupled to a zone bridge unit are sent from the ATM switch 116 to the zone bridge unit on a single ATM port, using multiple channels. At the zone bridge unit, the ATM cells for each seat electronics unit are reassembled and segmented into IEEE 1394 packets. The IEEE 1394 packets are then appended with the appropriate destination header and transmitted over the IEEE 1394 network to the appropriate seat electronics unit. At the seat electronics unit, the data is reassembled from the IEEE 1394 packets and sent to the applications within the appropriate passengers set of seat peripherals where the data is extracted from the headers and sent to the MPEG decoder for display.

The video on demand system of the present invention allows a passenger to fast forward and rewind a video program. Note, the term "rewind" is used to relate the present technology to the more familiar video tape technology. If video content is stored on a hard disk, in reality a new start address is selected. However, the form of read and write memory implemented is not critical to the system. These features are supported by only retrieving and displaying MPEG "I" frames which are extracted from the content data using the "I" frame index file, which is also derived from the content data. An MPEG "I" frame is a noncompressed full video frame within the MPEG stream which is used as a reference. When a passenger requests a pause of content, the system will pause all audio and video on demand content playback at the seat electronics unit. After the pause condition is removed, the audio or video content data stream will be resumed.

The audio on demand portion of the system of the present invention also allows a passenger to fast forward and rewind an audio program. Preferably, the in-flight entertainment system allows an airline to provide audio programming from either a jukebox style selection of audio programs, a conventional audio program or station format which plays a particular type of audio programs, or a list of compact disks which can be accessed by the passenger.

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The passenger will make selections from menus displayed on the monitor at the seat electronics unit. The passenger is able to point to and select on screen menu options through the use of a cursor control pad on the passenger control unit and a select button. Audio channels are selected from channel selector buttons on the passenger control unit or on screen menus.

OVERHEAD DISPLAY SYSTEM

The overhead display system is driven by the system interface unit 118. The system interface unit 118 drives each of the overhead monitors or projection system through a smart video display unit. Each smart video display unit preferably supports one or two monitor connections, a video feed through connection to another smart video display unit and an RS-485 multidrop digital control connection. The video content signal is driven baseband differential and is rebuffered in each of the smart video display units.

Each smart video display unit group distributes three independent video channels for a total of six videos per system. Video channels are assigned to a specific aircraft zone. Each smart video display unit is instructed which video channel is selected for each display via the RS-485 interface. The system interface unit 118 has a video multiplexer circuit for each of the three outputs. The multiplexer inputs are two video tape recorder channels, one camera channel, one airshow channel, one spare input and a digital video channel. The audio data corresponding to the overhead video data is broadcast for distribution to the passengers at the seats through the audio distribution system, as described above. This audio data is broadcast through the second audio path, from the system interface unit 118 through the zone bridge units 138, 140 and 1200 and then to the seat electronics units. The passengers ultimately receive this audio data from the second audio path, through a set of headphones.

The audio distribution system is used for distribution of public address audio, overhead display system audio and entertainment audio. This audio data is distributed to the seats through the second audio path. The system interface unit 118 is responsible for multiplexing the audio sources to the audio outputs. The public address audio inputs are set up for eight different public address zones, whereby audio messages can be selectively sent to predetermined zones within the aircraft.

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The in-flight entertainment system of the present invention will pause all video, audio, game and information services during a cabin wide announcement over the public address system. The system will issue public address override signals upon detection of a public address condition. The system interface unit 118 provides indication of the public address override condition to the seat electronics units and to the attendant control panel 110 within the effected zones via the ATM and IEEE 1394 networks, as well as via the second audio path. The seat electronics units will override entertainment audio with public address audio upon receiving a public address override command.

In this manner, as described above, the in-flight entertainment system of the present invention is used to provide flexibility of entertainment options within an aircraft's cabin by combining use of the seat electronics units and the overhead display system on a zone-by-zone basis. The overhead display system is also used as a backup to the seat electronics units. The audio/video on demand features of the in-flight entertainment system are fully interactive, allowing a passenger to stop, pause, fast forward and rewind, as desired. This allows a passenger to leave their seat and return, without missing a portion of their selected entertainment feature. In contrast to other in-flight entertainment systems, the in-flight entertainment system of the present invention also interfaces with other aircraft systems, allowing the crew or flight attendants to fully monitor the status of the aircraft's systems, as well as enter and extract data relating to inventory management and specific usage patterns of the in-flight entertainment system by the passengers.

The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be apparent to those skilled in the art that modifications may be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention. For example, while an ATM network and IEEE 1394 serial bus network have been chosen for use in the preferred embodiment, it will be apparent that other types of networks could alternatively be used for communications between the components of the in-flight entertainment system of the present invention. It will also be apparent that the entertainment system of the present invention can also be readily adapted for operation in

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environments other than aircraft, including but not limited to other transportation modes, e.g. train, bus, ferry and cruise ship.

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CLAIMS

We Claim:

1. A passenger entertainment system for providing content upon request to one or more users, comprising:

a. one or more control sets coupled together to form a first network, each control set for accessing the content programs and including a display, an audio output and an input device for entering controls;

b. one or more media servers for storing the content programs;

c. a routing device coupled to the one or more media servers, thereby forming a second network, and to the one or more control sets for routing content and control communications between the media servers and the control sets over the first and second networks; and

d. a media controller coupled to the one or more media servers and to the routing device for controlling and scheduling communications from the media servers to the control sets.

2. The entertainment system as claimed in claim 1 further comprising an overhead display system and a system interface unit, wherein the system interface unit is coupled to the routing device and to the overhead display system for controlling playing of programs on the overhead display system.

3. The entertainment system as claimed in claim 2 further comprising one or more video content players and one or more audio content players coupled to the system interface unit for presenting video and audio content via the overhead display system.

4. The entertainment system as claimed in claim 3 further comprising a first audio path from the routing device to a predetermined number of the control sets for providing on-demand audio content from the media servers and a second audio path from the system interface unit to the control sets for providing overhead system audio content.

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5. The entertainment system as claimed in claim 1 wherein each control set further comprises a telephone handset.

6. The entertainment system as claimed in claim 5 further comprising a card reader for securing payment by one of a credit card, a smart card and a debit card, from a user for content played and telephone calls made on one of the control sets.

7. The entertainment system as claimed in claim 1 further comprising one or more zone bridge units each coupled within the first network to a predetermined number of the control sets and to the routing device for routing communications from the routing device to an appropriate one or more of the control sets and also for routing communications from the control sets to components within the second network through the routing device.

8. The entertainment system as claimed in claim 7 wherein certain predetermined content programs are simultaneously broadcast through the first and second networks to the overhead display system and to the control sets.

9. The entertainment system as claimed in claim 8 wherein the first network is an IEEE 1394 serial bus network.

10. The entertainment system as claimed in claim 9 wherein the second network is an ATM network coupled together by fibre optic cables.

11. The entertainment system as claimed in claim 1 wherein each user with access to a control set has the ability to select content to be played at the control set, and further wherein the user has the ability to stop, pause, fast forward and rewind the selected content.

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12. An entertainment system for providing selected content to one or more users, comprising:

a. a first network which operates according to a first network protocol, the first network for storing and retrieving content data, wherein the content data is collected into a plurality of data sets;

b. a second network which operates according to a second network protocol, the second network having a plurality of nodes, each node configured for control by an individual user to select one of the data sets; and

c. an interface coupled between the first network and the second network for transmitting a request for a data set from a requesting node within the plurality of nodes to the first network and for transmitting the data set from the first network to the node at a time selected by the individual user and for selectively transmitting a common data set simultaneously to all the nodes.

13. The entertainment system as claimed in claim 12 wherein the first network includes one or more media servers.

14. The entertainment system as claimed in claim 13 wherein each of the plurality of nodes is an individual user control set including a display, an audio output and an input device for entering controls, and further wherein a user selects, controls and plays one of the data sets through a control set.

15. The entertainment system as claimed in claim 14 wherein each input device further comprises a telecommunications interface for personal telephone functions.

16. The entertainment system as claimed in claim 14 further comprising an overhead display system and a system interface unit, wherein the system interface unit is coupled to the interface and to the overhead display system for controlling playing of content on the overhead display system.

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17. The entertainment system as claimed in claim 16 further comprising one or more video content players and one or more audio content players coupled to the system interface unit for presenting video and audio content via the overhead display system.

18. The entertainment system as claimed in claim 17 further comprising a first audio path from the interface to a predetermined number of the control sets for providing on-demand audio content from the media servers and a second audio path from the system interface unit to the control sets for providing overhead system audio content.

19. The entertainment system as claimed in claim 17 wherein the media servers and the system interface unit are coupled within the first network.

20. The entertainment system as claimed in claim 19 further comprising one or more zone bridge units each coupled to the interface and to a predetermined number of the control sets, wherein together the zone bridge units and the control sets are coupled within the second network.

21. The entertainment system as claimed in claim 20 wherein the first digital network is an ATM network and the second digital network is an IEEE 1394 serial bus network.

22. The entertainment system as claimed in claim 20 further comprising a media controller coupled to the first digital network for controlling and scheduling communications from the first digital network to the second digital network.

23. The entertainment system as claimed in claim 22 wherein each control set includes a digital to analog conversion circuit for converting communications received over the second digital network to analog signals. as necessary for appropriately controlling operation of the display and audio output.

24. The entertainment system as claimed in claim 23 wherein the selected content includes video programs, audio, games and information services.

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25. The entertainment system as claimed in claim 24 wherein each control set further comprises a telephone handset.

26. The entertainment system as claimed in claim 25 further comprising a card reader for securing payment by one of a credit card, a smart card and a debit card. from a user for content played and telephone calls made on one of the control sets.

27. An in-flight entertainment system for providing selected content to one or more passengers on an aircraft during flight, comprising:

a. one or more media servers for storing predetermined content data;

b. a system manager unit and attendant control panel through which the entertainment system is controlled and through which content data is loaded for storage on the one or more media servers:

c. a system interface unit for interfacing to existing systems on the aircraft and to an overhead display system;

d. a network switch coupled to the one or more media servers, to the system manager unit and attendant control panel and to the system interface unit thereby forming a first network, wherein the network switch routes communications to and from the one or more media servers, the system manager unit and attendant control panel and the system interface unit;

e. one or more passenger control sets through which a passenger selects, controls and plays specific content data. each passenger control set including a display, an audio output and a keypad for entering data: and

f. one or more zone bridge units each coupled to the network switch and to a predetermined number of the one or more passenger control sets thereby forming a second network, wherein the zone bridge units route communications from the network switch to an appropriate one of the one or more passenger control sets and from the passenger control sets through the network switch.

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28. The in-flight entertainment system as claimed in claim 27 wherein the first network is a digital ATM network and the media servers, system manager unit and attendant control panel, system interface unit and the network switch are coupled together by fibre optic cables.

29. The in-flight entertainment system as claimed in claim 28 wherein the second network is a digital IEEE 1394 serial bus network and the zone bridge units and the passenger control sets are all coupled together by IEEE 1394 cables and further wherein the zone bridge units are coupled to the network switch by fibre optic cables.

30. The in-flight entertainment system as claimed in claim 29 wherein all communications across both the first and second networks are digital and the passenger control sets each include a conversion circuit for converting communications from digital to analog as necessary.

31. The in-flight entertainment system as claimed in claim 29 wherein the selected content includes video programs, audio, games and information services.

32. The in-flight entertainment system as claimed in claim 31 wherein the selected content further includes shopping and gambling services.

33. The in-flight entertainment system as claimed in claim 31 wherein each passenger with access to a passenger control set has the ability to select content to be played at the passenger control set, and further wherein the passenger has the ability to stop, pause, fast forward and rewind the selected content.

34. The in-flight entertainment system as claimed in claim 33 wherein certain predetermined content programs are simultaneously broadcast through the first and second networks to the overhead display system and to the passenger control sets for simultaneous playing for all passengers within one or more zones of the aircraft.

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35. The in-flight entertainment system as claimed in claim 34 further comprising a media controller coupled to the first network for controlling and scheduling content data streams from the media servers to the passenger control sets, wherein a content data stream is rescheduled when one of a stop, pause, fast forward and rewind command is received.

36. The in-flight entertainment system as claimed in claim 27 further comprising a first audio path from the network switch to a predetermined number of the passenger control sets through appropriate zone bridge units for providing on-demand audio content from the media servers and a second audio path from the system interface unit to all of the passenger control sets through the zone bridge units for providing PA audio content and overhead audio content to the passenger control sets.

37. The in-flight entertainment system as claimed in claim 27 wherein each passenger control set further comprises a telephone handset for making air to ground telephone calls.

38. The in-flight entertainment system as claimed in claim 37 further comprising a card reader and a receipt printer for securing payment by one of a credit card, smart card and debit card, for content played and telephone calls made by a passenger.

39. A passenger entertainment system for providing selected content to one or more passengers, comprising:

a. a first means for storing content;

b. a plurality of means for accessing content, each for use by passengers for accessing content and information, the plurality of means for accessing content coupled within a first network;

c. means for routing communications coupled to the first means for storing content within a second network, and to the plurality of means for accessing content for routing content between the first means for storing content and the plurality of means for accessing content over the first and second

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networks; and

d. means for controlling coupled to the first means for storing content and to the means for routing communications for controlling and scheduling delivery of content from the first means for storing content to the plurality of means for accessing content.

40. The passenger entertainment system as claimed in claim 39 further comprising a means for displaying and a means for interfacing, wherein the means for interfacing is coupled to the means for routing and to the means for displaying for controlling the display of content on the means for displaying.

41. The passenger entertainment system as claimed in claim 40 further comprising a second means for storing content coupled to the means for interfacing for providing content from the second means for storing content via the means for displaying.

42. The passenger entertainment system as claimed in claim 41 wherein the means for displaying is an overhead display system and further wherein the second means for storing content stores and provides both video and audio content via the overhead display system.

43. The passenger entertainment system as claimed in claim 42 wherein each of the plurality of means for accessing content includes a display, an audio output and an input device.

44. The passenger entertainment system as claimed in claim 43 wherein the first network is an IEEE 1394 serial bus network.

45. The passenger entertainment system as claimed in claim 44 wherein the second network is an ATM network coupled together by fibre optic cables.

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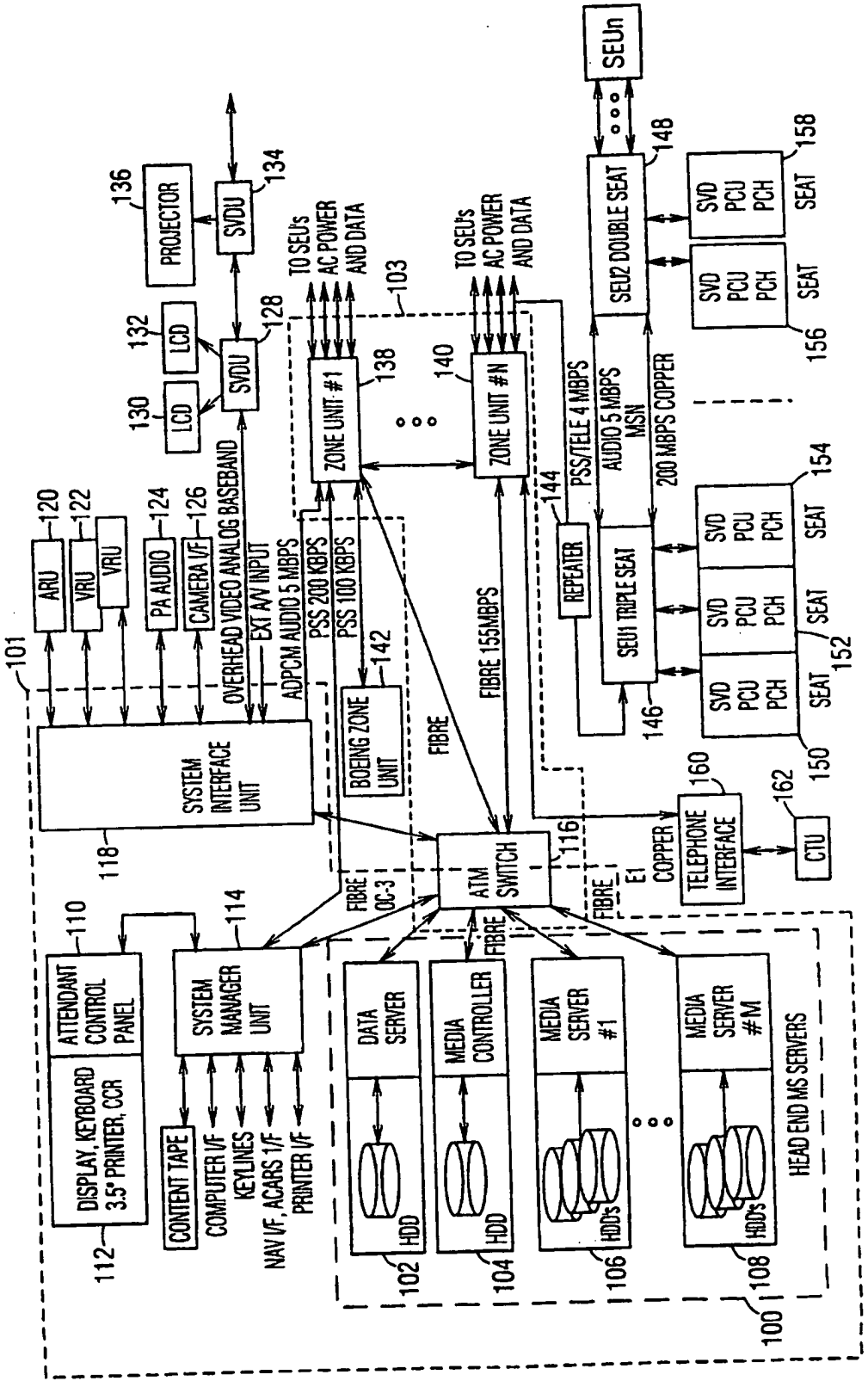

HEAD END MS SERVERS
100
DISPLAY, KEYBOARD 3.5" PRINTER, CCR
112
ATTENDANT CONTROL PANEL
110
CONTENT TAPE
COMPUTER I/F
KEYLINES
NAV I/F, ACARS I/F
PRINTER I/F
SYSTEM MANAGER UNIT
114
DATA SERVER
HDD
102
MEDIA CONTROLLER
HDD
104
MEDIA SERVER #1
HDDs
106
MEDIA SERVER #M
HDDs
108
ATM SWITCH
116
FIBRE
OC-3
FIBRE
FIBRE
E1
COPPER
TELEPHONE INTERFACE
160
CTU
162
SYSTEM INTERFACE UNIT
118
ARU
120
VRU
122
VRU
PA AUDIO
124
CAMERA I/F
126
OVERHEAD VIDEO ANALOG BASEBAND
EXT A/V INPUT
ADPCM AUDIO 5 MBPS
PSS 200 KBPS
PSS 100 KBPS
BOEING ZONE UNIT
142
FIBRE
FIBRE 155MBPS
101
PROJECTOR
136
SVDU
134
LCD
132
LCD
130
SVDU
128
TO SEUs AC POWER AND DATA
103
ZONE UNIT #1
138
ZONE UNIT #N
140
TO SEUs AC POWER AND DATA
REPEATER
144
PSS/TELE 4 MBPS
AUDIO 5 MBPS MSN
200 MBPS COPPER
SEU1 TRIPLE SEAT
146
SEU2 DOUBLE SEAT
148
SEUn
SVD PCU PCH
SEAT
150
SVD PCU PCH
SEAT
152
SVD PCU PCH
SEAT
154
SVD PCU PCH
SEAT
156
SVD PCU PCH
SEAT
158

Fig. 1

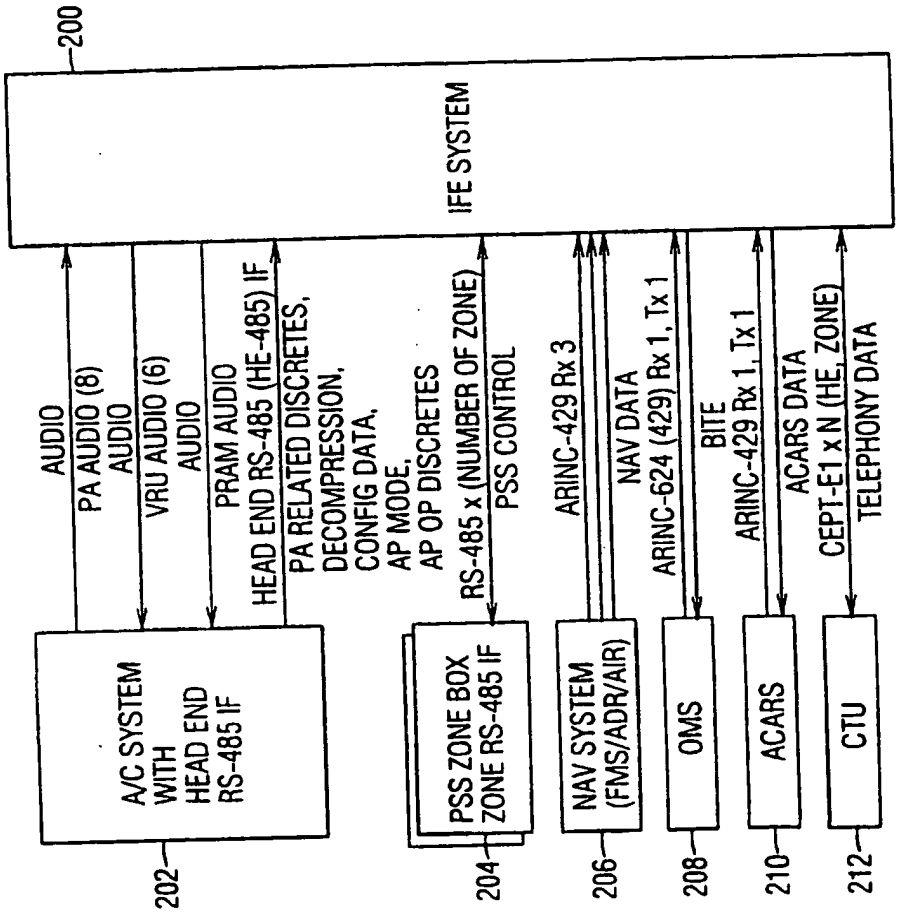

200
IFE SYSTEM
AUDIO
PA AUDIO (8)
AUDIO
VRU AUDIO (6)
AUDIO
PRAM AUDIO
HEAD END RS-485 (HE-485) IF
PA RELATED DISCRETES,
DECOMPRESSION,
CONFIG DATA,
AP MODE,
AP OP DISCRETES
RS-485 x (NUMBER OF ZONE)
PSS CONTROL
ARINC-429 Rx 3
NAV DATA
ARINC-624 (429) Rx 1, Tx 1
BITE
ARINC-429 Rx 1, Tx 1
ACARS DATA
CEPT-E1 x N (HE, ZONE)
TELEPHONY DATA
A/C SYSTEM
WITH
HEAD END
RS-485 IF
PSS ZONE BOX
ZONE RS-485 IF
NAV SYSTEM
(FMS/ADR/AIR)
OMS
ACARS
CTU
202
204
206
208
210
212

Fig. 2

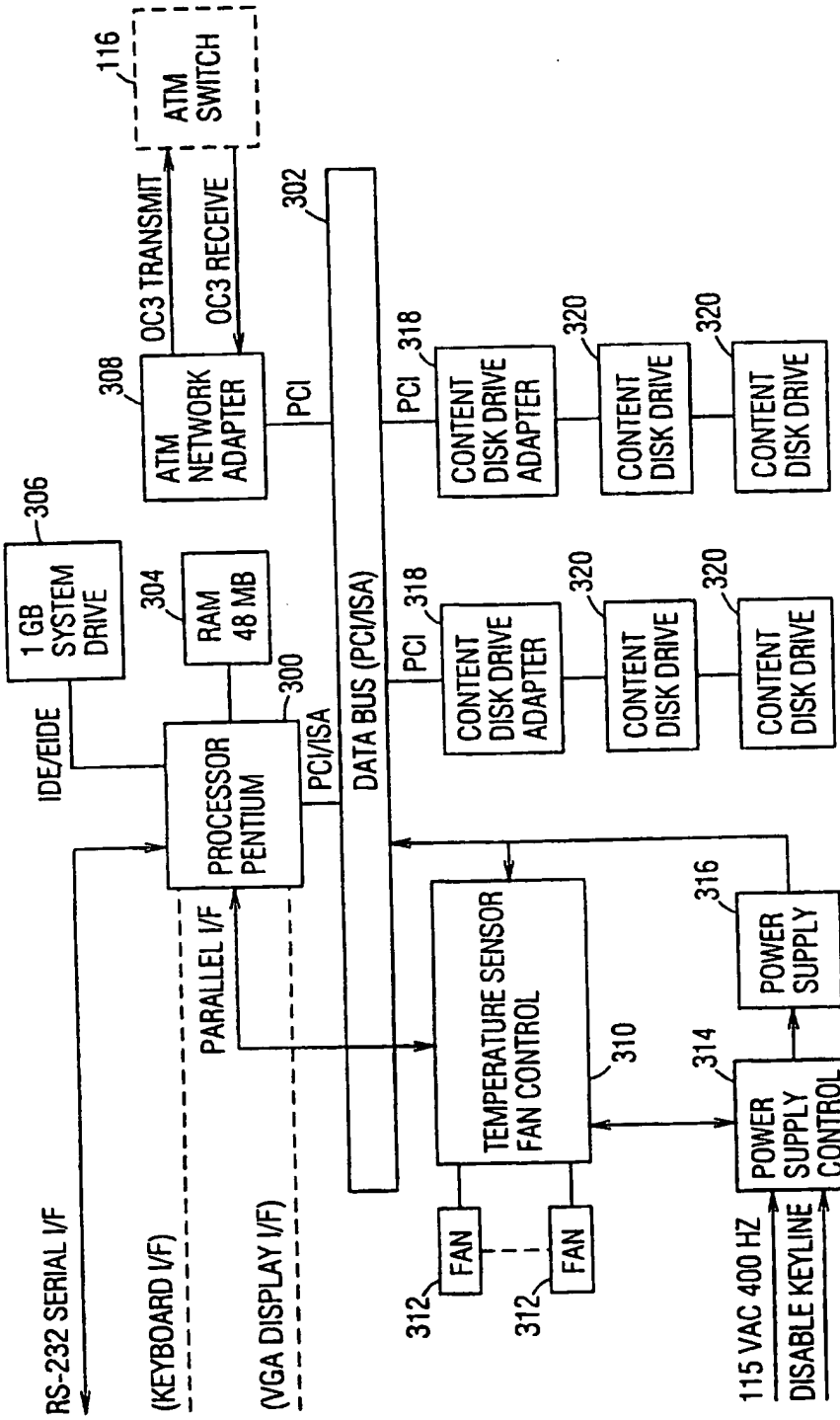

116
ATM SWITCH
OC3 TRANSMIT
OC3 RECEIVE
308
ATM NETWORK ADAPTER
PCI
302
DATA BUS (PCI/ISA)
PCI
318
CONTENT DISK DRIVE ADAPTER
320
CONTENT DISK DRIVE
320
CONTENT DISK DRIVE
306
1 GB SYSTEM DRIVE
304
RAM 48 MB
300
PROCESSOR PENTIUM
PCI/ISA
IDE/EIDE
PARALLEL I/F
RS-232 SERIAL I/F
(KEYBOARD I/F)
(VGA DISPLAY I/F)
TEMPERATURE SENSOR FAN CONTROL
310
316
POWER SUPPLY
314
POWER SUPPLY CONTROL
312
FAN
312
FAN
115 VAC 400 HZ
DISABLE KEYLINE

Fig. 3

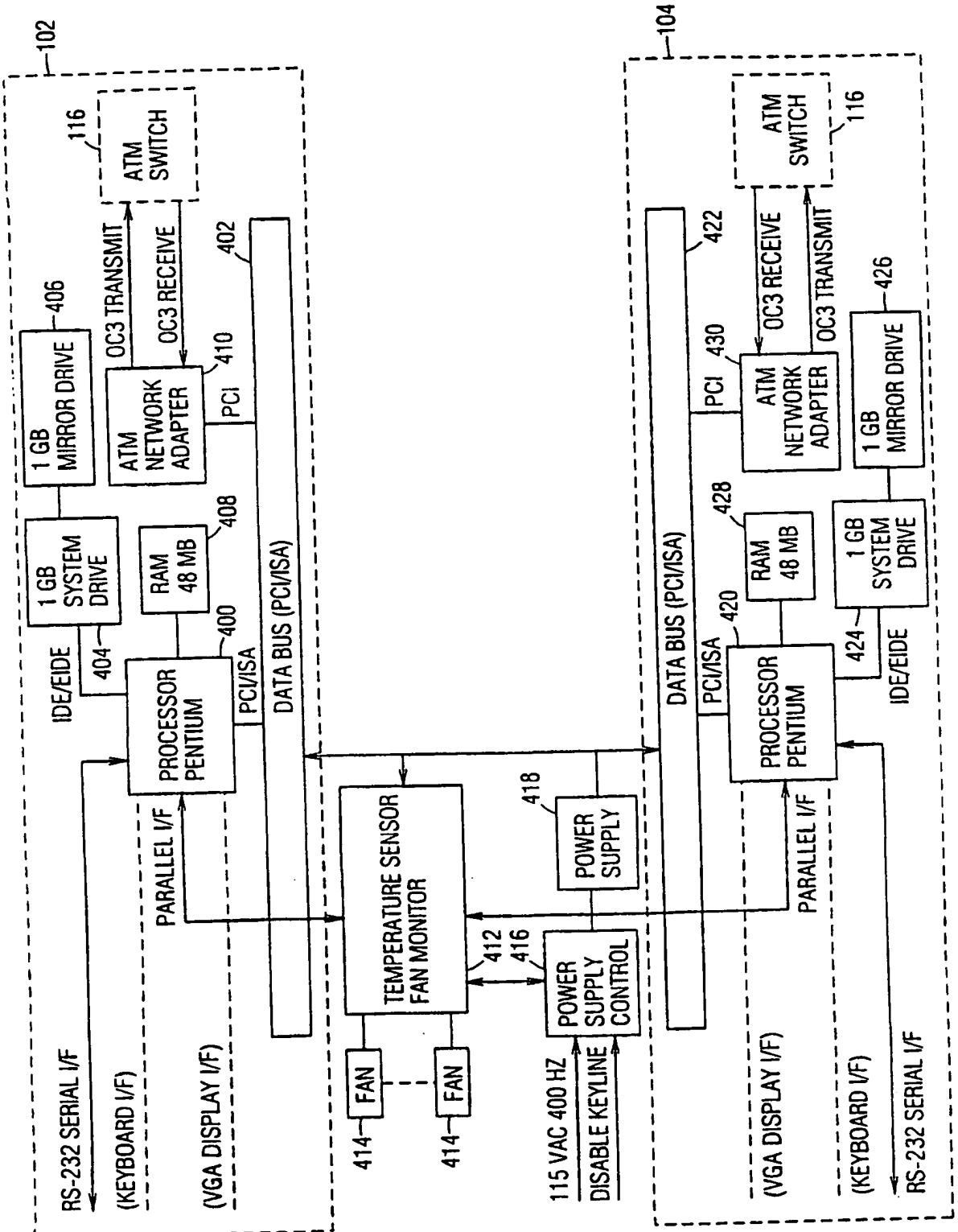

102
104
116
ATM SWITCH
406
1 GB MIRROR DRIVE
OC3 TRANSMIT
OC3 RECEIVE
ATM NETWORK ADAPTER
410
PCI
402
DATA BUS (PCI/ISA)
1 GB SYSTEM DRIVE
404
IDE/EIDE
RAM 48 MB
408
400
PROCESSOR PENTIUM
PCI/ISA
PARALLEL I/F
RS-232 SERIAL I/F
(KEYBOARD I/F)
(VGA DISPLAY I/F)
TEMPERATURE SENSOR FAN MONITOR
412
416
FAN
414
418
POWER SUPPLY
POWER SUPPLY CONTROL
115 VAC 400 HZ
DISABLE KEYLINE
422
430
428
420
424
426

Fig. 4

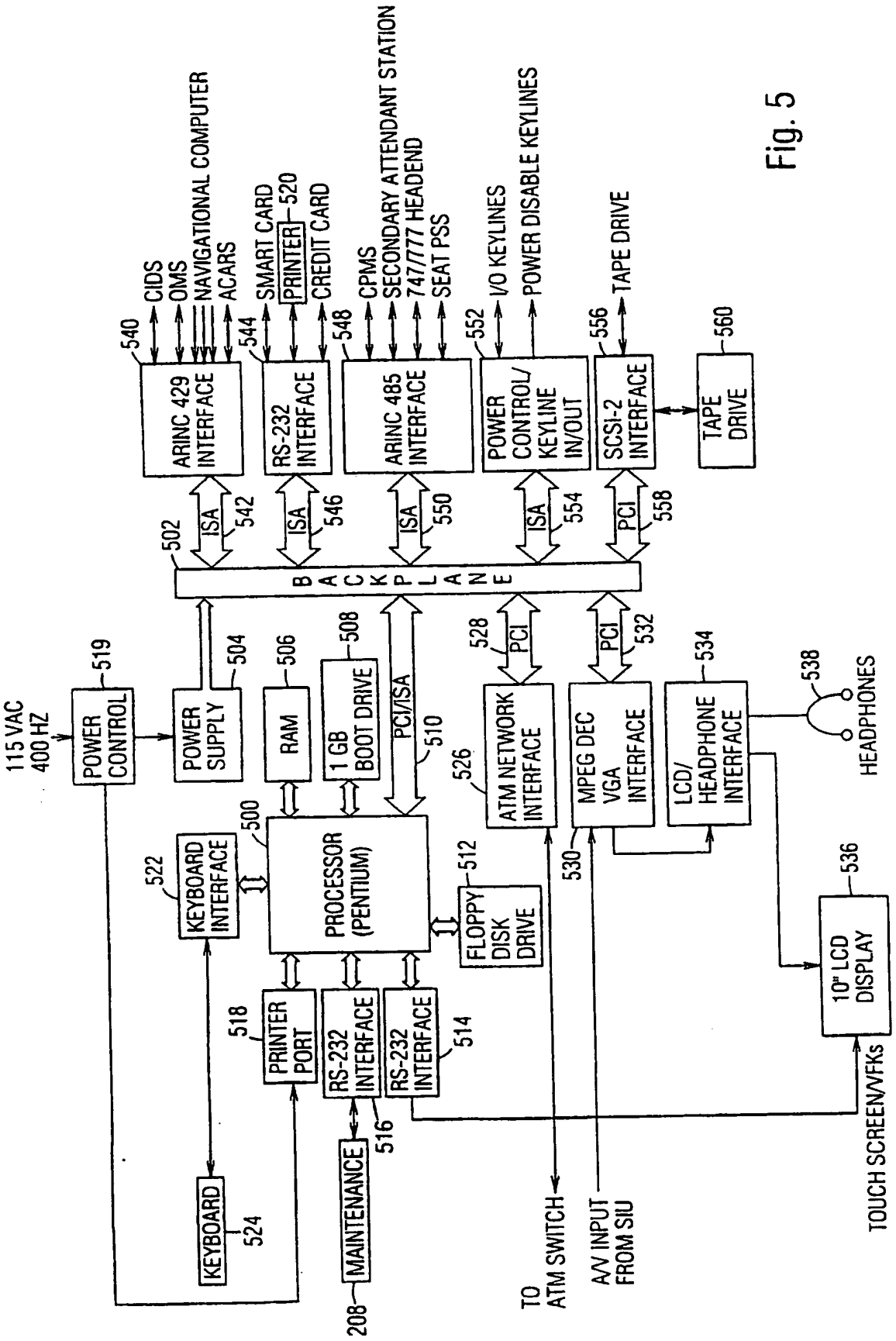

115 VAC 400 HZ
POWER CONTROL
519
POWER SUPPLY
504
RAM
506
1 GB BOOT DRIVE
508
PCI/ISA
510
BACKPLANE
502
ISA
542
ISA
546
ISA
550
ISA
554
PCI
558
ARINC 429 INTERFACE
540
CIDS
OMS
NAVIGATIONAL COMPUTER
ACARS
RS-232 INTERFACE
544
SMART CARD
PRINTER
520
CREDIT CARD
ARINC 485 INTERFACE
548
CPMS
SECONDARY ATTENDANT STATION
747/777 HEADEND
SEAT PSS
POWER CONTROL/ KEYLINE IN/OUT
552
I/O KEYLINES
POWER DISABLE KEYLINES
SCSI-2 INTERFACE
556
TAPE DRIVE
TAPE DRIVE
560
PCI
528
PCI
532
ATM NETWORK INTERFACE
526
MPEG DEC VGA INTERFACE
530
LCD/ HEADPHONE INTERFACE
534
HEADPHONES
538
KEYBOARD INTERFACE
522
PROCESSOR (PENTIUM)
500
FLOPPY DISK DRIVE
512
10" LCD DISPLAY
536
PRINTER PORT
518
RS-232 INTERFACE
RS-232 INTERFACE
514
516
KEYBOARD
524
MAINTENANCE
208
TO ATM SWITCH
A/V INPUT FROM SIU
TOUCH SCREEN/VFKs

Fig. 5

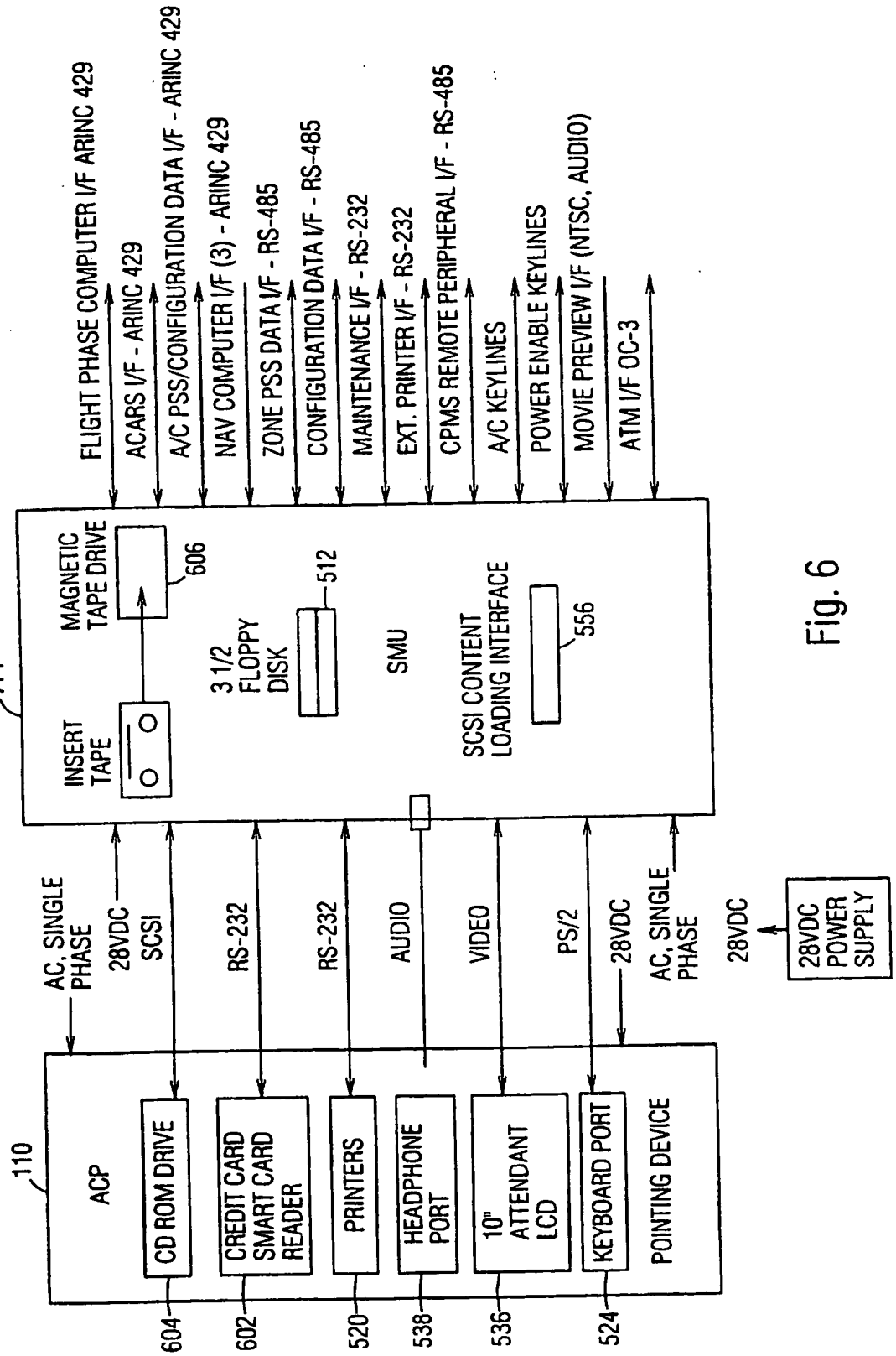

FLIGHT PHASE COMPUTER I/F ARINC 429
ACARS I/F - ARINC 429
A/C PSS/CONFIGURATION DATA I/F - ARINC 429
NAV COMPUTER I/F (3) - ARINC 429
ZONE PSS DATA I/F - RS-485
CONFIGURATION DATA I/F - RS-485
MAINTENANCE I/F - RS-232
EXT. PRINTER I/F - RS-232
CPMS REMOTE PERIPHERAL I/F - RS-485
A/C KEYLINES
POWER ENABLE KEYLINES
MOVIE PREVIEW I/F (NTSC, AUDIO)
ATM I/F OC-3
114
MAGNETIC TAPE DRIVE
606
INSERT TAPE
3 1/2 FLOPPY DISK
512
SMU
SCSI CONTENT LOADING INTERFACE
556
AC, SINGLE PHASE
28VDC
SCSI
RS-232
RS-232
AUDIO
VIDEO
PS/2
28VDC
AC, SINGLE PHASE
28VDC
28VDC POWER SUPPLY
110
ACP
CD ROM DRIVE
CREDIT CARD SMART CARD READER
PRINTERS
HEADPHONE PORT
10" ATTENDANT LCD
KEYBOARD PORT
POINTING DEVICE
604
602
520
538
536
524

Fig. 6

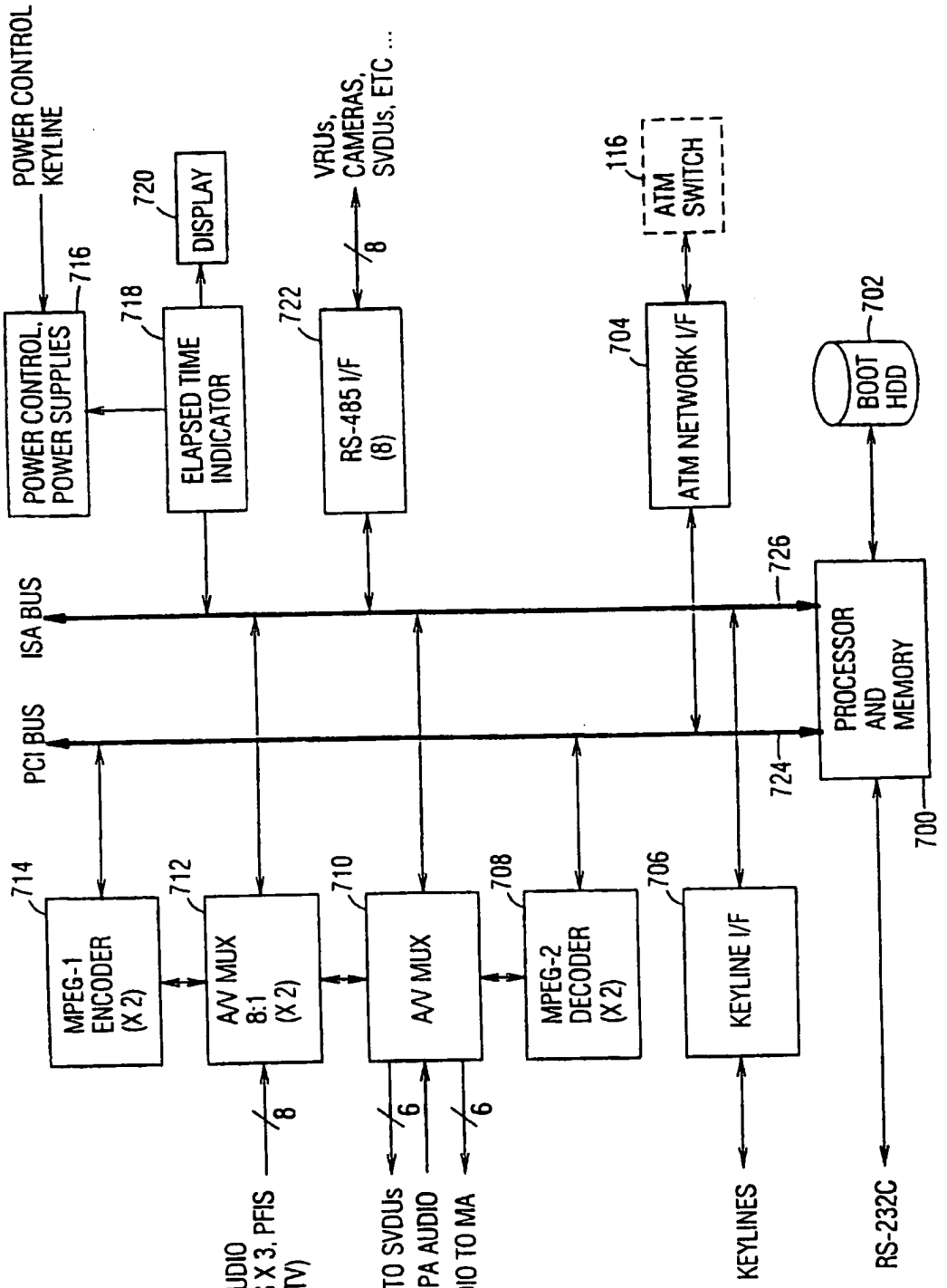

POWER CONTROL
KEYLINE
716
POWER CONTROL, POWER SUPPLIES
718
ELAPSED TIME INDICATOR
720
DISPLAY
722
RS-485 I/F (8)
VRUs, CAMERAS, SVDUs, ETC ...
8
116
ATM SWITCH
704
ATM NETWORK I/F
702
BOOT HDD
ISA BUS
726
PCI BUS
PROCESSOR AND MEMORY
724
700
714
MPEG-1 ENCODER (X 2)
712
A/V MUX 8:1 (X 2)
710
A/V MUX
708
MPEG-2 DECODER (X 2)
706
KEYLINE I/F
8
6
6
VIDEO & AUDIO (CAMERAS X 3, PFIS VRUs X 3, TV)
VIDEO TO SVDUs
PA AUDIO
AUDIO TO MA
KEYLINES
RS-232C

Fig. 7

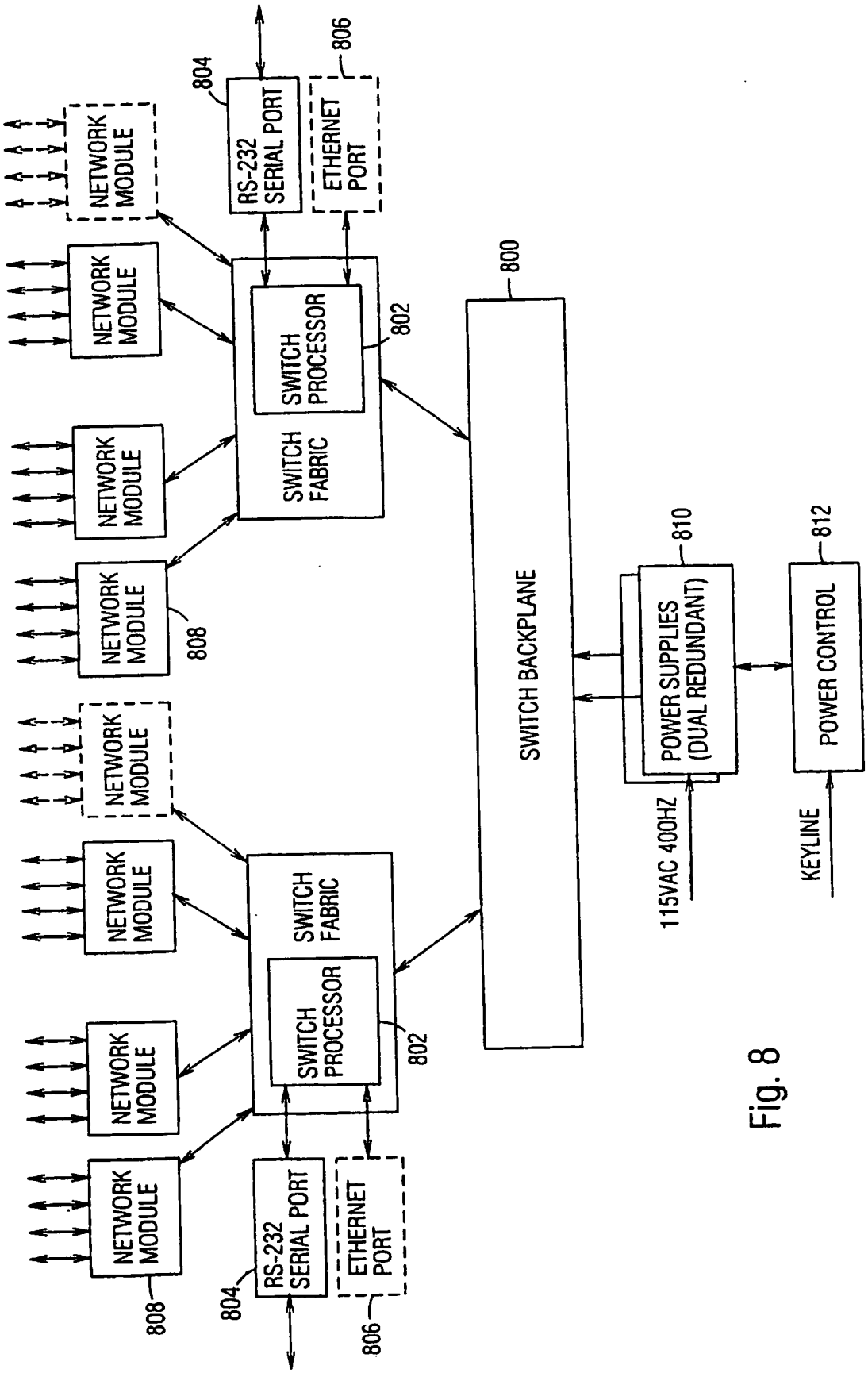

NETWORK MODULE
NETWORK MODULE
NETWORK MODULE
NETWORK MODULE
808
NETWORK MODULE
NETWORK MODULE
NETWORK MODULE
NETWORK MODULE
808
804
RS-232 SERIAL PORT
806
ETHERNET PORT
SWITCH PROCESSOR
802
SWITCH FABRIC
SWITCH PROCESSOR
802
SWITCH FABRIC
804
RS-232 SERIAL PORT
806
ETHERNET PORT
800
SWITCH BACKPLANE
810
POWER SUPPLIES (DUAL REDUNDANT)
812
POWER CONTROL
115VAC 400HZ
KEYLINE

Fig. 8

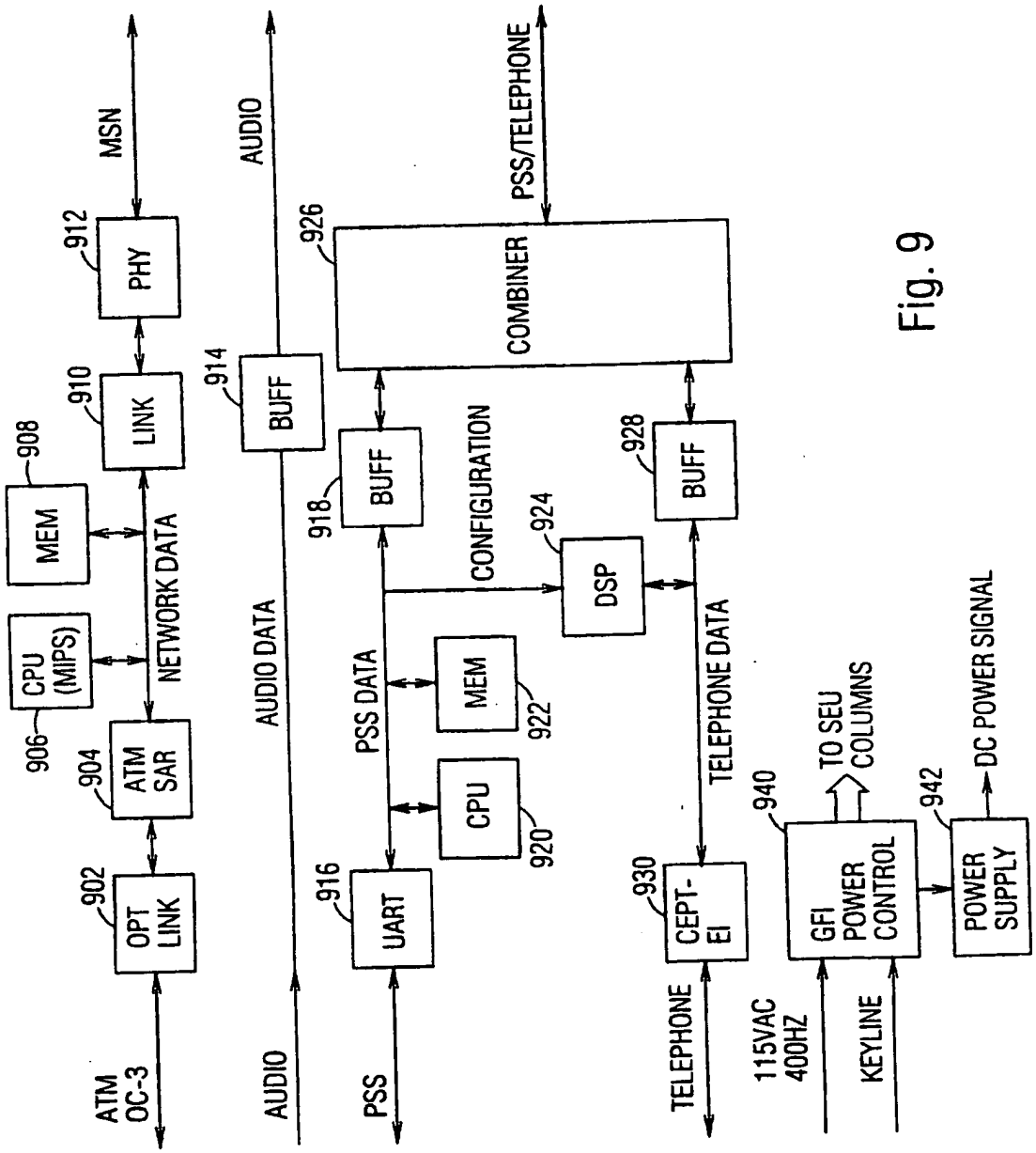

MSN
912
PHY
910
LINK
908
MEM
CPU (MIPS)
906
NETWORK DATA
904
ATM SAR
902
OPT LINK
ATM OC-3
AUDIO
914
BUFF
AUDIO DATA
AUDIO
PSS/TELEPHONE
926
COMBINER
918
BUFF
CONFIGURATION
924
DSP
928
BUFF
PSS DATA
MEM
922
CPU
920
916
UART
PSS
TELEPHONE DATA
930
CEPT-EI
TELEPHONE
940
GFI POWER CONTROL
115VAC 400HZ
KEYLINE
TO SEU COLUMNS
942
POWER SUPPLY
DC POWER SIGNAL

Fig. 9

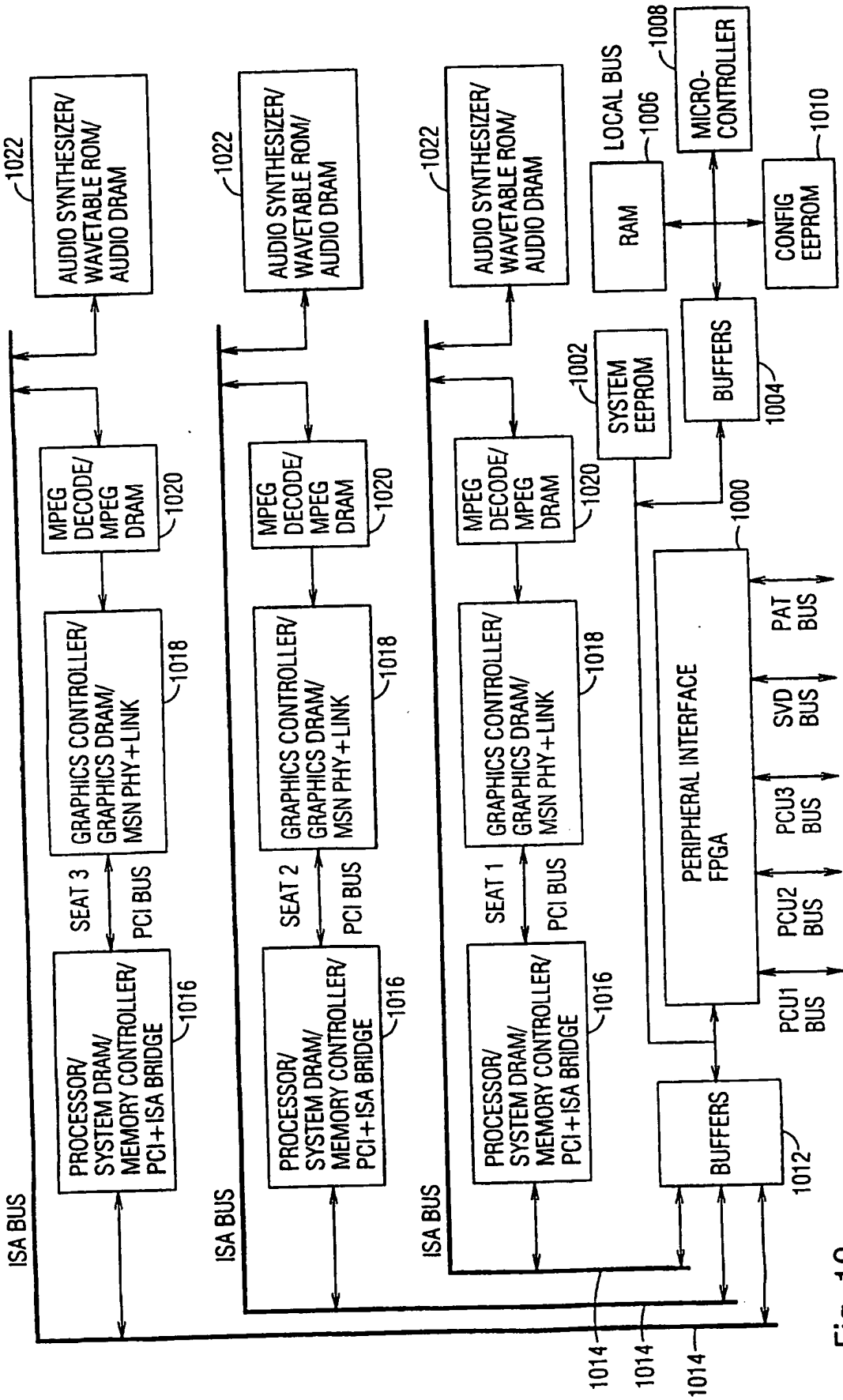

ISA BUS
PROCESSOR/ SYSTEM DRAM/ MEMORY CONTROLLER/ PCI+ISA BRIDGE
1016
SEAT 3
PCI BUS
GRAPHICS CONTROLLER/ GRAPHICS DRAM/ MSN PHY+LINK
1018
MPEG DECODE/ MPEG DRAM
1020
AUDIO SYNTHESIZER/ WAVETABLE ROM/ AUDIO DRAM
1022
SEAT 2
PCI BUS
SEAT 1
PCI BUS
1014
1014
1014
BUFFERS
1012
PERIPHERAL INTERFACE FPGA
1000
PCU1 BUS
PCU2 BUS
PCU3 BUS
SVD BUS
PAT BUS
SYSTEM EEPROM
1002
BUFFERS
1004
RAM
LOCAL BUS
1006
MICRO-CONTROLLER
1008
CONFIG EEPROM
1010

Fig. 10

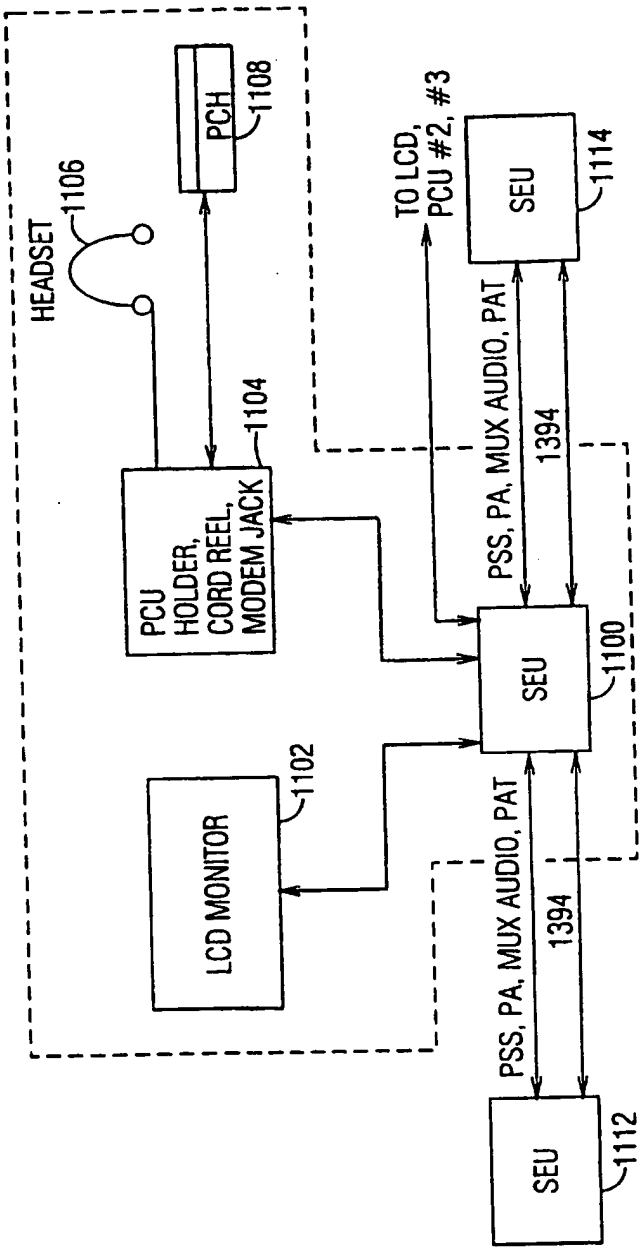

HEADSET
1106
PCH
1108
1104
PCU
HOLDER,
CORD REEL,
MODEM JACK
LCD MONITOR
1102
SEU
1100
TO LCD,
PCU #2, #3
SEU
1114
PSS, PA, MUX AUDIO, PAT
1394
PSS, PA, MUX AUDIO, PAT
1394
SEU
1112

Fig. 11

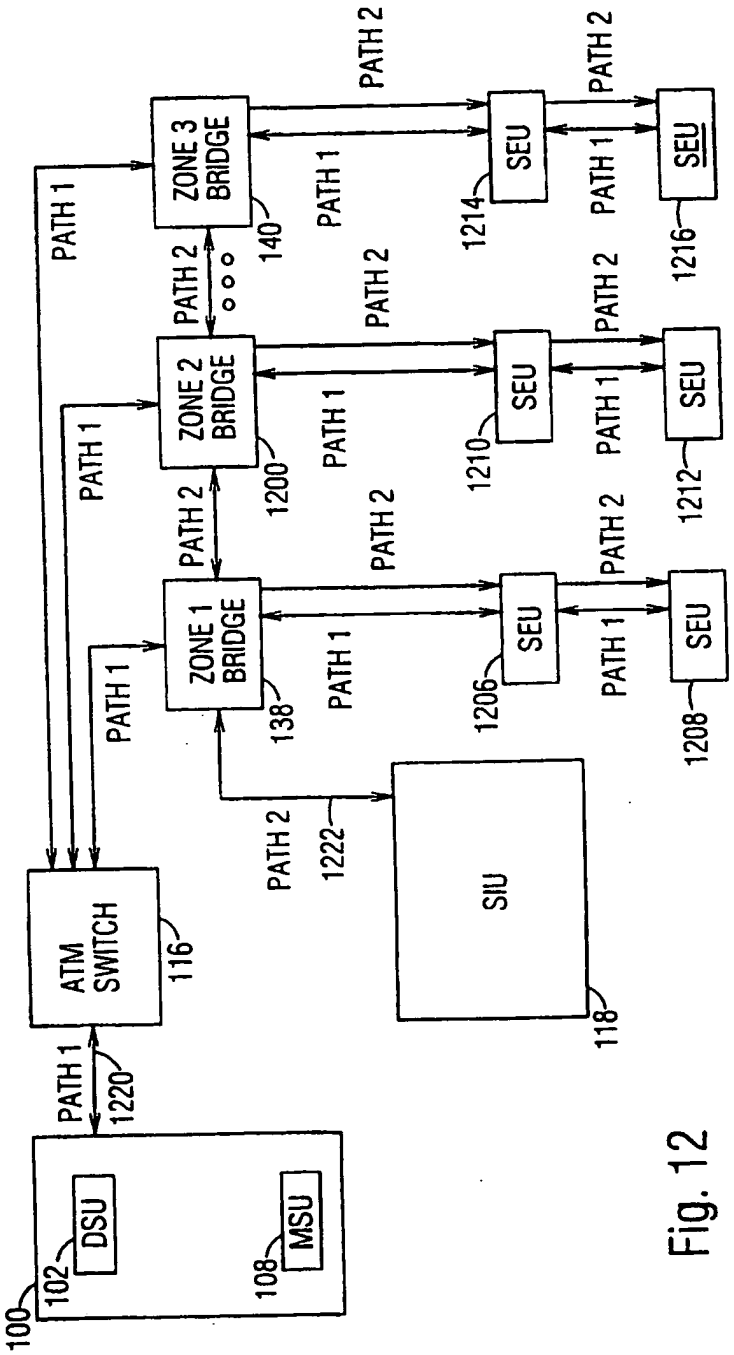

100
102
DSU
108
MSU
PATH 1
1220
ATM SWITCH
116
PATH 1
PATH 2
1222
SIU
118
ZONE 1 BRIDGE
138
ZONE 2 BRIDGE
1200
ZONE 3 BRIDGE
140
SEU
1206
1208
1210
1212
1214
1216

Fig. 12

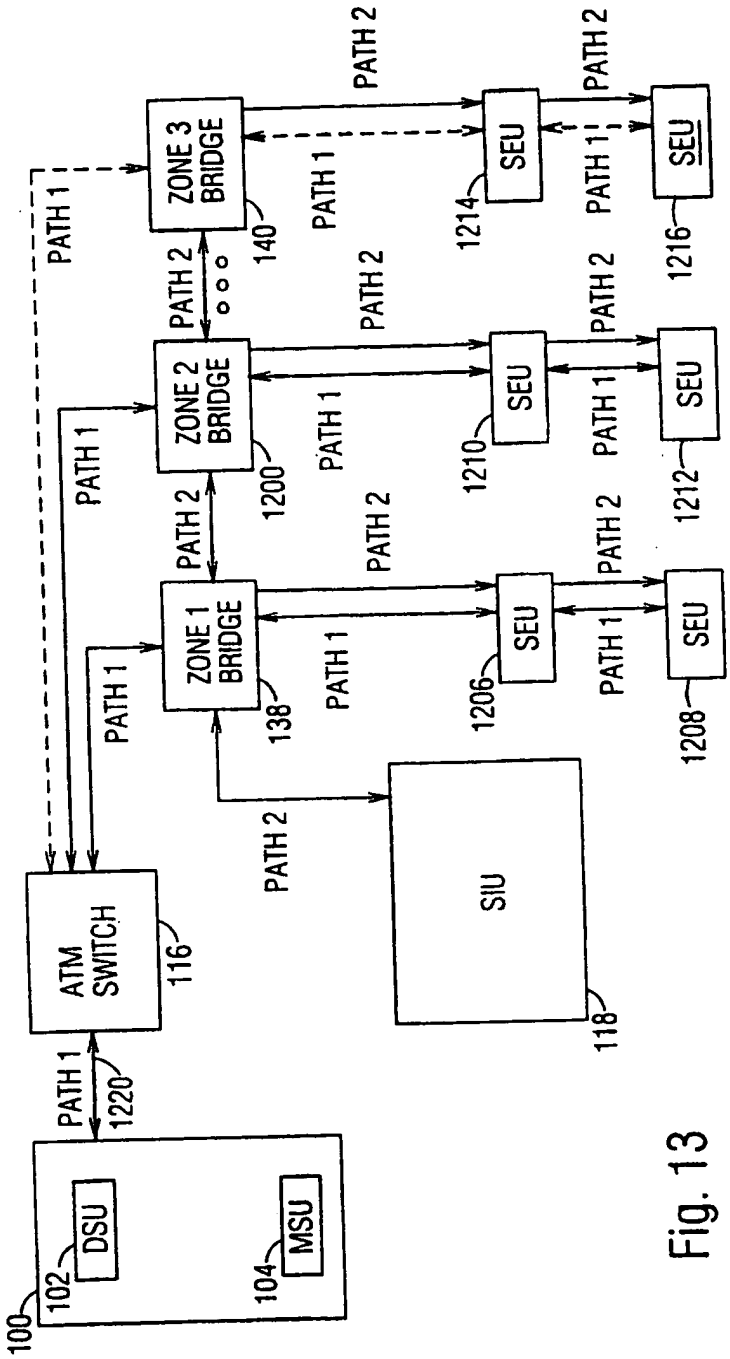

100
102
DSU
104
MSU
PATH 1
1220
ATM SWITCH
116
SIU
118
PATH 2
PATH 1
ZONE 1 BRIDGE
138
PATH 2
PATH 1
ZONE 2 BRIDGE
1200
PATH 2
PATH 1
ZONE 3 BRIDGE
140
PATH 2
PATH 1
SEU
1206
PATH 2
PATH 1
SEU
1208
PATH 2
PATH 1
SEU
1210
PATH 2
PATH 1
SEU
1212
PATH 2
PATH 1
SEU
1214
PATH 2
PATH 1
SEU
1216

Fig. 13

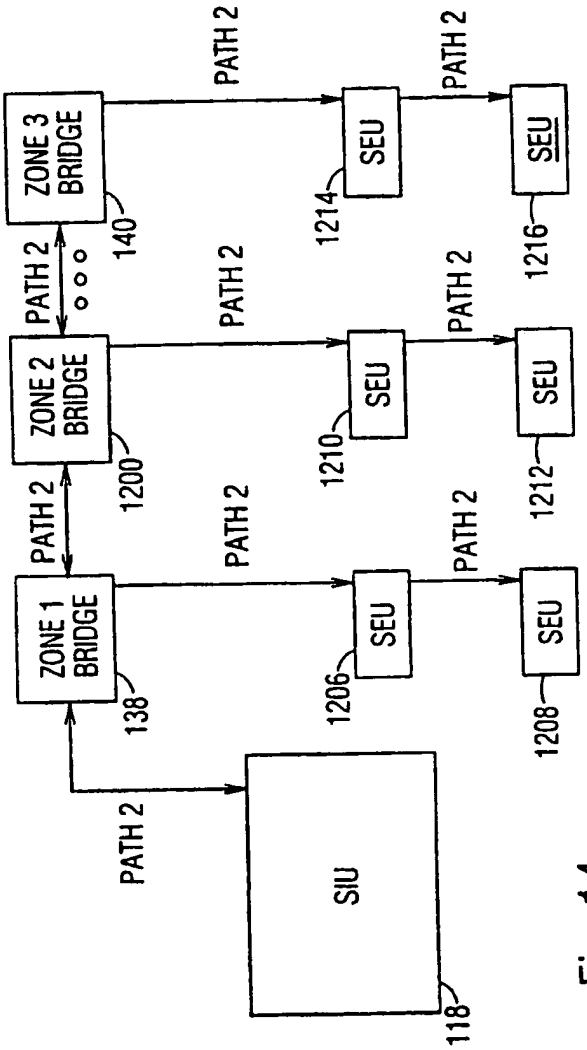

ZONE 3 BRIDGE
ZONE 2 BRIDGE
ZONE 1 BRIDGE
SIU
SEU
PATH 2
140
1200
138
118
1214
1216
1210
1212
1206
1208

Fig. 14

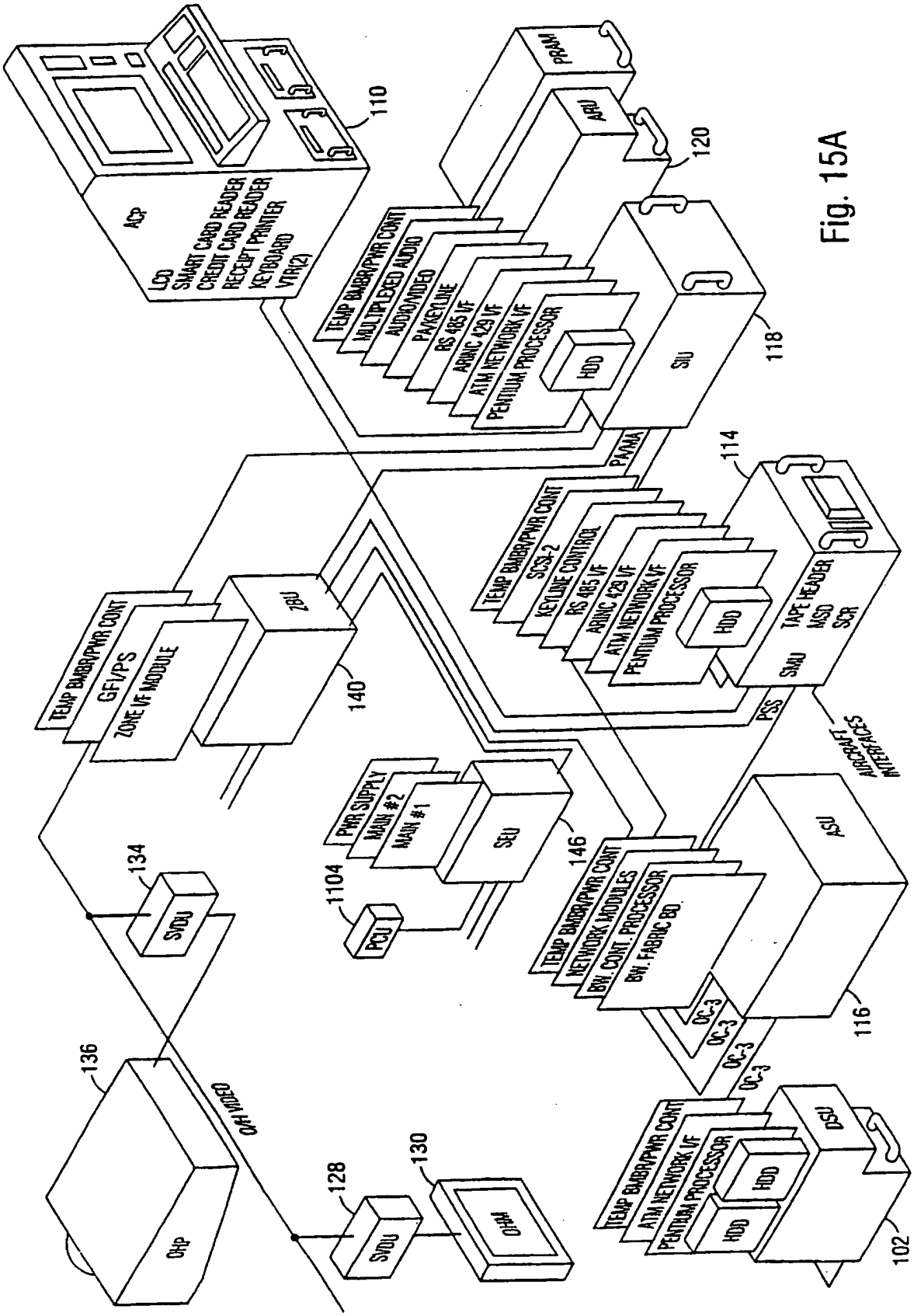

ACP
LCD
SMART CARD READER
CREDIT CARD READER
RECEIPT PRINTER
KEYBOARD
VTR(2)
110
PRAM
ARU
120
TEMP BMBR/PWR CONT
MULTIPLEXED AUDIO
AUDIO/VIDEO
PA/KEYLINE
RS 485 I/F
ARINC 429 I/F
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
SIU
118
PA/MA
114
TEMP BMBR/PWR CONT
SCSI-2
KEYLINE CONTROL
RS 485 I/F
ARINC 429 I/F
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
TAPE HEADER
MSD
SCR
SMAU
PSS
AIRCRAFT INTERFACES
TEMP BMBR/PWR CONT
GFI/PS
ZONE I/F MODULE
ZIU
140
PWR SUPPLY
MAIN #2
MAIN #1
SEU
146
1104
PCU
134
SVDU
TEMP BMBR/PWR CONT
NETWORK MODULES
BW. CONT. PROCESSOR
BW. FABRIC BD.
ASU
116
OC-3
OC-3
OC-3
136
OHP
OH VIDEO
128
SVDU
130
OHM
TEMP BMBR/PWR CONT
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
HDD
DSU
102

Fig. 15A

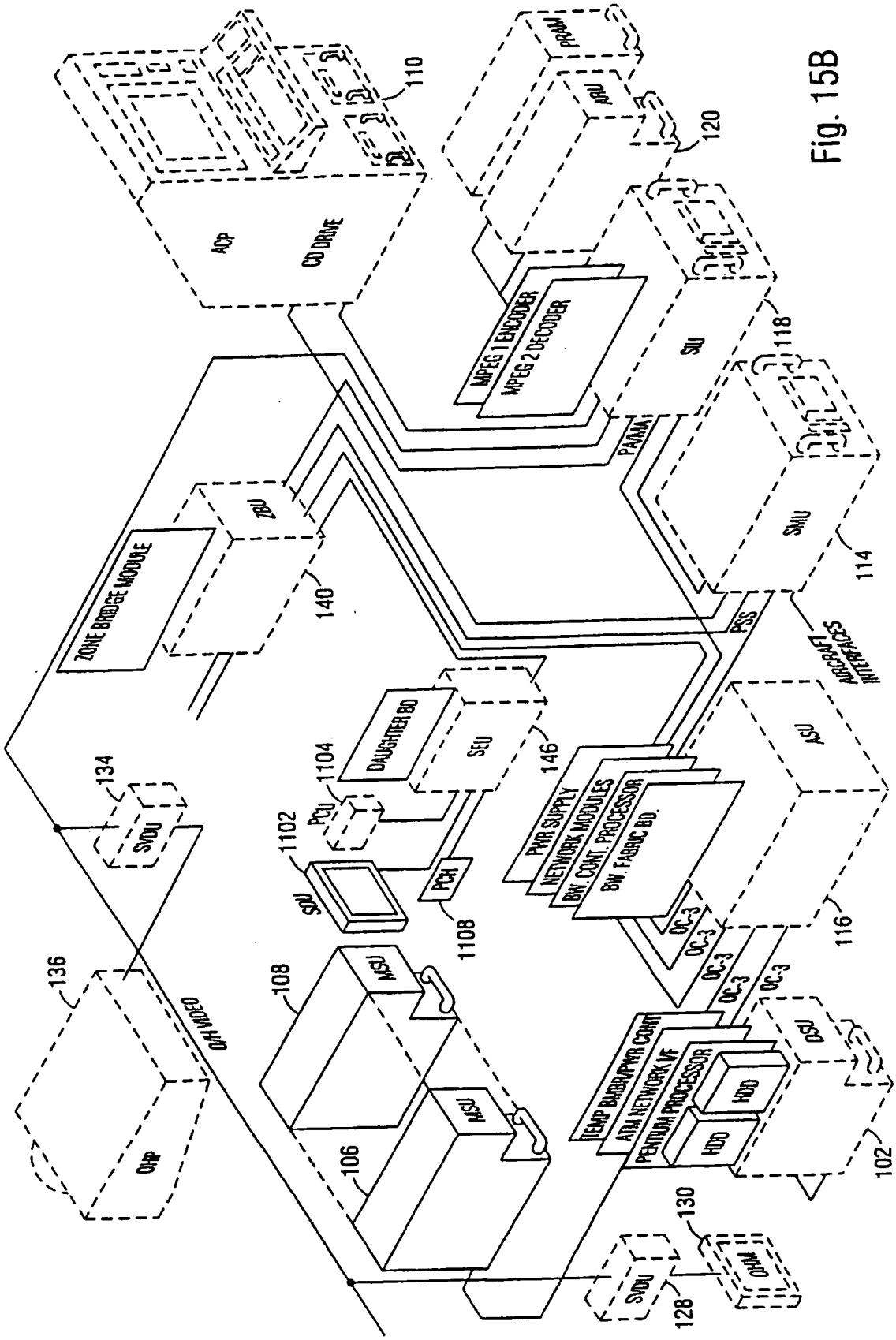

110
ACP
CD DRIVE
120
APU
PAAM
MPEG 1 ENCODER
MPEG 2 DECODER
SIU
118
PAAM
SWU
114
ZBU
ZONE BRIDGE MODULE
140
PSS
AIRCRAFT INTERFACES
DAUGHTER BD
SEU
146
1104
PCU
1102
SDU
PCM
1108
134
SVDU
PWR SUPPLY
NETWORK MODULES
BW. CONT. PROCESSOR
BW. FABRIC BD.
ASU
116
OC-3
OC-3
OC-3
OC-3
136
OHP
OHM VIDEO
108
MSDU
MSDU
106
TEMP BARDIP/PWR CONT
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
HDD
OSU
102
130
OHP
SVDU
128

Fig. 15B

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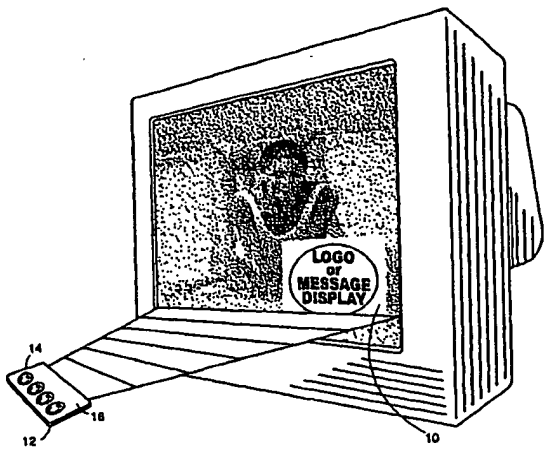
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[Continued on next page]

(54) Title: UNIVERSAL METHODS AND DEVICE FOR HAND-HELD PROMOTIONAL OPPORTUNITIES



(57) Abstract: A system is described for deriving benefits from the reception and processing of auxiliary data by a hand-held device 12, such as a smart card, personal digital assistant ("PDA"), or mobile phone. Aiming light 24 and/or audio transducer 34 alert the user of hand-held device 12 that auxiliary data is being received. The auxiliary data is then utilized by hand-held device 12. The user receives benefits such as promotional opportunities resulting from the reception of the auxiliary data. Such opportunities are expressed on visual display 20, which may include a series of lights 20a, 20b, 20c, and/or 20d, or an LCD 44. The lights and LCD provide promotional opportunities which may be redeemable and conventional stores or via the Internet. Hand-held devices 12 are outfitted with a PCMCIA interface 70 or wireless Internet access to obtain such promotional activities on the Internet. Hand-held device 12 may have housing 14 in various shapes to promote various promotional opportunities. On front surface 16 of the hand-held device may have indication of a sponsor 17.

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Published:
— *with international search report*
— *with amended claims and statement*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

UNIVERSAL METHODS AND DEVICE FOR HAND-HELD PROMOTIONAL OPPORTUNITIES

Inventors: Edward J. Koplar, Daniel A. Ciardullo, Christopher E. Chupp, James G. Withers and Alan G. Maltagliati

Cross-Reference to Related Applications

This application is based upon United States Utility Patent Application titled "Universal Methods and Device for Hand-Held Promotional Opportunities", Serial No.: 09/829,223, Filed 9 April 2001 by Edward J. Koplar, Daniel A. Ciardullo, James G. Withers and Christopher E. Chupp, and United States Provisional Patent Application titled "RBDS Method and Device for Processing Opportunities", Serial No.: 60/185,161, Filed 21 April 2001 by James G. Withers and Alan G. Maltagliati, both of which are herein incorporated by reference and continued preservation of which is requested.

Background of the Invention

The present invention relates to interactive hand-held devices, and more particularly to methods and apparatuses for receiving and decoding modulated signals for use by hand-held devices, and providing benefits to users of the devices from the reception of the signals.

Users of hand-held devices selectively receive modulated signals for purposes including enjoyment, promotion, transfer of information, data collection, commercial verification, security, education, and transactions or verifications at points of sale, as well as other commercial, personal, entertainment, or amusement purposes collectively referred to herein as

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"promotional opportunities." Data is sent to hand-held devices by optical or electrical means (as is further described herein below), although the devices are independent of a specific transmission protocol and therefore may alternatively use other known modulation and transmission protocols. Data may be received by the hand-held devices by utilizing a sleeve, cradle, or docking station; through an optical sensor, by use of a PCMCIA or alternate computer port, or by FM, AM, and or other radio frequency means, or other means as may be desired based on the type of transmission means selected. Use of the device may allow users to receive, process, and/or store promotional opportunities.

U.S. Patent 4,807,031 Broughton et al. ("Broughton") titled "Interactive Video Method and Apparatus" relates generally to in-band video broadcasting of commands and other encoded information to interactive devices. The invention described therein relates generally to interactive educational and entertainment systems, and is described in one embodiment in the context of television program control of toys located where there is a television receiver, as within a residence.

To encode control data capable of providing a benefit to a user, Broughton discloses a novel method of luminance or chrominance modulation of a video signal that creates a composite video signal, whereby modulating the video signal creates control data. The novel modulation method alternately raises and lowers the luminance/chrominance of adjacent horizontal scan lines to create a video subcarrier that contains the control data.

Under Broughton, the video signal is not being

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replaced with other data, nor is the data being added as a separate signal along with the video signal, rather, the video signal itself is modulated to subsequently create the control data. Therefore, the control data is a part of, or contained within, the video signal. The encoding method also includes preview and remove circuitry to ensure suitability or the presence of data encoding and removal of data encoding, respectively.

The control data is transmitted either by television broadcast means, or by pre-recorded video players that are connected to a video display. The control data is then received by the video display where a video field of the video display is modulated by control data. The control data is then detected with either opto-electronic or radio frequency (RF) detection means that discriminate the program material from the control data. The detected control data is further reproduced such that the control data can be used with an interactive device.

A practical example of a device as described above is the commercially-sold hand-held game device for receiving and detecting such control data called the "Wheel of Fortune" interactive television (ITV) Play-Along Game, intended to be used while viewing a television program presentation of the famous television show of the same name. The device, produced under license by the assignee of Broughton, was a palm-sized device that included a photosensor within its case to receive video signals. The device, upon receiving composite video signals, then discriminated the control data from the video program material and caused a liquid crystal display (LCD) on the face panel of the toy to present portions of a word puzzle. Thereby users of the

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device may play the game along with a contestant, or play in response to a videotaped presentation of the game. The "Wheel of Fortune" ITV game together with its hand-held control device including keyboard was commercially available in 1988.

Improvements on the method of modulation described in Broughton are described in U.S. Patent 6,094,228 to Ciardullo et al. and U.S. Patent 6,229,572 to Ciardullo et al. (referred to collectively hereinafter as "Ciardullo"). Both patents describe improved methods of modulation wherein control data is inserted on the visual portion of a video signal by changing the luminance of paired lines in opposite directions, thus allowing larger amounts of data to be modulated in a signal. Broughton and Ciardullo are incorporated by reference herein.

Efforts by others to provide hand-held devices capable of receiving transmission of modulated data from a video display are represented by U.S. Patents 5,594,493; 5,761,601; 5,767,896, 5,907,350, and 5,953,047. Of these, patent 5,907,350 discloses a method for storing data on a so-called smart card, which is contended to receive, decode and store encoded data signals comprising redeemable coupons said to be embedded within television segments and transmitted along with normal television segments. The device of patent 5,907,350 is a hand-held unit that receives luminance signals from the television display in accordance with the principles of Broughton. The received video signals are decoded and stored within the card for future use. The card's LCD readout enables Universal Price Codes (UPC) corresponding to the stored data. A scanner reads the UPC codes at a redemption site, and the stored coupon

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is then erased from a memory of the card. A microprocessor channels the decoding and storage aspects, and a keypad allows use and input.

The term "smart card" as used in the above patents, connotes a hand-held, portable device, not conceptually different from the above-mentioned "Wheel of Fortune" ITV game device. However, the term does not only apply to those patents.

As a generic term, "smart card" gradually has come to mean a card that looks like a credit card but includes a microchip or microprocessor embedded or incorporated into the card. The smart card may be referred to as a "fingerheld" computer, typically including a data storage media ranging from less than a kilobyte up to a megabyte (if not more), and are said to have originated in France. Ognibene, P.J., "Card Smarts," Technology Decisions (July, 1999). Smart cards may, according to a line of reference, also be called "chip cards."

Prior efforts by the inventors of this patent application include United States Utility Patent Application entitled "Interactive Optical Cards and Other Hand-Held Devices with Increased Connectivity", Serial No.: US 09/489,373, Filed January 21, 2000 by Edward J. Koplar and Daniel A. Ciardullo ("Koplar"), which is incorporated by reference herein. Koplar relates to various methods and apparatuses for use with promotion opportunities, such as interactive advertising and gaming. Koplar describes various methods for receiving and providing data to hand-held devices, as well as apparatuses and methods for use with promotional opportunities.

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For purposes of the present invention, the term "hand-held device" means an interactive device of portable character, preferably of hand-held type that may be carried in the palm by a user, between fingers of the user, or is otherwise intended to be easily grasped and handled manually by the user.

While the hand-held device of the present invention may be in the form of a smart card, it may also be in the form of other types of hand-held devices such as mobile phones. Recently, mobile phones have become equipped with increased capacity to store and process information, and many phones now offer limited network or Internet access. Industry experts estimate that by 2002, more than 100 million mobile phones will have Internet access in some fashion and that by 2003, more than 1 billion mobile phones will be in use worldwide. Mobile phones, with or without Internet access, become powerful tools when appropriately configured to receive auxiliary data.

The personal digital assistant (PDA) is another form of hand-held device that may provide its users with promotional opportunities under the present invention. The most popular manufacturer of PDAs, Palm Computing, introduced its first PDA called the "Palm Pilot" in 1996. The latest version of the Palm Pilot, Palm VII, was introduced in 1999 and was the first PDA to include wireless Internet access without the need of a peripheral device such as a modem.

PDAs and mobile phones, while capable of providing users with Internet access, as of the time of this invention have limited capabilities and functionality as a result of slow data transfer rates. It is desirable to provide users of these hand-held devices and similar

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devices such as smart cards with hand-held devices that are compact in size yet rich in content that encourage users to participate in various promotional opportunities without having prolonged delays to receive and process information. Smart cards, mobile phones, PDAs, and similar hand-held devices are all capable of participating with the promotional opportunities described in this patent application and are collectively referred to herein as "hand-held devices" of the present invention.

The term "sponsor" is used herein in its broadest possible sense, and may include without limitation entities that issue hand-held devices and entities that accept them or provide redemption services for users of the devices. Sponsors may also include health care and medical institutions and other service or eleemosynary organizations.

The term "computer" is used herein in its broadest possible sense, and may include without limitation a laptop or personal computer, mobile phone, personal digital assistant, or other computer-like device.

Summary of the Invention

Among the several objects, features and advantages of the invention may be noted the provision of interactive hand-held devices for carrying out various modes of novel and commercially advantageous signaling, information-transferring, and value-indicating methods. The hand-held devices of the present invention are portable devices such as smart cards, mobile phones, and PDAs, which contain means to receive auxiliary data by various possible transmission protocols. The hand-held

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devices, to provide some of the promotional opportunities described herein, preferably have means to connect to the Internet, which may be referred to herein interchangeably as "network access", "wireless access", "Internet access" or "wireless Internet". These hand-held devices react from the reception of auxiliary data from sources including radio transmissions, computer systems, video recordings, video transmissions or other sources for reproduction of video, audio and/or other data.

The hand-held devices, preferably utilize the modulation and decoding methods described in Broughton and Ciardullo for transmission of auxiliary data from a source via electrical and/or optical means, but alternatively by other known methods of modulation in the art including through the use of the vertical-blanking interval (VBI), audio subcarrier, electromagnetic subcarrier, and RF detection of video decoding. However, in particular embodiments of the hand-held device, it is preferable to use the radio broadcast data system (RBDS) modulation and decoding method as further described in this application.

All video displays, whether a television set or monitor, television-like, or image-presenting display device capable of displaying an image containing a modulated video signal, may in the present specification be collectively referred to simply as "display devices." The video signals containing the auxiliary data may be transmitted to a display device by means of a broadcast, cable, standard digital video methods, satellite or home video. The hand-held devices may also respond to auxiliary data received from non-video displays, such as

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may be received directly via radio transmissions or from a decoding box.

Signals are received, detected, and reproduced by the hand-held devices for various promotional opportunities including: enjoyment; promotion; coupon or prize validation; advertising by sponsors; advertising verification and polling; transfer of information; data collection; commercial verification; security and access; education; game playing; transactions, verifications, or redemption by sponsoring entities or related commercial locations at points of sale including the Internet; other commercial and non-commercial purposes.

The following are merely illustrative of some of the advantages and objects which the new system provides: television advertising response determination; interactive advertising and promotions; attraction of viewers' attention; effectively increase consumer awareness and retention of commercial advertising, messages, announcements, promotions, and specific products and services; increased customer differentiation of products and services; stimulation of viewers to watch commercials; increase of store traffic in response to commercial messages; fostering of consumer loyalty; enhancement of viewer involvement in program content, including commercials; enhancement of viewer retention of the content of commercial and other messages; enhancement of the value of commercial messages; increased product/service sales; saving of advertising costs; acceleration of response time of customers following delivery of commercial messages; verification of contests and awards; enhancement of viewer retention of the related website domain names; reduction of barriers

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related to e-commerce opportunities; additional and sometimes instant rewards and information obtainable via the Internet. The uses and advantages are more fully developed in the following description.

Briefly, herein is described a system which uses various hand-held devices to derive benefits from the reception of auxiliary data. Auxiliary data is encoded by modulation of a signal, such as video, which thereby creates a composite video signal consisting of auxiliary data and continuos video program data. The composite video signal is transmitted to and displayed by a display device so that it may be received and used by a hand-held device.

When the hand-held device is a smart card, the preferred method of receiving auxiliary data from composite video signals is by optically detecting and extracting the auxiliary data directly onto the hand-held device. A user first positions the optical receiver of the hand-held device so that it is capable of receiving video signals from a display device. The hand-held device, when actuated and appropriately positioned, begins receiving video signals. Circuitry on the hand-held discriminates whether auxiliary data is present in the video signals (i.e., where the video signals received are composite video signals). If auxiliary data is present, the hand-held device reproduces the auxiliary data for its use.

The preferred method of receiving auxiliary data from composite video signals when the hand-held device is a mobile phone or PDA is by detecting and electronically extracting the auxiliary data from the video signal by use of a decoder box. The decoder box preferably

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receives a video signal from its source through the use of RCA jacks. The decoder box then processes the composite video signal to electrically determine whether auxiliary data is present. The auxiliary data, when present, is transmitted from the decoder box to the hand-held device. Transmissions to the hand-held device occur preferably through RF, so that the hand-held device need not be aimed at or physically connected to the decoder box. Although the optical transmission method is preferable for smart cards and the electrical transmission method is preferred for mobile phones and PDAs, both methods as well as other methods known in the art including through the use of vertical-blanking interval (VBI), audio subcarrier, electromagnetic subcarrier, and RF detection of video decoding, all of which are interchangeable and may be used with any of the hand-held devices of the present invention.

When auxiliary data is reproduced by use by the hand-held device, various signals, indications, display readouts, or other interactive events provide the user with a benefit according to content of the auxiliary data. The various interactive events described in Koplar, incorporated by reference herein, are usable interchangeably by and in conjunction with the hand-held devices and methods of use with the present invention. The interchangeability includes selective use of the features of the present invention, along with selective use of any of the various apparatuses and methods of Koplar.

The enclosure of the hand-held devices is typically in the shape and form of smart cards, palm devices, or mobile phones. Additionally, other hand-manipulable

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devices of a similar size and nature that are capable of receiving and processing auxiliary data as described herein are also within the scope of the present invention and may receive data by electrical or optical methods as may be appropriate or desirable. Such hand-manipulable devices include stuffed animals or toys, snapshot-type cameras, replica sports helmets, scaled racing cars, or replica baseball bats.

Radio Broadcast Data Service (RBDS; known as RDS outside of the United States) was recently authorized by the FCC as a method for sending text to FM radio receivers. Envisioned uses of RBDS include call letter/slogan display info, song titles/lyrics, and traffic and weather info. Car radios, in particular, were to be designed so that text received using RBDS could be displayed on the LCD tuning window of the car radio, alternating with, or taking the place of, the normal frequency readout. The speed of the system (throughput) is fairly slow at between 1200 to 2400 bps. To date, the system is underutilized, with no practical uses having been identified.

Radio salespeople have long struggled to answer a basic objection from advertisers when comparing radio advertising to print; namely, the inability of radio to offer "hard copy" coupons. Advertisers have always viewed couponing as a surefire way to gauge the effectiveness of advertising, since there is a paper trail (the redeemed coupons) from a print advertisement that does not exist with a radio advertisement. Thus, it is desirable to provide a practical means of radio couponing by which "off of the air" promotional

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opportunities are received directly on the hand-held devices.

The methods of data transmission as described in Broughton and Ciardullo are more complicated when data is being sent to hand-held devices via computer monitors, as opposed to other types of display devices such as televisions. Computers constantly refresh the screen displayed by the monitor. Therefore, modulating the video signal displayed by a monitor in real-time is difficult and often impractical as a result of the constant refreshing of the video card and factors relating to the displaying of video by the computer. The present invention transmits data from the monitor to the hand-held device in a less obtrusive manner.

Various other apparatuses and methods of the present invention are set forth in the following description and claims. Similarly, other objects and features will be apparent or are pointed out more particular herein below.

Brief Description of the Drawings

FIG. 1 is a perspective view schematically illustrating use of any of several embodiments of an interactive hand-held device in accordance with and embodying the present invention.

FIG. 2 is a perspective external view of an embodiment of an interactive hand-held device in accordance with and embodying the present invention.

FIG. 3 is a perspective external view of an embodiment of an interactive hand-held device in accordance with and embodying the present invention.

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FIG. 4 is a perspective external view of an embodiment of an interactive hand-held device in accordance with and embodying the present invention.

FIG. 5 is a perspective view of a decoding box.

FIG. 6 is a perspective view of internal features of the interactive device of **FIG. 7** of the embodiment of **FIG. 7** showing an interactive hand-held device of the invention.

FIG. 7 is a perspective external view of another embodiment of an interactive hand-held device of the invention.

FIG. 8 is a perspective external view of another embodiment of an interactive hand-held device of the invention.

FIG. 9 is a perspective view of internal features of the interactive device of **FIG. 7** of the embodiment of **FIG. 8** showing an interactive hand-held device of the invention.

FIG. 10 is a schematic diagram of circuitry that may be used to provide various embodiments having circuit features evident in this diagram.

FIG. 11 is a schematic diagram of other circuitry that may be used to provide various other embodiments.

FIG. 12 is a perspective view of a docking station without a hand-held device.

FIG. 13 is a perspective view of a docking station with a hand-held device.

FIG. 14 is a perspective view of yet another embodiment of an interactive hand-held device of the invention, and referred to as a "sports" hand-held device.

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FIG. 15 is a front view of yet another embodiment of an interactive hand-held device of the invention, and referred to as a "sports" hand-held device.

FIG. 16 is a block diagram of other circuitry that may be used to provide various other embodiments.

FIG. 17 is a block diagram of other circuitry that may be used to provide various other embodiments.

FIG. 18 is a block diagram of other circuitry that may be used to provide various other embodiments.

FIG. 19 is a block diagram of the method of radio frequency detection using RBDS by a hand-held device.

FIG. 20 is a block diagram of the method of encoding information on radio signals using a computer with RBDS encoder.

FIG. 21 is a another block diagram of the method of radio frequency detection using RBDS by a hand-held device.

FIG. 22 is a block diagram of the method of optical detection from a display a monitor by a hand-held device.

Corresponding reference characters identify corresponding elements throughout the several views of the drawings.

Description of Inventive Embodiments

Referring to **FIG. 1**, in a system of the invention, and in accordance with the various methods herein described, composite video signals are received and projected by a display device **10**, to be received by a first embodiment of an interactive hand-held device **12** of the invention. Display device **10** is representative of a television screen, video monitor or other video display,

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movie screen, computer monitor, video-converted display or video-like display, capable of receiving analog or digital video or video-representative signals from a suitable source, such as a television transmitter, a videotape, a streaming video server, a Digital Versatile Disc ("DVD"), or the computerized display representation of such a source of image content.

Display device **10** may schematically represent a video display for displaying video signals but may also be any sort of electron gun, active, array or passive array display device capable of providing not only imaged information in a visible mode but also auxiliary information (e.g., data) in a substantially transparent mode. Display device **10** may be further characterized as a computer monitor or display, as well as a portion or computer window of display device **10**. Display device **10** may also be a high definition or digital television, or other digital video presentation device. Display device **10** may vary in size, and may be small like a Sony Watchman®, or large like a movie screen or a Sony Jumbotron®. Video signals receivable by display device **10** include those delivered by microwave relay, satellite retransmission or cable, streaming and other types of downloadable or viewable computer video presentations, and those generally made available by wired or wireless methods.

Hand-held device **12** may be in the form of any type of hand manipulable device such as a smart card, cell phone, PDA, or other palm-like device. Enclosure **14** of hand-held device **12** is illustrated in **FIG. 1** as taking the form of a smart card. Hand-held device **12** may be held in the palm or between the fingers of a user in the

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generally vicinity of display device **10**, typically within the same room and, when necessary, oriented so that front surface **16** faces display device **10**, and thereby hand-held device **12** may optically receive light from a visual representation of the video signal from display device **10**. When hand-held device **12** is a smart card and configured to optically receive auxiliary data, it is suitably oriented so that device **10** may obtain the video signal from display device **10** as shown in **FIG. 1**.

Hand-held device **12** is depicted in **FIG. 2** as a PDA and shown in a manner in which it may be held and used. Hand-held device **12** may include a PDA-sized housing **14** that encloses various circuits and circuit components of the device. Enclosure **14** may be of any hand-held shape desired that is functional and hand manipulable, examples of which include a PDA (as shown), cell phone, PCMCIA card, snapshot-type camera, replica sports helmet, replica baseball bat or football, or scaled racing car.

On front surface **16** of hand-held device **12**, above LCD **44** is imprinted the brand name of a sponsor **17** and possibly information or indicia that may induce a user to associate device **12** with sponsor **17**. When hand-held devices **12** are inexpensive to manufacture, such as when they are in the form of smart cards, businesses are more likely to participate in distribution of hand-held devices **12** and accordingly sponsor **17** may be included on these devices **12** with higher frequency. However, when hand-held devices **12** are a user's multi-function personal device such as a cell phone or PDA, which has a primary use other than receiving promotional opportunities, such indicia is less likely to be included. Sponsor **17** may be a company providing hand-held device **12** to a user of its

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service, such as a hotel, phone company, PDA service, or place of business. Sponsor **17** may provide permanent or temporary use of hand-held device **12** for access, privileges, and/or rewards. Sponsors **17** may also include various entities such as advertisers, Internet websites, television shows, as well as for organizations providing or participating with other occurrences, programs or events, for which use of hand-held device **12** will provide means for a user to obtain promotional opportunities.

Hand-held device **12** as illustrated in **FIG. 2** have both RF antennae **68** and lens **36** so that device **12** may receive auxiliary data by both optical and electrical means. When hand-held device **12** contains such reception means, it may be used with multiple promotional opportunities in multiple locations. Thus, with the present invention, a user may receive auxiliary data on hand-held device **12** at a game inside a stadium or arena electrically via RF antennae **68**, and may also receive auxiliary data while watching a game at home optically by positioning leading edge **18** towards display device **10** (as shown in **FIG. 1**). Users may thus participate in promotional in multiple locations using the same hand-held device **12**.

Button **22** of hand-held device **12** preferably provides the user with means for selecting between receiving auxiliary data via electrical means (such as through RF antenna **68**) or by optical means (such as through photosensor **30**). Preferably, the user, based on location, will select the means by which he/she wishes to receive the auxiliary data thereby saving power and preventing the user from receiving undesirable auxiliary data. However, hand-held device **12** may be configured to

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monitor the data input means (e.g., RF antenna 68 and photosensor 30) to determine whether auxiliary data is being transmitted to device 12 by any of the methods described herein.

As shown in FIG. 3, a leading edge 18 of hand-held device 12 is outfitted with lens 36 to provide means for receiving auxiliary data on device 12 via optical means. Visible from front surface 16 of hand-held device 12 is LCD 44 and four light-admitting diodes or other electro luminescent light sources 20a, 20b, 20c, and 20d. Depending on its desired promotional use, hand-held device 12 may include LCD 44 and lights 20a, 20b, 20c, and 20d, one of the foregoing, or neither. Hand-held device 12 may have various users controls as described in Koplar, which may include a keypad (not shown) to allow user input for specific functions and additional uses.

Hand-held device 12 is depicted as a smart card in FIG. 4 in a manner in which it may be held and used. A leading edge 18 of hand-held device 12 may include a lens 36 or small aperture 37 to admit video signals to a photosensor 30 within enclosure 14, as is described herein. Visible from front surface 16 of hand-held device 12 are a plurality of light-emitting devices 20 which may be light-admitting diodes (LEDs) or other electro luminescent light sources, including, for example, regions of a LCD of either active or passive type.

A typical manner in which hand-held device 12 is used to optically receive auxiliary data is as follows: A user of hand-held device 12 watches a television presentation such as a commercial, television program, movie, or other video-displayed program. When such a

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presentation is displayed, the user then holds hand-held device **12** as shown in **FIG. 3** or **4**, depending on the form of device **12** used. The user then positions hand-held device **12** so that leading edge **18** of device **12** will be positioned for receiving video signals from display device **10**. Hand-held device **12** or display device **10** may have indicia informing the viewer to press detection button **23** at a preferred time, such as when a commercial of a sponsoring entity appears. Although the term "button" is used herein, it is considered to include membrane switches, pressure or touch regions capable of activation and carrying out the function of any of the various buttons described herein. When the user presses detection button **23**, the video signal will be detected and received by photosensor **30** (the process to be described below) within enclosure **14**. The composite video signal comprises a video signal modulated with auxiliary data, in accordance with the teaching of the above-referenced Broughton and/or Ciardullo. A discriminator, implemented by circuitry of hand-held device **12** determines whether auxiliary data has been transmitted along with the video signal of the presentation.

A typical manner in which hand-held device **12** is used to electrically receive auxiliary data is as follows: video signals are sent via RCA cables from a signal source (not shown) such as a VCR and received by a decoder box **82** as shown in **FIG. 5**. Decoder box **82** discriminates the auxiliary data and transfers it to hand-held device **12** by RF or by other means, such as IR, a computer port, or direct wire connection. Decoder box **82** may otherwise receive the data through other methods

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such as through use of a super VHS, fire wire, or coaxial jack, or may be connected to an RF antennae, integrated into the circuitry of display device **10**, or otherwise connected to a signal source so that decoder box **82** receives the video signals. As may be observed in **FIG. 5**, decoder box **82** contains antenna **84** so that it may transmit RF signals between it and hand-held device **12**, RCA jacks **86** so that it may receive data from a signal source, and a network interface jack **88** so that it may be connected with a computer network or directly to a computer (not shown).

Decoder box **82** may also function as a two-way device, so that it may receive feedback from hand-held device **12**. Decoder box **82** may, with a graphics-rendering unit such as a Scorpion processor (not shown), display information received from hand-held device **12** on display device **10**. Decoder box **82** may contain network access via a suitable network connection to network interface jack **88**, which may supplement or replace the need for network access on hand-held device **12**. Decoder box **82** may also contain means to control peripheral devices, such as a VCR. Users, upon receipt of information such as a television schedule on their hand-held device **12**, may transmit a request to decoder box **82** or VCR (not shown) to schedule the recording of a television program.

Turing to **FIG. 6**, when the discriminator of hand-held device **12** determines that the video signals received from display device **10** contain auxiliary data, or auxiliary data is received via other means, the circuitry of device **12** may then causes audio transducer **34** present on printed circuit board **26** to sound a tone or "beep", providing assurance that the auxiliary data has been

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received satisfactorily. A suitable aperture **37** may be provided on the front or rear surface of enclosure **14** to allow sound to pass from audio transducer **34** to the user of hand-held device **12**.

Hand-held device **12** may contain more advanced means of providing sound to its user. Hand-held device **12** may contain advanced sound circuitry (not shown) to enable device **12** to play digital audio, including popular audio formats MP3 and MIDI, herein "advanced sounds." The sound is preferably preset on the hand-held device **12**. However, sound may also be downloaded to or prerecorded on hand-held device **12** and configured such that when an event occurs for which a sound is desired, the event triggers the circuitry of device **12**, which causes sound to be transmitted through audio transducer **34** or other hardware (not shown) designed to allow the user of device **12** to listen to the sound. Hand-held device **12** may also be configured to play sounds upon user demand, such as when user actuates button **22** and/or reception button **23**.

Hand-held device **12** may also be configured to initially prohibit user from taking advantage of prerecorded, preset sounds or promotional opportunities so that sounds or promotional opportunities are unavailable to the user of device **12**. The hand-held device **12**, upon receiving specific auxiliary data that directs device **12** to unlock the sounds and promotional opportunities makes them available to the user. The sounds and promotional opportunities may then be available to the user for a limited time or indefinitely.

An additional feature of the present invention is that circuitry of hand-held devices **12** may coordinate transmitting and reproduction sound between the device **12**

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and other devices 12 and other peripheral devices (not shown). This circuitry is herein termed " sound coordination circuitry." Once the sounds are available for use on hand-held device 12, users of device 12 may perform the sounds as per the desired promotional event. Through use of computer interface 70 as described in Koplar, or other communication means such as IR or RF, a hand-held device 12 may synchronize songs with other devices 12 and other peripheral devices by transferring and receiving information and triggers from the various devices 12.

The circuitry may also cause operation of one or more of lights 20 to indicate a value that has been received. By outfitting hand-held device 12 with lights 20, device 12 is capable of providing promotional opportunities.

FIG. 7 illustrates features of hand-held device 12, including the provision of aiming light 24 on front surface 16 of device 12. Aiming light 24 is typically included on embodiments of hand-held device 12 where video signals are optically received by device 12, such as to indicate that device 12 is positioned such that it is capable of capturing video signals emanating from a display device 10. When button 22 is pressed while the leading edge 18 of hand-held device 12 is generally oriented toward display device 10, received composite video signals on device 12 cause illumination of aiming light 24 to indicate that video signals are being received. Aiming light 24 illuminates for so long as data is being received, for a predetermined period of time sufficient to indicate that hand-held device 12 is oriented or aimed correctly, or for a long enough time

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period as to enable the encoded signals to be received by device **12**. Aiming light **24** may be included on embodiments of hand-held device **12** where the video signals are electrically received to alert the user that auxiliary data is being received, such as through IR, RF, or through computer interface **70**.

Referring back to **FIG. 6**, the internal features of hand-held device **12** are illustrated. The features may be seen to include a printed circuit board **26** having integrated circuits **28** including button **22** and aiming light **24**. Circuit board **26** is shown to include photosensor **30**. Photosensor **30** is oriented so that it may receive light through a suitable aperture **37** (not shown) along leading edge **18** of hand-held device **12**, which aperture **37** may be at locations as shown in **FIG. 2** and **FIG. 3**. Circuit board **26** is powered by one or more batteries **32** or other suitable cells (not shown), intended to provide sufficient power for operation of hand-held device **12** for days, weeks, months, or years. Batteries **32** may be used with other similar sources of portable power, such as solar cells **33** (as shown in **FIG. 10**). It will be appreciated in the art that the electronics of a PDA, cell phone, or other computer-like device capable of processing auxiliary data as described herein may contain a significant amount of additional circuitry (not shown) to provide functionality unrelated to the present invention.

Three lights **20** are shown present on circuit board **26**, and they may take the form of LEDs. However, as will be understood from study of **FIG. 6**, circuit board **26** may include the capability for more than three such lights.

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For example, it may include circuitry for energizing up to nine LEDs.

Referring now to **FIG. 8**, an embodiment of hand-held device **12** is shown to include LCD **44**. LCD **44** is capable of presenting the graphic content in monochrome, however color is preferably used. However, LCD **44** may also be a textual display consisting of 16 digits, but less or more display capability may be provided based on usage and need.

Hand-held device **12** has power button **38** that when depressed will initiate operation of LCD **44** to display a coupon, a prize notification, or other information indicating receipt by device **12** of auxiliary data. For example, LCD **44** may used to display a first coupon in a circularly linked list of offers. Power button **38** may also held to initiate receiving video signals, or may be used for other display or control purposes separately from button **22**. Scroll button **40** allows a user to traverse, i.e. scroll, information retained or received by hand-held device **12**, for example, the circularly linked list of offers received and stored on device **12**. It will be appreciated in the art that any of the various buttons **22**, **23** (not shown), **38**, **40**, or **42** may be implemented by using other "pre-existing" buttons (i.e., with other functionality) on hand-held device **12**, such as the numbered buttons on a cell phone or shortcut buttons on the PDA. It will furthermore be appreciated that these buttons **22**, **23**, **38**, **40**, or **42** may be implemented via touch screen, such that physical buttons **22**, **23**, **38**, **40**, or **42** may be implemented "virtually" on hand-held device **12**. Expiration button **42** acts in the manners disclosed in Koplar. Offers received by hand-held device

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12 may be indicated not just by illuminating lights 20, but by textual information and graphics displayed on LCD 44 as may be observed in FIG. 8.

FIG. 9 shows circuit features of the card embodiment of hand-held device 12 without enclosure 14. LCD 44 is evident, as are controls 38, 40 and 42, and a pair of batteries 32 located on the right side of circuit board 26.

FIG. 10 shows a chart of an alternate embodiment of hand-held device 12 having an input-output means preferably in the form of a Personal Computer Memory Card International Association ("PCMCIA") interface 70, such as may commonly be found on a laptop computer. PCMCIA interface 70 of hand-held device 12 connects with PCMCIA connector 72 of a computer or computer-like device to transmit information back and forth. Connections with PCMCIA interface 70 to a computer are preferably made by a PCMCIA port, but the connection means may also be other known computer and computer-like slots, connections, and ports such as Ethernet, Token Ring, infrared ("IR"), RF, Small Computer System Interface ("SCSI"), Universal Serial Bus ("USB"), parallel port ("Parallel"), serial port ("Serial"), IEEE 1394 FireWire ("FireWire"), S/PDIF, AES/EBU, fiber optical cable, and Apple Desktop Bus ("ADB"). Hand-held device 12 may also utilize portable data storage (not shown), such as flash memory, mini-disc, or stick memory, to hand-transfer information from hand-held device 12 to a computer. The types of connections used in various applications of hand-held device 12 may vary based on factors including cost, transfer speed, acceptance by industry, and user preference. Implementations of hand-held device 12

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incorporating PCMCIA interface **70** and its methods of use are disclosed in Koplar and may be interchangeably used with the present invention.

FIG. 11 is another embodiment of hand-held device **12** with an input-output interface in the form of PCMCIA interface **70** and docking station **76** as shown. Docking station **76** may receive discriminated auxiliary data or composite video signals, and transfer either to hand-held device **12** by PCMCIA interface **70**. Alternatively, as shown in **FIG. 12**, docking station **76** may contain photosensor **30** so that it may be used to optically detect the video signal from display device **10**. Then either the entire video signal may be transferred to hand-held device **12** so that device **12** can discriminate the auxiliary data, or the docking station **76** itself can discriminate the auxiliary data and transmit the auxiliary data to device **12**. The data may then be transmitted from docking station **76** to hand-held device **12** by IR, RF, or by PCMCIA interface **70**. **FIG. 13** illustrates a manner in which hand-held device **12** may receive auxiliary data from docking station **76**.

Referring back to **FIG. 11**, docking station **76** may charge battery **22** of hand-held device **12** by its battery charging control **80**. Docking station **76** may implement various hand-held device **12** functions by controlling microprocessor **50** through interface drive **78**.

Turning to **FIG. 14**, a version of hand-held device **12** that may be termed a "sports" device is shown. It includes enclosure **14**, which is provided with front surface **16** which may include a visual field **54** for bearing the image of a sports contestant. In addition, LCD **44** is provided together with button **22** which allows a

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user to initiate operation of hand-held device **12**, preferably with an RF antenna **68** oriented for receiving RF signals, or alternatively for optically receiving composite video signals through photosensor **30** (as shown in **FIG. 2**), such as by holding hand-held device **12** so that leading edge **18** is generally towards display device **10** presenting a program relating to the sports celebrity or other person depicted on display device **10**. This "sports" hand-held device **12** may be outfitted, configured, and used in the manners described in Koplar and herein.

For example, as a celebrity batter takes his turn during a baseball game, television viewers direct their "sports" hand-held device **12** at display device **10** to receive composite video signals, or preferably configure their device so that they may electrically receive the auxiliary data from a signal source. In both instances, the viewers receive real-time statistics about their favorite athlete during the telecast via hand-held device **12**. Accordingly, the users of hand-held device **12** at a live sporting event may receive auxiliary information without the use of display device **10**, such as by RF or IR. Sports fans may thus obtain live statistics and trivia through use of hand-held device **12** while they watch the game live at the event and at home. Fans with obstructed views or sports fanatics may obtain additional information by use of hand-held device **12** while enjoying the live sporting event. The information received by hand-held device **12** may take many forms including, as noted, statistics such as batting average, home runs, or other personalized information about the player that is stored in device **12** for future reference or updating. An

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example of the presentation of such information on hand-held device **12** is shown in **FIG. 15**. The stored information is then conveniently displayed on LCD **44** for the device owner by the push of scroll button **40** or update button **56**, or otherwise transferred through a PCMCIA interface **70** (not shown) to a computer.

Use of "sports" hand-held device **12** in connection with a baseball game is merely illustrative. Other sports in which players have statistics that change during play, over a year, or which may include information unique to the player, such as hometown or previous teams, may similarly be downloaded to and conveyed by hand-held device **12**. In a similar manner, hand-held device **12** may also be used in connection with concerts and other special presentations. Users may acquire useful information about the concert or special presentation, such as the names of performers, set lists, the venue location and history, and related Internet addresses through receipt of auxiliary data on hand-held device **12**. Persons with hearing impairments may receive real-time text of live speeches on hand-held device **12**. Hand-held device **12** may also be used to receive information relating to monuments, buildings, cars, animals, etc. during the course of a live or video presentation, wherein the transmission to device **12** contains auxiliary data.

Hand-held device **12** may also be used in trivia applications as follows: The user watches a trivia game show, such as the popular television show "Who Wants to a Millionaire?" The user may play along by utilizing hand-held device **12**. The question is downloaded and received by hand-held device **12**, either during the broadcast or

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prior to the broadcast, by use of auxiliary data and the methods described herein. The questions are synched to display device **10**, such that when display device **10** first presents the questions, the auxiliary data is sent to hand-held device **12** and triggers it to display the question and possible answers to the user. The user chooses the correct answer, or places the answer in order in a timely manner, or must otherwise comply with the rules of trivia game request in a similar manner to that of the contestants. The user receives points or credit for the correct or timely answer, based on various factors that may include the number of other at home users who answer correctly or speed of answer. The percentage of at home viewers either nationwide, local, or by other area may be displayed in real or delayed time either on display device **10**, Internet website or hand-held device **12**. Users may achieve regional or national rakings based on their performance. The final results from the various games may then be stored at a central database. Users who achieve a high score may receive recognition, a prize, or an option to play in a future televised game.

Hand-held device **12** may also be used with other trivia applications as follows: A user takes hand-held device **12** and appropriately configures it to receive modulated video from display device **10**. During an event, such as the "Grammys", performers appear on the screen and perform a song. The user is then notified that a promotional opportunity is available, either through display device **10** or hand-held device **12**. This preferably occurs as modulated video triggers a graphic rendering unit in decoder box **82**, creating an icon to

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appear on display device 10. (Thereby not appearing on display device 10 of people who do not have such a unit.) Hand-held device 12 provides the user with an opportunity to purchase a song or album on which the performers appear. The money for the purchase may be made through online automation or a third-party Internet website, or may be entered or taken from a website. Alternatively, if the user so desires, an order requiring final approval and payment information may be sent to the user's e-mail address. The user may then purchase the music in the following manners: directly, through a third party's website such as the affiliate program at "CDNow", or directly from the manufacturer. Otherwise, a link for the special purchase can be sent to the user's preferred e-mail address. Bonus or additional rewards may be sent along with the purchased product such as a bonus disc with previously unreleased material, live songs or videos, or future product discount. The user may choose to have the song sent in appropriate digital format to their e-mail account, or the selected song may become available for a period of time at a website for the user to download. Finally, the song may become part of a list that, when full to the length of a CD, the CD is automatically created and sent to the user. It will be appreciated in the art that this method of purchasing may be used with any other similarly sold products (such as jewelry on the "QVC network").

Other examples for use of this technology include participatory game shows produced for television distribution, whether produced and distributed for broadcast, cable, direct satellite, or close circuit transmission; whether distributed by means of home video

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or DVD may be encoded with auxiliary data enabling viewers of programming material to decode either optically or electronically; process, store and display the data on hand-held device **12** for the purpose of winning prizes or accumulating points. Participatory type games include: (1) games revolving around trivia questions dealing with subjects such as sports, music, news, movies; (2) games revolving around Multiple choice questions; (3) games dealing with true or false/ yes or no type questions; (4) games dealing with guessing letters; and (5) games dealing with question revolving around Who? What ? Where? When? How? or Why?

The viewer of display device **10** participates remotely either at home, at a pubic establishment such as a restaurant or bar, or in a hotel room, all by means of hand held device **12**. As the answers are decoded, processed and stored in hand-held device **12**, the viewer then chooses a response to the questions by depressing from a choice of buttons the correct answers. In case of hand-held devices **12** with LCD display **44** such as the PDA's, cell telephone, or wireless handset, the choice of answers may be displayed on LCD **44**. By touching the choice with a stylus, pointer or finger, the answers are pre-defined by the televised show in determining the correct answers. Accumulation of winning answers are tallied within hand-held device **12** and displayed to the user in a numeric tally format. Answers may also alternatively be presented to a user in the form of an alphabetical display.

Point accumulation or winning combinations are then redeemable for various levels of prizes, and are redeemable by a program's sponsor at point of sale,

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through the computer or computer interface means **70**, or by the program's fulfillment process.

Thus, in the case of a national televised trivia contest, participants participate at various sports bars where they are issued a "play-along" hand-held device **12**. During the televised game, participants in the various sports bars across the country compete by guessing the correct answers and tallying points not only against each other, but also the studio contestants on the shows. The winning holder of hand-held device **12** may be awarded a cash prize or other consideration including a possible appearance on the television show. The redemption may occur through hot syncing the hand-held device **12** to the program's web site, to a sponsor's retail site, or by other means of fulfillment.

In **FIG. 16**, a schematic circuit diagram of one form of circuitry that may be used to provide the features and functions of the several embodiments described herein, elements are identified by their conventional numerology conventional characters proximate of the elements. Optional photosensor **30** is seen to be constituted by a photodiode or phototransistor **Q2** which provides the signal to amplification and filter circuit consisting of an operational amplifier **U1A** including a circuit consisting of the components of **C1**, **R19**, **R18** and **C12** interconnected between the output and the inverting input of operational amplifier **U1A**, and so providing an amplifier and filter. Thus amplifier and filter signal is provided through **R15** to a filter and frequency shaping circuit comprising of an operation amplifier **U1B** having in its feedback circuit the components **C10**, **C11** and **R16**. These circuits provide a filtered, frequency-shaped

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output through a resistor **R5** through a circuit consisting of operational amplifier **U1C** and resistor **R11**. Operational amplifier **U1C** has an output coupled to a diode pair **D11** which thus provides a pair of outputs, the upper to a circuit comprising an operational amplifier **U1D**, providing in effect a buffer whose output is a data signal delivered through a resistor **R20**, and the lower of the diodes **D11** providing a signal through a resistor **R1** to a further resistor **R7**, across which is a capacitor **C3**. The node between resistors **R1** and **R7** provides 16 kHz signal that is of the horizontal line scan rate or frequency television display optical signals received by photosensor **30 (Q2)**. The horizontal scan frequency of conventional NTSC color signals is, more precisely, 15.625 kHz. (approximately 16 kHz, as here described). Similarly, the discriminator circuitry provides at the output of operational amplifier **U1D** an 8 kHz signal representative of the auxiliary data received, as produced by alternate-line luminance modulation of the display. The discriminator circuit thus described provides both the 16 kHz and 8 kHz (more precisely, 7.8175 kHz), which constitutes the actual data, and determines whether the 8 kHz data carrying the information (data) content of the received auxiliary data is present by determining whether average signal magnitude of the 16 kHz or 8 kHz signals is greater, so that if auxiliary data is present, i.e., there is 8 kHz modulation energy in the received light signals, they are provided to a microprocessor **U2** of the circuit for decoding the information content within the 8 kHz signal. Thus, the received composite video signal is amplified and filtered to de-emphasize the 16 kHz signal and

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retrieve the 8 kHz signal carrying the data. I.e., wave shaping and frequency shaping filter circuits provided by operational amplifiers **U1A** and **U1B** de-emphasize the horizontal retrace frequency and amplify the half-frame rate carrying the data content of interest. The circuits filter the frame rate signal and use it as a reference to compare its relative signal magnitude against the 8 kHz data-carrying signal. If the retrieved 8 kHz signal is of greater magnitude than the conditioned 16 kHz signal, auxiliary data is present and may be utilized by the processor. Microprocessor **U2** is preferably of commercially available type Z86E02, and operates according to machine instructions stored in its resident ROM memory. Although not separately shown, microprocessor **U8** includes random-access memory (RAM or DRAM) in which decoded data is stored. Thus, microprocessor **U2** is to decode and store, or store indication of, the data present in the 8 kHz signal, as by illuminating one of more of the LEDs and causing them to remain on as evidence or indication of the data, substantially in accordance with the teachings of Broughton or Ciardullo, and to drive displays of the device and/or its LEDs or other signal devices, as well as to provide any audio function, as well as also to energize an aiming LED **D7** when auxiliary data is present. So also, if desired, a signal may be driven by **U1** in response to the presence of the auxiliary data, thus providing an aiming light function indicating, in simple effect, that the hand-held device is receiving composite video signals or auxiliary data.

For providing illumination of lights **20** or **20a-20d** described above in connection with the various

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embodiments, shown here are nine LEDs **D8-D18**. It will be understood that not all of these LEDs need be used for a specific embodiment of hand-held device **12**. That is, the circuit may be configured so as to drive one, two or three or more of the LEDs as according to the desired function and use of hand-held device **12**.

Shown adjacent microprocessor **U2** are two diodes **D15** and **D20** that are used to bypass any noise generated from the microprocessor. The speaker **SPK1** is element **34** shown in **FIG. 6**. A clock crystal **XTAL1** provides 8 MHz clock signal to microprocessor **U2**. Capacitors **C8** and **C9** are part of the clock circuit.

Immediately adjacent the clock circuit is a switch **S1** to provide the function of button **22** in the several embodiments for initiating operation of the device. Switch **S1** is tied to a power supply circuit comprising power cells **V2** and **V3** (each of 1.5v potential), and a resistor **14**, and including a switched analog power circuit comprising a transistor **Q1** and resistors **12** and **13** which enable power to be provided to the array of LEDs **D8-D18**.

FIG. 17 is another version of circuitry, which may be used to provide still other embodiments of hand-held device **12**. It includes a microprocessor **U2** that may of commercially available type Z86X08. It is similarly provided with 8 kHz and 16 kHz signals (more precisely 15.635 kHz and 7.8175 kHz) that respectively constitute the horizontal retrace signal and the data signal at half of that frequency, since the auxiliary data encoded on alternate horizontal lines and so is effectively present at only half the horizontal scan rate, as explained above. These signals are identified as **VEILA** and **VEIL**

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REF that are provided as inputs to microprocessor **U2**. Therefore, it will be understood that operational amplifier circuits consisting of operational amplifiers **U1A**, **U1B**, **U1C** and **U1D** provide the same functions of amplification, filtration, frequency shaping and discrimination, as well as buffer circuits described in **FIG. 16**. The microprocessor, clocked by crystal **X1** at 8 MHz, decodes the data provided by the composite video signal, stores it in internal RAM or DRAM and drives an LCD **44** illustrated as circuit component **LCD1** which may be, as shown, a 16-character by 2-line display. It may instead be a 12-character by 3-line display, for example, or other format appropriate for the display message to be presented at the surface of the device.

Power for the circuit is provided by two cells **BT1** and **BT2** of 3 volt potential to a circuit including **Q2** to provide not only main power by auxiliary power, the later being delivered to microprocessor **U2** for maintaining its continued operation, such as for date and time keeping even when LCD **44** is not being operated and collectively referred to as battery **22**. A switch **S1** is provided for performing the function of power button **38** (as shown in **FIG. 8**) in the several embodiments and, when pressed, enables power to be provided to the LCD1 and other switching functions may be provided by switches S2, which controls scrolling of the LCD **44**, and switch **S2** may be actuated by scroll button **40** shown in **FIG. 14**. Similarly a switch **S3** provides a date function that may be actuated by expiration button **42**. These signals control inputs to operational amplifiers **U3A** and **U3D**, respectively, and these are provided as inputs to the operational amplifier and also to LCD1. The clear switch will, when operated

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as described above clauses clearing of the date, and the scroll switch enables the user to cause the message across the LCD **44** as that in **FIG. 8**. Operational amplifiers **U3C** and **U3B** provide voltages useful according to the connection illustrated.

The circuit embodiments shown are used in conjunction with a method for producing a composite video signal containing video program material and control data, and displaying the signal on a television and decoding such control data for ancillary use, wherein the method includes modulating at least one video field within the viewing area of display device **10** in such manner that the modulation is substantially invisible to the television viewer, thereby producing a video subcarrier component of the signal (which is as indicated detectable at an 8 kHz rate) containing the data; and detecting the component to reproduce the data for the ancillary use. Although luminance modulation is particularly useful for that purpose when using hand-held devices **12** in accordance with the invention, chrominance modulation may instead be employed as according to Broughton. Furthermore, the improvements in modulation described in Ciardullo may likewise be used and may be preferable depending on the particular embodiment. Various alternative modulation (and corresponding modulation) schemes may be employed as alternatives, including (but not limited to) amplitude shift keying (ASK), frequency shift keying (FSK) modified frequency shift keying (MFSK), and phase shift keying (PSK). And although the substantially 8 kHz data-carrying submodulation is at half the NTSC horizontal scan rate, other submodulation techniques may be used at other

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multiples or submultiples or other periodic rates which are other functions of the horizontal scan (retrace) rate.

FIG. 18 is a block diagram of circuitry of yet another possible embodiment of the interactive hand-held devices, designated **12**, which shows discriminator and microprocessor circuits **66** which are in accordance with **FIGS. 16** or **17**, and receiving composite video signals by photosensor **30** so as to decode the auxiliary data and provide either light signals as described above, or, preferably, to drive LCD **44** according to the foregoing description. Thus, it includes an update or initiating button **23**, as according to the "sports" hand-held device **12** and upon actuation begins the process of optical detection. In addition, an FM receiver **62** and associated antenna **64** (collectively seen as RF antenna **68** in **FIG. 2**) may be provided as a surface-mount module added to the printed circuit board **26** of device **12**. FM receiver **62** and associated antenna **64** may be of commercially available design, suitable for being powered by battery **22** or cells (not shown) provided in accordance with the foregoing description of various embodiments. Control button **66** may optionally initiate operation of FM receiver **62** so that it sends FM-demodulated signals to microprocessor circuits **60**. The FM receiver **62** be any type of RF antenna that is of the size and accordance with the invention, such that the discrimination may take place on a decoder **82**, and the results are sent to the hand-held device **12** via RF.

Hand-held device **12** may be utilized in sports environment as described in relation to **FIG. 15**, but the addition of FM receiver **62** gives device **12** the capability

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of being used in sports stadiums and other performance venues where video signals are not readily available. Thus, hand-held device **12** may receive either optical signals or electrical signals. In the case of a hand-held device **12** according to **FIG. 15**, the user may as described above receive statistics about a player depicted on device **12**, or about a player at bat. According to a preferred method of using hand-held device **12**, the same auxiliary information as would be transmitted via a television broadcast for being received on a display device **10**, there to be displayed as composite video signals, is in addition transmitted by low-power FM signals in the FM broadcast band of 88-108 MHz. For this purpose, FM receiver **62** may be pretuned to an appropriate frequency for such low-power signals. The FM signals may include batter statistics, for example, as batters come to bat, so that holders of the new devices **12** may update their devices as their preferred batters come to bat.

Hand-held devices **12** may have use in various sports events, entertainment presentation, conventions, museums, tours, and guided events at which holders of devices **12** might not conveniently use them while in the presence of a display device **10** carrying auxiliary data, but where the location in which the devices **12** will be used will permit low-power FM or other RF signals. Other commercially significant usage of the devices of **FIG. 18** can be made, similar to the methods of using the previously described versions. Similarly, hand-held devices **12** may be adapted to receive AM signals, or auxiliary light signals such as IR (infrared) light signals, different from the composite video signals.

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Similarly, hand-held devices **12**, whether or not sized as "cards", PDAs, or cell phones or other conveniently hand-held size, and whether in the form of racing devices, may simulate other objects, vehicles, personalities, or devices for house-hold, personal or business use, so as to provide a verisimilitude or facsimile representation of such devices **12** or usage, so that hand-held device **12** suggests to the user the manner of its use, or conveys to the users special feeling, sense, identity or association with a field, activity, sport, entertainment or other use of the device **12** it represents. In games, for example, in which some or all of the information content useful in the game may be provided by auxiliary data, hand-held devices **12** configured to provide a verisimilitude or facsimile representation of such devices holder **12** or usage may give players of the game enhanced sense of play, participation or gaming identity. The foregoing is merely illustrative of the many possibilities.

The present invention may also utilize a novel method of transmitting auxiliary data to hand-held devices **12** using the existing RBDS system. This method of the present invention is shown in **FIG. 19** and described herein. A first encoding step **102** comprises modulating a FM signal with date that will be transmitted within a subcarrier of the FM signal. Encoding step **102** preferably transpires at a radio station, but alternatively transpires at a location that records radio commercials.

Turning to **FIG. 20**, encoding step **102** may be observed in more detail. In encoding step **102**, a sponsor enters a promotional opportunity (in the form of data)

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that it wishes to provide users into a computer **110**. Computer **110** processes its input and, using RBDS encoder **112**, encodes the information within a subcarrier of the FM signal. More specifically, the RBDS methodology used with the present invention impresses the information onto a 57 kHz subcarrier within a designated frequency (e.g., 94.7 mHz). Once the FM signal is modulated to contain a subcarrier with the promotional opportunity, the FM signal is ready to be transmitted by use of FM transmitter **114**.

The preferred method of transmitting information via FM transmitter **114** using RBDS is through the use of an existing FM radio station (that broadcasts on a known frequency) during a prerecorded commercial. In this way, encoding step **102** as shown in **FIG. 19** may be completed in advance of a commercial's airing, such that additional radio station personnel will be unnecessary at the time of commercial transmission. Alternatively, encoding step **102** may occur such that the FM signal is modulated in real time immediately before it is transmitted via transmitting step **104**. By either method, the encoded information is preferably synchronized to whatever audio is contained with the main carrier of the FM signal. It will be appreciated in the art that the methods of triggering the inclusion of the information may be used interchangeably depending on the manner in which a sponsor desires to provide the promotional opportunity.

Referring back to **FIG. 19**, transmitting step **104** effectuates the transmission of the modulated FM signal after the completion of encoding step **102**. The FM signal may be transmitted as is common with non-modulated FM radio wave signals as will be appreciated in the art.

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The FM signal is transmitted via airwaves and may be received by hand-held devices **12**, as well as standard radios that are incapable of providing promotional opportunities described herein.

Appropriately tuned hand-held devices 12 during receiving step 106 may receive the FM signal as will further be described below. Once the FM signal is received by hand-held device **12**, a processing step **108** occurs in which the FM signal is processed and, when information containing a promotional opportunity is present within the FM signal, a user is presented with a promotional opportunity on device **12**.

When desirable, users may receive notification of the transmission of a promotional opportunity. In the preferred embodiment, users are alerted via the audio contained with the main carrier of the FM signal. Users listening to a radio may be instructed to "hold down your button now to receive an opportunity", or otherwise may be advised that they will soon receive or just have received a promotional opportunity on their hand-held device **12**. However, under the present invention it is not necessary for a user to listen to a radio to receive promotional opportunities. Hand-held device **12**, however, must be "listening" to a frequency to detect the subcarrier. Therefore, as an alternative, an alert may come directly from hand-held device **12**. The users may be alerted either audibly or visually, such as may include a "beeping" or other sound, the lighting of a LED **20**, shaking or other vibration of hand-held device **12**, or a text message displayed on LCD **44**.

The promotional opportunity may be processed by hand-held device **12** via various methods, depending on the

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money allocated to the manufacturing cost of device **12** and the application in which device **12** is to be used. In the preferred embodiment, the information received by hand-held device **12** contains all the text to be displayed to the user to provide the user with the promotional opportunity.

Alternatively, the information sent to the hand-held device **12** may be a trigger. Once a trigger has been received and processed by hand-held device **12**, the user may receive an audio or visual indication that an opportunity is forthcoming or that an opportunity has just been received by device **12**.

The information received by hand-held device **12** may contain means to differentiate and categorize the promotional opportunities through use of a classification code. The classification code corresponds to a category of a promotional opportunities, such categories may be found to include apparel, automotive, computers, contests, dining, electronics, entertainment, financial services, groceries, health and beauty, home and garden, Internet websites, children, pet products and travel. The aforementioned list is an example only, and other types of categorization schemes may be used depending on the applications in which hand-held device **12** are to be used.

A stored record contains a database with flags of the user's preferences. Users identify the categories in which they wish to receive promotional opportunities. The categories may be set upon issuance of hand-held device **12**, but is preferably programmed directly by the user either by connecting device **12** to a computer (via the methods of computer connection are described in

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Koplar) to download a configuration to device **12**. When a classification code is received by hand-held device **12**, device **12** makes a comparison of the classification code received against the stored record to determine whether device **12** should store the promotional opportunity and alert the user, ignore the promotional opportunity, or take another action as may be designated by the sponsor (or the user). The stored record may alternatively indicate that some promotional opportunities should be immediately stored and displayed to the user, while other categories of promotional opportunities should provide the user with the ability to view, store, and/or immediately discard the received promotional opportunities. It will be appreciated in the art that this concept of promotional opportunity categorization is novel to hand-held devices **12** and may be modified and expanded to encompass known techniques for "opt-in" mailing. Thereby, users of hand-held device **12** will not have to parse numerous promotional opportunities that they are not interested in to locate the opportunities that are of value to them. It will be also appreciated that the method of promotional opportunity categorization may function outside of hand-held device **12** and may work with other devices **12**.

Turning now to **FIG. 21**, the circuitry of the hand-held device may be observed. FM tuner **120** is used in receiving step **106** (as shown in **FIG. 19**) to receive the FM signal on hand-held device **12**. FM tuner **120** also initiates processing step **108** (as shown in **FIG. 19**) and preferably contains means to detect both the main carrier (which contains the audio) and the subcarrier (which contains the information). Without the detection means

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of the main carrier, it is impractical to make FM tuner **120** sensitive enough to identify the subcarrier.

FM tuner **120** receives the FM signal (e.g., double side band suppress carrier) containing the auxiliary data at the radio frequency specified on crystal oscillator **124**. Subcarrier demodulator **122** then processes the FM signal by converting the subcarrier signal, if present, into a data stream. Thereby, the information that was originally encoded in the studio is extracted into a raw form (i.e., the data stream). The data stream, as it exists after being created by the subcarrier demodulator **122**, is in such a raw form that it is virtually unusable. The data stream consists of a clock signal and data signal. The clock signal is synchronized to the clock of computer **110**.

The ways in which FM tuner **120** tunes to a specific frequency depends on the application. The preferred embodiment is permanently set upon crystal oscillator **124**, so that device **12** leaves the factory and remains at a constant frequency. Alternatively, FM tuner **120** may control crystal oscillator **124** such that it constantly scans radio frequencies until it locates a modulated FM signal. It then stops scanning, and determines whether the modulated FM signal is relative to the desired application. The third method is where FM tuner **120** is directly controlled by the main microprocessor **128**. Microprocessor **128**, with or without input from the user, may decide to scan every frequency or it may have a list of frequencies at which to look. It will be appreciated that hand-held device **12** may be configured to receive only those FM signals of a particular station, of a

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particular parent company, or within a particular market (e.g., St. Louis, Missouri).

The clock signal and data signal may be observed to travel from subcarrier demodulator **122** to data conditioner **126**. Data conditioner **126** is configured to be compatible with computer **110**, so that data conditioner **126** is capable of parsing out the transmitted information.

It will appreciated in the art that as the signal travels from FM tuner **120** to subcarrier demodulator **122**, the FM signal may be received by an amplifier (not shown) so that a user may hear the audio (i.e., voices and music) contained with the FM signal.

In the preferred method of the present invention, there is no start and stop pulse transmitted along with the information. This configuration differs from computer processing on a home computer, wherein the signals contain a start pulse, 8 bits of data, and a stop pulse. On a home computer, at the receiving end of the data the computer looks for a stop pulse. However, with the preferred method of the present invention, it is undesirable to allocate time and resources to look for the start and stop pulses. Data is sent continuously without start and stop pulses and instead an error correction code is sent and used. After two bytes of data are sent, the correction code is sent. During encoding step **102**, encoder 112 processed the FM signal and the algorithm was performed prior to its transmission. The computer uses its knowledge of the information to obtain the correction code. The correction code, when received by hand-held device **12** is processed by the reverse of the algorithm to determine

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the originally sent information. Data conditioner **126** therefore extracts the information from the data stream. Every time data conditioner **126** extracts a block of data, it comes up with a status and two data bytes. The status byte tells it which portion of the transmission it is receiving. The transmission consists of four bytes, the first of which is a status byte tells the data conditioner which block its is receiving, and the next two bytes are the actual data, and the fourth contains no data.

As soon as data conditioner **126** receives the first three blocks, it generates an interrupt pulse. The interrupt pulse alerts microprocessor **128** that data conditioner **26** has data and that microprocessor **50** should retrieve it. As will be understood in the art, an "interrupt" means that whatever a computer is doing prior to its receipt of the interrupt, it stops and handles the interrupt's request. When microprocessor **50** completes the task designated to it by the interrupt, it returns to its originally processing. Under the present invention, microprocessor **50** sees the interrupt and queries data conditioner **126** as to what data it has. The information transferred from data conditioner **128** to microprocessor **50** is preferably through the i-squared-c protocol, a Phillips proprietary protocol that is well known in the art.

When microprocessor **50** sees that the information is a promotional opportunity, it puts the opportunity into RAM **130**. There are four blocks of data sent every time. The first block is the PI code, which contains the station identifier or network ID. The second block describes what type of information is being sent in the

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group of four blocks. In the preferred embodiment, it will be group 2 radio text. It may alternatively be navigation information, raw data, or other type of data that could be usable within the system of the present invention.

The second block tells the specific location within the message of the next four bytes that will be received. Microprocessor **44** stores the location information within its own internal RAM (not shown) so that it has quick access to the information. After receiving the last two blocks, microprocessor **44** knows where in RAM **30** that it needs to put the blocks. Microprocessor **44** stores the data in RAM **30** for its future use.

One of the bits sent within the second block is an AB flag. Microprocessor **44** is working on two promotional opportunities simultaneously. The first promotional opportunity is the one presently being displayed; the second promotional opportunity is the one being received. When the second promotional opportunity is complete, and the sponsor decides to send a new promotional opportunity, the AB flag changes status. The flag's change alerts microprocessor **44** that the first promotional opportunity has been sent. Microprocessor **28** then pulls the promotional opportunity out of RAM **30** and displays it on LCD display **44**. While hand-held device **12** displays this promotional opportunity, the first promotional opportunity will continue to be received. The promotional opportunity will continue to be displayed received until the AB flag changes. Then hand-held device **12** displays the promotional opportunity from RAM **30**, and begins to receive another new one. As it displays the promotional opportunity, it clears RAM **30** to

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remove artifacts of left over characters. The main processor constantly looks for the flag. This process is effective when the promotional opportunities are received and not kept, such as baseball statistics during a radio baseball game broadcast. It will be appreciated that it may be desirable to retain and reuse opportunities, and the method described herein may be altered to provide such capability.

Electronically coupled to subcarrier modulator **122** and data conditioner **126** is crystal oscillator **124**. Crystal oscillator **124** is compatible with a crystal oscillator located with encoding computer **110**. Crystal oscillator **124** is a precise timing mechanism that synchronizes the data coming into hand-held device **12**.

ROM **134**, although optional, is used in the preferred method of the present invention. ROM **134** provides an efficient means for providing a way of distinguishing between various hand-held devices **12**, so that may be identifiable and, when desired, unique. By storing an ID in ROM **134**, hand-held device **12** is capable of providing many of the promotional opportunities described in Koplar and herein.

Under the present invention, microprocessor **128** inserts a space in place of each character that it moved to LCD display **44**. In applications of device **12** where it is desirable to retain promotional opportunities, the promotional opportunities are placed into a different place in RAM **130** while the user is reading them. Promotional opportunities are stacked until RAM **130** is filled to its capacity.

Microprocessor **50** can distinguish between the various promotional opportunities, by using time signal

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transmitted every minute. Microprocessor **50** may need to be equipped with a built in clock that synchs to the radio station once a minute. As the promotional opportunity is being displayed on LCD display **44** and is being saved into a higher place in RAM **130**, the promotional opportunity may be time stamped. Thereby, each message has its own unique identifier, which may be used a means of archiving the promotional opportunities.

The preferable means of providing users controls under the present invention is by means of a keypad (not shown) that connects to microprocessor **50**. The preferable method of configuring hand-held device **12** with a keypad is by inserting a check keypad command into the main loop of microprocessor **50**, such that if the keypad is pressed microprocessor will initiate a subroutine function to handle the user request. It will be appreciated that the keypad has functionality similar to the functionality described in Koplar and herein.

ROM **134** provides a means by which each hand-held device **12** may have a unique number. As information is sent, the code can be embedded within text. Use of a symbol at the beginning of a series of numbers when received by hand-held device **12** may cause the numbers not to be displayed but instead compared to the number contained with ROM **134**. When a user's unit matches the number received to the number contained within ROM **134**, hand-held device **12** can react in a special or unique way, to provide promotional opportunities as described in Koplar and herein.

There are complexities when encoding signals in real-time video displayed by monitors, such as with computer monitors. As described in Ciardullo and

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Broughton, the substantially invisible signal methods encode with one video display line brighter and one line dimmer throughout the entire monitor. Using a constant stream of encoded video content with computers requires low-level devices drivers that are difficult to coordinate with the computer operating system and the video card that it controls. Monitors, unlike traditional televisions where the video content is formatted prior to its reception, generate the video content at the operating system level, such as with Microsoft® Windows ™, by use of a video card. It is therefore difficult to control the display of a computer monitor unless the video data is generated from an application program that makes calls to the operating system to display requested data.

The present system utilizes computer software and hardware including the operating system, application program, video card, and monitor, as well as a hand-held device **12** to receive data by the user. Under the present system, the application program needs to be executed so that it will begin to transmit its data. The preferred method to imitate an application program is to trigger the start of the application program on specified user interactions with Microsoft® Internet Explorer ™ or similar web browsing software. When users interact with their web browser by moving the mouse and clicking or double-clicking, the web browser can selectively execute the application program on specified events. The application program is stored as a dynamic link library (DLL), such that the web browser can call and initiate the DLL on events where the web browser determines that it needs the DLL file. Installation of the DLL plug-in

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prior to initiating the present invention may be required so that the web browser can call the application program. When a user attempts to provide interactions to hand-held device **12** for the first time by utilizing the web browser and the appropriate web site will perform an action that requires calling the application program. The user will then be prompted by the web browser for the user's permission to download and install the DLL. After installation of the DLL, the action that the web browser wanted to fulfill will execute and the desired results will occur. Persons skilled in the art of the present invention should appreciate alternate arrangements of the present invention, as the application program may be configured to be a stand-alone program or otherwise integrated within another application program.

The application program is initiated when the user performs various actions at points throughout the website being explored with the web browser. Upon initiation, the application runs and there is an image displayed on the monitor **10** so that the user can capture the data received from the image on hand-held device **12**. In the preferred embodiment of the present invention, the image will appear in the title bar of the maximized web browser. The image may, however, be located anywhere on monitor **10** that is visible. For example, the image may appear in the eyes of a pumpkin and people with hand-held device **12** could thereby capture the opportunity or benefit on their device **12** in the form of a talking scarecrow doll that interacts with a ghost story. Furthermore, the image is not limited to a box shape; it may be virtually any shape capable of displaying a large

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enough image so that users at a specified distance from monitor **10** can capture data.

The stream of data received by photosensor **30** of hand-held device **12** is used to trigger actions on device **12** or to pass data directly to device **12** for its use. Data received by hand-held device **12** can be used in multiple different ways, including those mentioned herein and in Koplar.

In the preferred method of the present invention, the data received by hand-held device **12** acts as a trigger initiating action on the device **12**. Hand-held device **12**, upon receiving data, looks to see if the data it received matches one of its triggers. For example, if hand-held device **12** is in the form of a plush mouse, and the mouse receives a trigger that initiates a phrase such as "Hello boys and girls", then upon receipt of the trigger device **12** will repeat the specified phase. Triggering hand-held device **12** optimizes the amount of data that needs to be passed to it.

The present invention therefore describes a mechanism to receive data on hand-held device **12** from the computer or the Internet without wires. Under the preferred embodiment of the present invention, there is no feedback path from the hand-held device **12**. However, it will be appreciated that hand-held device **12** may be enhanced with means for feedback by including RF, IR, USB or other means described in herein and in Koplar. Hand-held device **12** may collect data and utilize opportunities received from data collection by any of the means described herein or in Koplar.

Under the present invention, a communication path is established to send data streaming from the monitor **10** to

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hand-held device **12**. The data is sent by strings of ones and zeros from a varying visual image on monitor **10**. Ones are detected when the image emanates the frequency, and zeros are detected when the image emanates no frequency. Thus, under the preferred embodiment where the image is shown in the title bar of a web browser, a solid white color in the title bar indicates that no frequency is present and alternating white and black lines indicate that frequency is present. For each instance in time for which hand-held device **10** is active and optical sensor **30** faces monitor **10**, if it reads the alternating white and black lines a data bit of one is recorded, and if the lines have not be ready a data bit of zero is recorded. By varying the appearance and frequency of the display of the colors on the screen of monitor **10**, data can be transmitted to hand-held device **12**.

A complexity in transmitting the data to hand-held device **12** under the present invention is the differing computer, monitor, and video card configurations transmitting the data. Depending upon the configuration, the visual image on monitor **10** will vary to transmit the proper frequency to hand-held device **12**. Further, the bit per second transmission rate of monitor **10** will vary with the refresh rate. The present invention acts independently of the computer configuration as will be described in more detail below.

Monitor **10** typically has a CRT tube which draws a picture across the computer screen and continues down the length of it from top to bottom before beginning with the next reiteration. Monitor **10** emanates an image containing a frequency that the hand-held device **12**

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detects during each successive refresh (i.e., redrawing) of the screen. During each refresh, an image will display on the specified section of monitor **10** either indicating that a frequency was present or was not. Hand-held device **12** looks for that specific frequency and records a data bit based on its result. If the frequency displayed by the image is 18 kHz, hand-held device **12** on each refresh of monitor **10** will detect whether an 18 kHz image is present. If the 18 kHz image is present, the data bit present is a one; otherwise, the data bit present is a zero.

Under the present invention, hand-held device **12** receives a binary data stream and one bit per monitor **10** refresh. If monitor **10** refreshes at 60 Hz, there are 60 bits of data transmitted to hand-held device **12** in one second. At every monitor **10** refresh, hand-held device **12** will look to see if the frequency was present or not. If the frequency is present hand-held device **12** records a data bit of one, and if the frequency is not present device **12** records a data bit of zero. The binary data stream provides the data, which may be used as a trigger or stored.

An example of the foregoing is as follows: The application program wants to send a binary code of 1011 to hand-held device **12** at a frequency of 18 kHz. When monitor **10** draws one field (i.e., one picture on the screen), it puts the 18 kHz image on the screen of monitor **10**. Optical sensor **30** of hand-held device **12** reads monitor **10**, detects the 18 kHz image, and records a data bit of 1. On the next refresh, the application program wants to show a data bit zero and so it erases the image on the screen and puts up a white block (e.g.,

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thereby not containing the 18 kHz image.) When hand-held device **12** looks again at monitor **10**, it does not detect the 18 kHz image and therefore records a data bit of 0. Hand-held device **12** thus so far has received data bits of 1 and 0. On the next refresh, monitor **10** displays the 18 kHz image and hand-held device **12** reads the image and records a data bit of 1. On the final refresh, monitor **10** leaves the 18 kHz image in place and hand-held device **12** again reads the image and records another data bit of 1. Thus, hand-held device **12** reads the code from the application.

The data signal is preferably sent multiple times to insure that hand-held device **12** was positioned appropriately and not too far outside interference impeded the transmission. Hand-held device **12** may be set to use each data it receives, or it may compare the results of the stream it received with the previous stream to ensure that the same data is not replicated within device **12**. An event manager on hand-held device **12** may make determinations as to what happens when data is received.

As briefly described above, the present invention acts independently of the computer configuration. The application program runs independently by varying the image based on the standard horizontal frequency. The horizontal frequency differs with every monitor **10** setup. The horizontal frequency is determined by 3 factors including the number of pixels on a line, the number of lines in a picture/screen, and the vertical refresh rate. Therefore, video cards configured of differing resolutions will have different horizontal frequencies. The differing horizontal frequencies impact the frequency

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at which the image on monitor **10** is displayed, and therefore the horizontal frequency is taken into account by the application program when displaying the image.

For example, if a computer video card is configure to run monitor **10** in 800 x 600 running at 60 Hz have and the desired image frequency is 18 kHz, the image will have one line set to white, the second is black, the third line white, and fourth line black, and so on. The result of that is an image frequency of 18 kHz. If the video card was configured to 1024 x 768, the first 1¼ lines white need to be white, the next 1¼ lines black and so on to get the 18 kHz frequency.

The application program makes the adjustment based on the horizontal frequency. Operating systems such as Microsoft® Windows make the number of pixels per line and the number of lines per screen available. A statistical testing program measures the vertical refresh rate by recording the time it takes for screen drawing to occur. The application program then stores the configuration in the Windows registry. The registry is data stamped so that on a daily basis the application will re-run this configuration program. It will be appreciated in the art that then statistical data could however be stored in alternate locations, and that other variations of time stamp checking could occur.

Hand-held device **12** may be any of the configurations suggested in Koplar or herein, including smart cards, cell phones, PDAs, toys, and plush animals. The only limiting factor on the type of hand-held device **12** that may be used with this particular embodiment of device **12** is that it must have optical sensor **30** or other means of reading the image from display device **10**, and the

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technology within device 12 to interpret the data received as with the present invention. It should be understood in the art that the technology for processing the data as described below could be implement in hardware, software, or a combination of hardware and software.

Optical sensor 30 of hand-held device 12 acquires the light from the direction of monitor 10 and filters out the non-usable frequencies. Hand-held device 12 first processes the received data to determine what image was present. The band pass filter eliminates leftover signal noise and leaves any present image frequency. Thus, the signal leaving the band pass filter is either something or nothing. Rectifier 260 takes the absolute value of the signal and adds it to the integrator 270. Integrator 270 accumulates each portion of the image signal received in each refresh to determine if the signal received was an image or noise. If there is sufficient signal to conclude that a signal was present, the microcontroller 280 reports a value of one; otherwise, a value of zero is reported.

Hand-held device 12 determines how frequently it must sample monitor 10. The signal after its original filtration also proceeds to envelope detector 230, which attempts to match the signal received to various monitor 10 refresh rates. The matching results are passed to the vertical sync reconstruction 240 to determine which of the standard refresh rates the monitor is using. The application program thus transmits sufficient information along with the data to hand-held device 12 so that hand-held device 12 can determine the horizontal frequency of

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monitor **10** and determine how many times per second it must look for an image and record data bits.

Referring to block diagram **FIG. 22**, it may be observed that light is first acquired **200**, then processed through a high pass filter **210** and low pass filter **220** to detect the auxiliary data as described above. A first portion of the signal is then processed by envelope detector **230** and vertical sync reconstruction **240** to determine the configuration of the monitor, the results of which are passed to the microcontroller **280**. A second portion of the signal travels through the VEIL frequency band pass filter **250**, signal rectifier **260**, and integrator **270** pursuant to the repeated requests of microcontroller **280**. Microcontroller **280**, upon receiving data upon each segment request, provides system output **290**.

In view of the foregoing description of the present invention and practical embodiments it will be seen that the several objects of the invention are achieved and other advantages are attained. The embodiments and examples were chosen and described in order to best explain the principles of the invention and its practical application to thereby enable others skilled in the art to best utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated.

As various modifications could be made in the constructions and methods herein described and illustrated without departing from the scope of the invention, it is intended that all matter contained in the foregoing description or shown in the accompanying

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drawings shall be interpreted as illustrative rather than limiting.

The breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with claims of the application and their equivalents.

The present system and hand-held devices useful in the system may be for these purposes distributed by various business entities, which may include not only the sponsor of a program, event, or other sponsored transmission, but may also include various businesses, services and organizations having commercial relationships with the sponsor. Viewer's use of the new devices of the invention accordingly provide commercially advantageous results relating to television advertising, promotions and other sponsored transmissions, wherein new system and devices and their use is effective to:

- Attract viewer attention to advertising, promotions and other sponsored transmissions
- Effectively increase awareness and retention of message and product
- Induce viewers to respond and take action after viewing to sponsored transmissions
- Differentiate a sponsor's product or service from those of competitors.
- Stimulate viewers to desire to watch advertising, promotions and transmissions.
- Provide a novel, cost-effective, brand efficient, and enjoyable medium for enhancing advertising, promotions and other transmissions

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- Cause advertising, promotions and transmissions to take on special event significance
- Build customer traffic in places of business or points of sale associated with sponsors of advertising, promotions and other transmissions
- Increase consumer loyalty to sponsors of advertising, promotions and transmissions
- Increase viewer involvement in sponsored advertising, promotions and transmissions
- Cause viewer retention of sponsor identity and advertising or promotional content
- Enhance sales volume resulting from the sponsorship of advertising, promotions and transmissions
- Provide lasting value to sponsored advertising, promotions and transmissions
- Provide enhanced viewer/spectator involvement in sporting and racing events
- Afford viewers of television programming an opportunity to interact meaningfully with programming content and with advertising, promotions and transmissions.
- Enhance viewer good-will relative to advertising, promotions and events.
- Cause development of still other opportunities for interactive use of the devices.

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Claims

1. A hand-held device for receiving auxiliary data relating to promotional opportunities from a signal source and playing of complex digital audio sounds as a result of the received auxiliary data, the hand-held device characterized by:

a receiver disposed on the hand-held device for receiving the auxiliary data from the signal source;

a central processing unit (CPU) and other circuitry disposed on the hand-held device for processing the auxiliary data received by the hand-held device and determining the existence of promotional opportunities resulting from the received auxiliary data;

a memory disposed on the hand-held device and coupled to the CPU for storing the promotional opportunities; and

an advanced sound circuitry disposed on the hand-held device and coupled to the CPU for playing of complex digital audio sounds relating to the auxiliary data or promotional opportunities.

2. The hand-held device of claim 1 is further characterized in that the signal source is a display device and the receiver is a photosensor.

3. The hand-held device of claim 1 is further characterized in that the signal source is a radio signal source and the receiver is a radio frequency (RF) receiver.

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4. The hand-held device of claim 1 is further characterized in that the signal source is a display device and a radio signal source, and the receiver is a photosensor and a radio frequency (RF) receiver.

5. A method for unlocking a sound pre-stored within data storage of a hand-held device with a receiver from the receipt of auxiliary data from a signal source on the hand-held device, the method characterized by:

transmitting auxiliary data from the signal source to the hand-held device;

receiving the auxiliary data on the hand-held device via the receiver;

processing the received auxiliary data on the hand-held device;

selectively unlocking the pre-stored sound on the data storage based on the reception of the auxiliary data received.

6. The hand-held device of claim 5 is further characterized in that the signal source is a display device and the receiver is a photosensor.

7. The hand-held device of claim 5 is further characterized in that the signal source is a radio signal source and the receiver is a radio frequency (RF) receiver.

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8. The hand-held device of claim 5 is further characterized in that the signal source is a display device and a radio signal source, and the receiver is a photosensor and a radio frequency (RF) receiver.

9. A method for providing a viewer of a video presentation with an opportunity to purchase an object relative to the video presentation via use of a hand-held device with a receiver from the receipt of auxiliary data from a signal source, the method characterized by:

transmitting auxiliary data from the signal source to the hand-held device at discrete times during the video presentation;

receiving the auxiliary data on the hand-held device via the receiver;

processing the received auxiliary data on the hand-held device;

notifying the viewer of the opportunity to purchase the object using the hand-held device; and

providing the viewer with the opportunity to purchase the object using the hand-held device based on the processing of the received auxiliary data.

10. The hand-held device of claim 9 is further characterized in that the signal source is a display device and the receiver is a photosensor.

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11. The hand-held device of claim 9 is further characterized in that the signal source is a radio signal source and the receiver is a radio frequency (RF) receiver.

12. The hand-held device of claim 9 is further characterized in that the signal source is a display device and a radio signal source, and the receiver is a photosensor and a radio frequency (RF) receiver.

13. A method of providing promotional opportunities relative to radio signals presented by a radio signal source using a RBDS encoder to a user of a hand-held device, the method characterized by:

encoding auxiliary data within a radio signal by use of the RBDS encoder;

transmitting radio signals containing auxiliary data from radio signal source;

receiving the radio signals on the hand-held device;

processing the radio signals on the hand-held device to determine whether auxiliary data is present in the radio signals;

providing the user with promotional opportunities based on the receipt of the auxiliary data by the hand-held device.

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14. The method of 13 is further characterized by providing notification to user of the hand-held device of receipt of auxiliary data by the hand-held device.

15. The method of 13 is further characterized by providing notification to user of the hand-held device of receipt of the promotional opportunity by the hand-held device.

16. A method for predetermining the selective receipt of promotional opportunities on a hand-held device of a user, the method characterized by:

selecting by user among various categories of promotional opportunities to receive via the hand-held device of the user;

storing categorization information on the hand-held device;

receiving promotional opportunities on the hand-held device;

comparing whether the promotional opportunities received on the hand-held device match the user defined categorization information; and

selectively providing the user of the hand-held device with promotional opportunities based on the comparison of the promotional opportunities to the stored categorization information.

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17. A method for utilizing modulated data perceptible in a visible image on a display of a refreshable monitor of a computer system to a user of a hand-held device with an optical detector and memory to provide promotional opportunities from a sponsor to the user, the method characterized by:

manipulating the hand-held device so that the optical detector of the device is oriented towards the display of the refreshable monitor;

selectively initiating the execution of an application program available on the computer system;

continually refreshing the display of the refreshable monitor;

continually displaying refreshed visible images containing the modulated data on the display;

receiving the modulated data corresponding to the refreshed visible images via the optical detector on the hand-held device;

storing the modulated data in the memory of the hand-held device; and

providing promotional opportunities to the user from the reception and storage of modulated data.

18. The method of 17 is further characterized in that the refreshable monitor is a computer monitor.

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19. The method of 17 is further characterized in that the application program is stored on the computer system in the form of a dynamic link library (DLL).

20. A method for utilizing modulated data perceptible in a visible image on a display of a refreshable monitor of a computer system to a user of a hand-held device with an optical detector and memory to provide promotional opportunities from a sponsor to the user, the method characterized by:

manipulating the hand-held device so that the optical detector of the device is oriented towards the display of the refreshable monitor;

selectively initiating the execution of an application program available on the computer system;

continually refreshing the display of the refreshable monitor;

continually displaying refreshed visible images containing the modulated data on the display;

receiving the modulated data corresponding to the refreshed visible images via the optical detector on the hand-held device; and

triggering a promotional benefit to the user from the reception of the modulated data.

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21. The method of 20 is further characterized in that the refreshable monitor is a computer monitor.

22. The method of 20 is further characterized in that the application program is stored on the computer system in the form of a dynamic link library (DLL).

23. A method for broadcasting modulated data discernible in a visible image on a display with a horizontal frequency of a refreshable monitor of a computer system, the method characterized by:

downloading an application program to the computer system;

installing the application program on the computer system;

running the application program on the computer system such that a visible image is presented on the display of the refreshable monitor;

detecting the horizontal frequency from the display; and

continually retracing the visual image containing modulated data during every display refresh of the horizontal frequency.

24. The method of claim 23, where the application program is further characterized in that the form of a dynamic link library (DLL) file.

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25. A system for providing promotional opportunities to a user of a hand-held device by use of signals and auxiliary data from a display device and a radio signal source, the system is characterized by:

a decoder box for with means for receiving signals from the display device or radio signal source, transmitting auxiliary data to the hand-held device, and providing the user with feedback on the auxiliary data received and processed on the hand-held device;

the hand-held device for receiving auxiliary data, the hand-held device comprising:

(a) a photosensor disposed on the hand-held device for receiving the auxiliary data directly from the display device,

(b) a radio frequency (RF) receiver disposed on the hand-held device for receiving the auxiliary data transmitted from the decoder box and from the radio signal source,

(c) a decoding means on the hand-held device for decoding the received auxiliary data,

(d) a central processing unit (CPU) and circuitry disposed on the hand-held device for processing the auxiliary data received by the hand-held device and providing the user with promotional opportunities based on the receipt of the auxiliary data,

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(e) a memory disposed on the hand-held device and coupled to the CPU for storing promotional opportunities;

(f) a visual display disposed on the hand-held device and coupled to the CPU for providing the user visual notice of the promotional opportunities available to the user via use of the hand-held device;

(g) a sponsor name printed on the enclosure of the hand-held device for providing the user with visual notice of the company responsible for providing the user with use of the hand-held device;

(h) a control member disposed on the hand-held device and coupled to the CPU, photosensor, and RF receiver to provider user selection the signal source of the auxiliary data;

(i) advanced sound circuitry coupled to the CPU to provide the user with advanced sounds based on the receipt of auxiliary data,

(j) sound coordination circuitry coupled to the CPU to provide the user with means to communicate with other devices so as to provide a coordinated sound performance,

(k) an aiming light to indicate to the user that auxiliary data is being received by the hand-held device, and

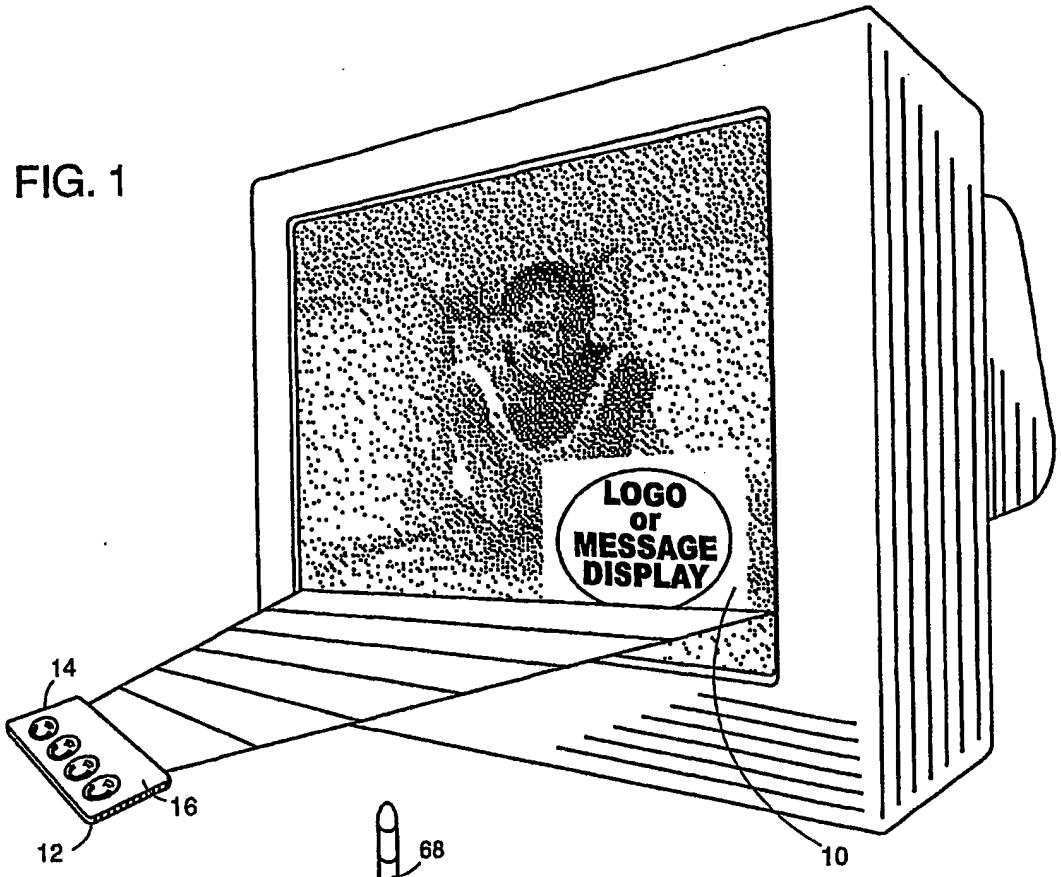
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(l) an input-output means coupled to the CPU to connect the hand-held device to a computer or computer-like device.

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FIG. 1



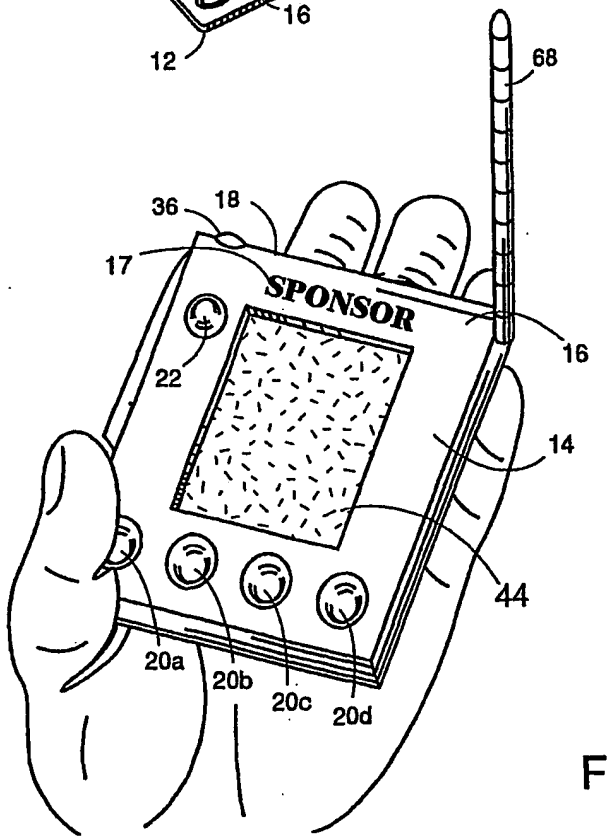


FIG. 2

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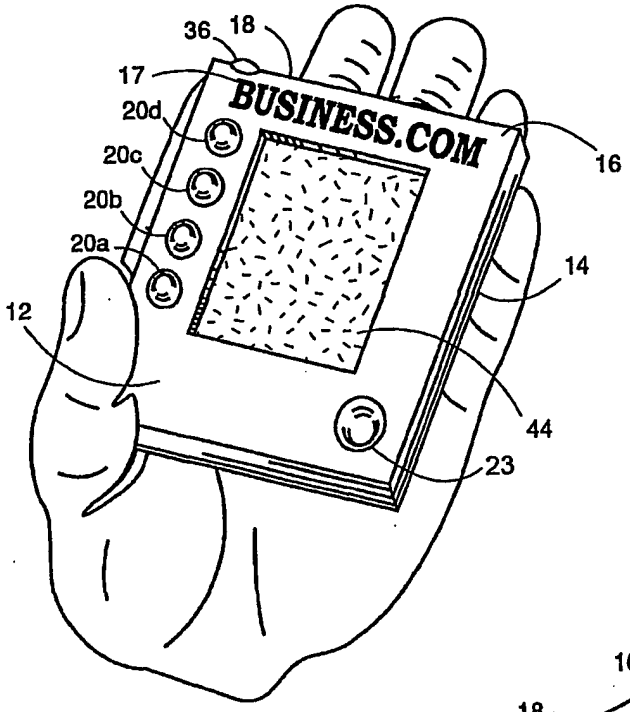


FIG. 3

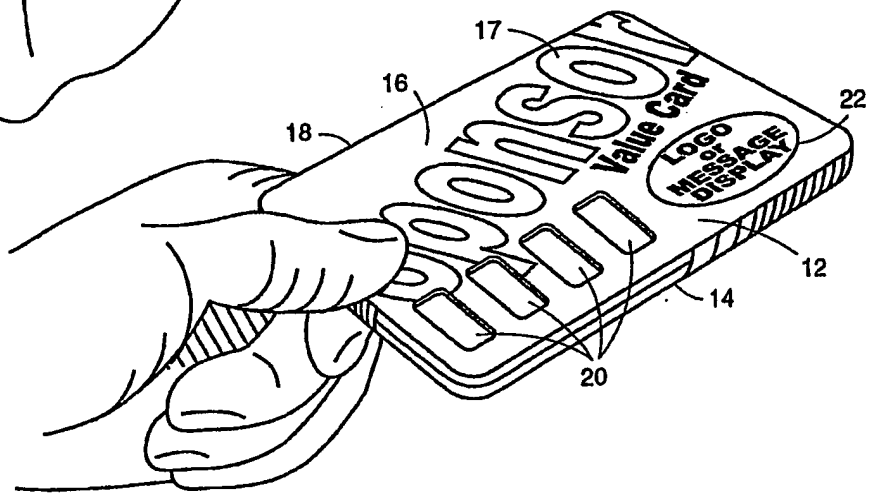


FIG. 4

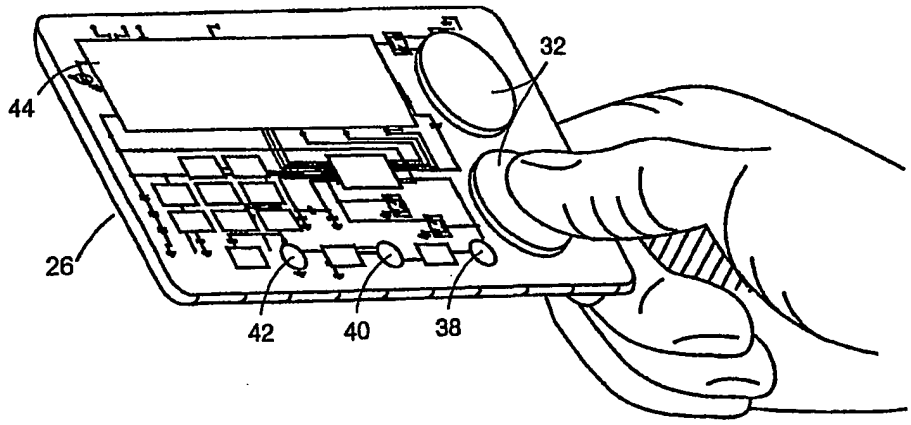
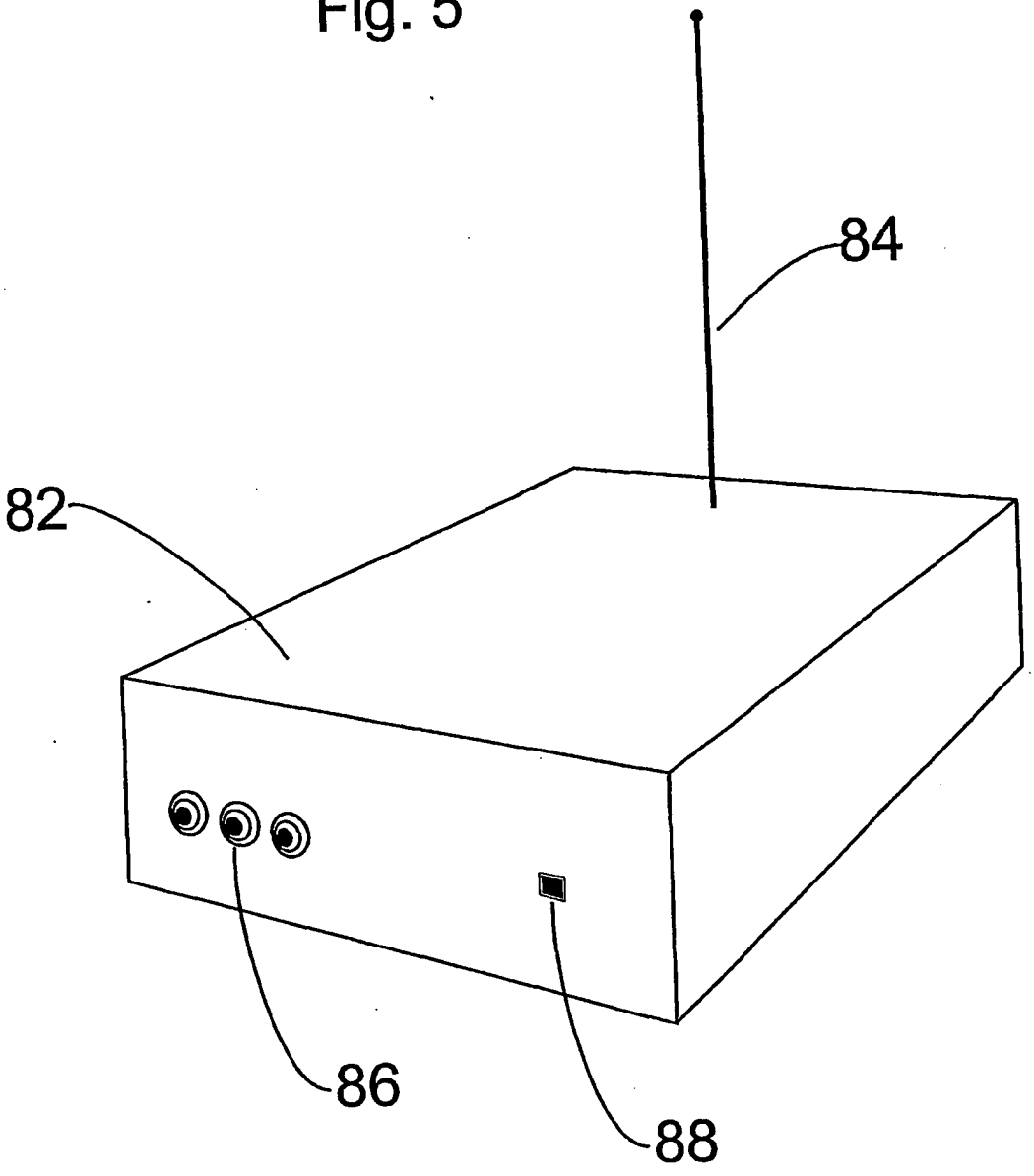


FIG. 9

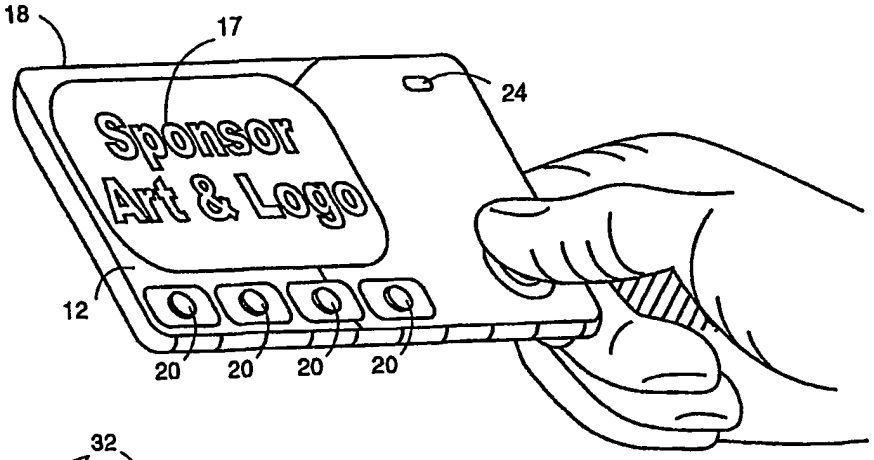
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Fig. 5



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FIG. 7



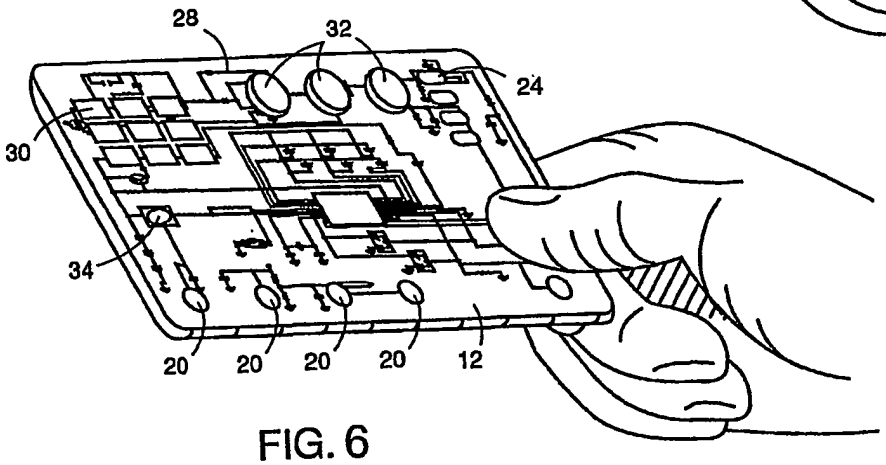


FIG. 6

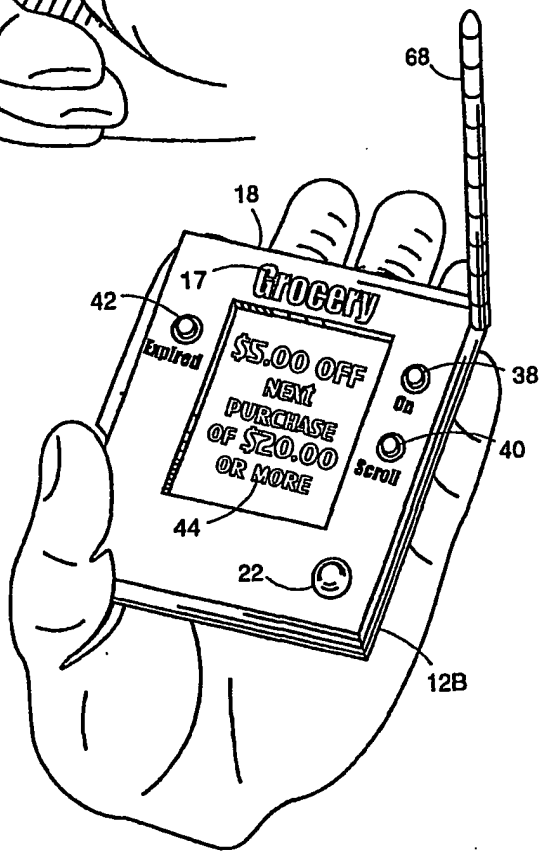


FIG. 8

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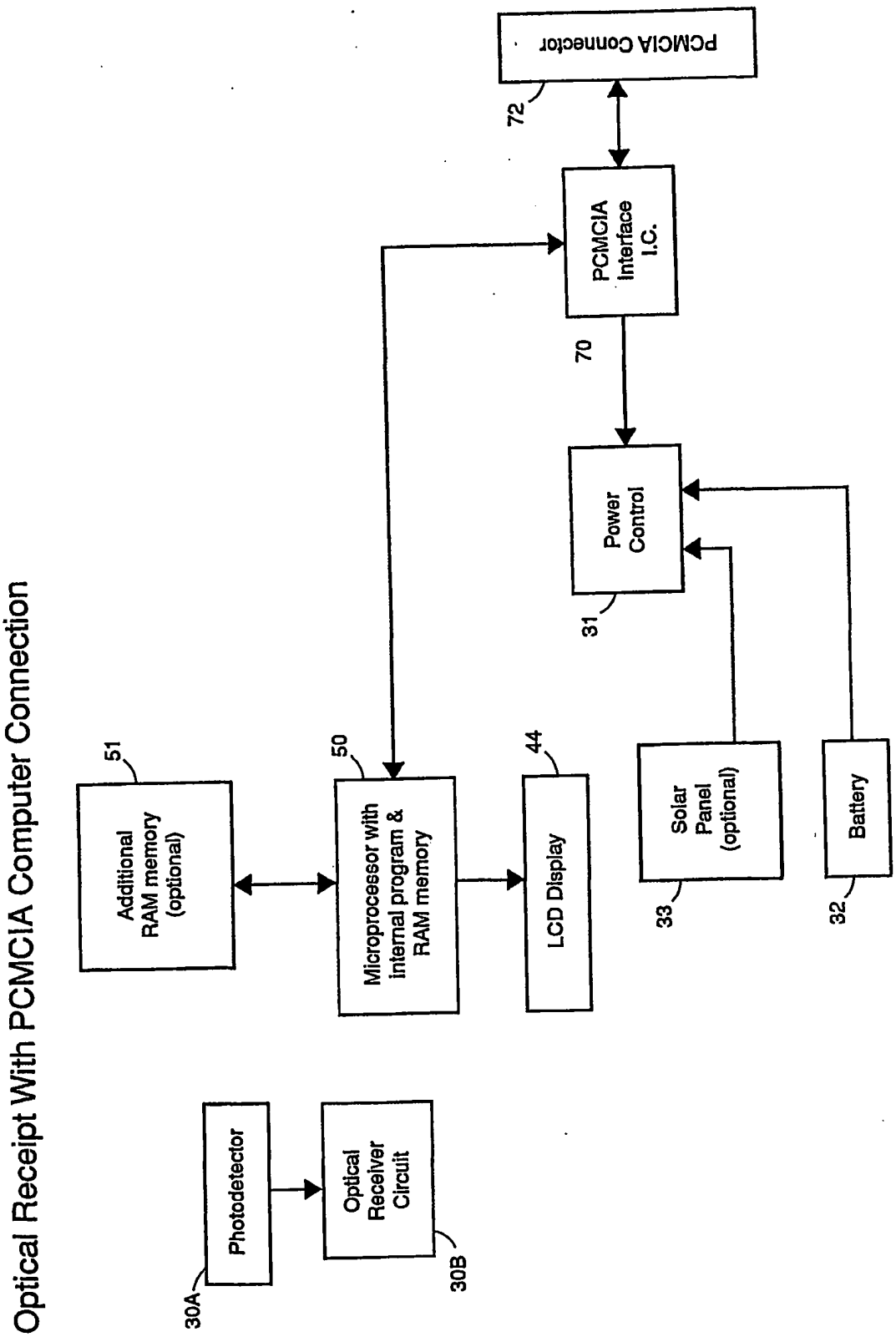


FIG.10

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Hard Wired Receipt With PCMCIA Interface – PCMCIA Card

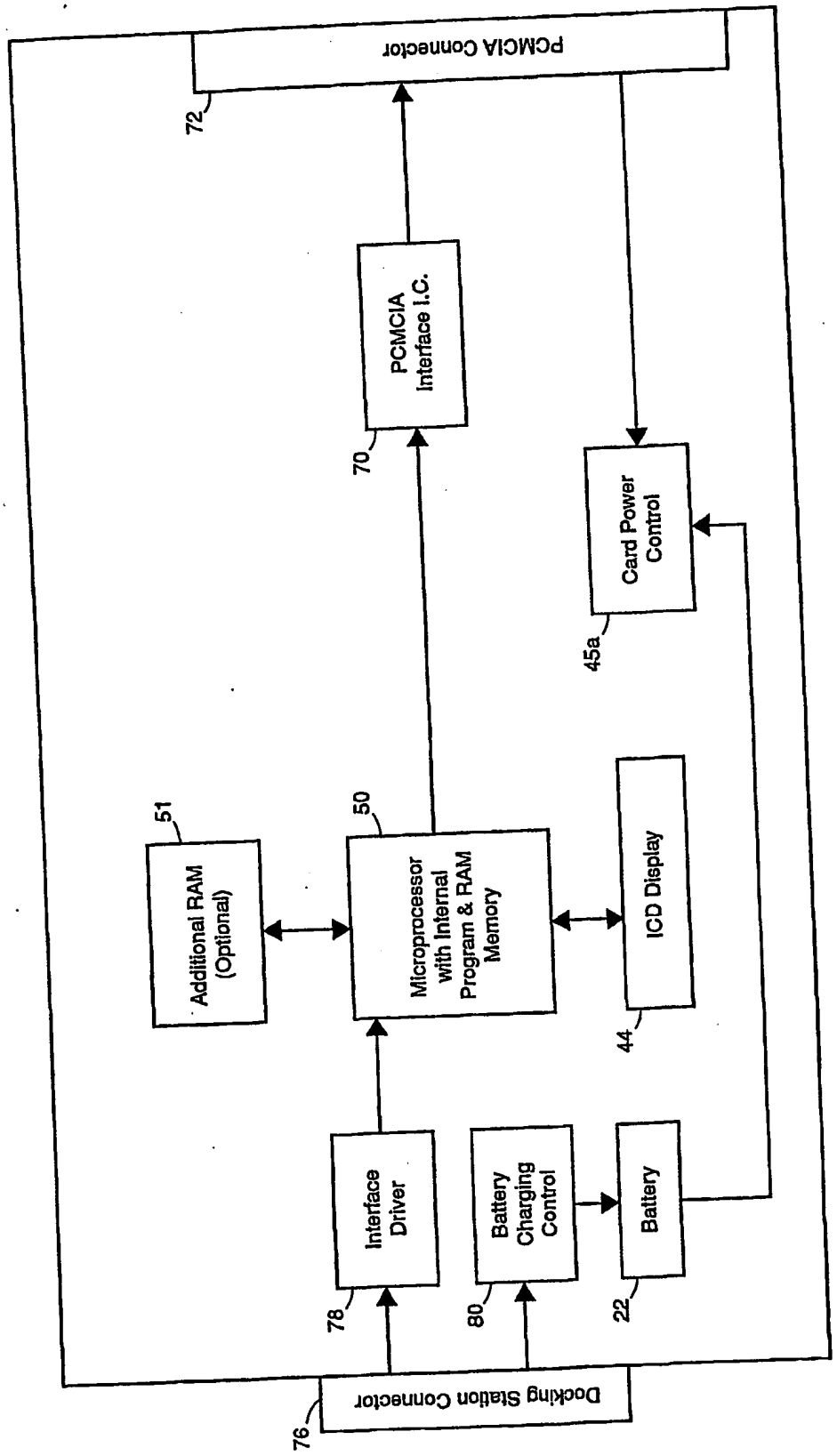


FIG.11

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Fig. 12

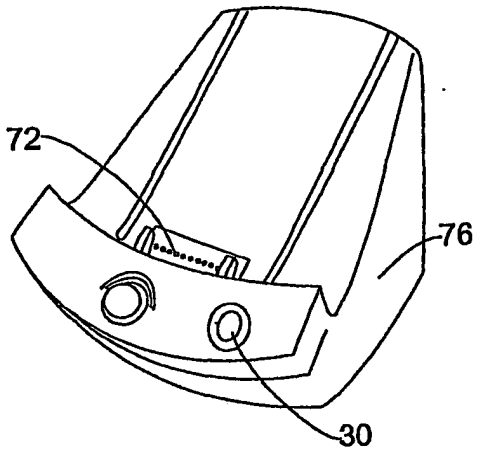
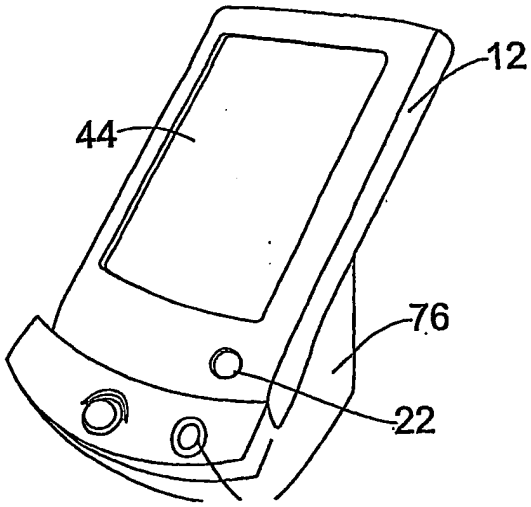


Fig. 13



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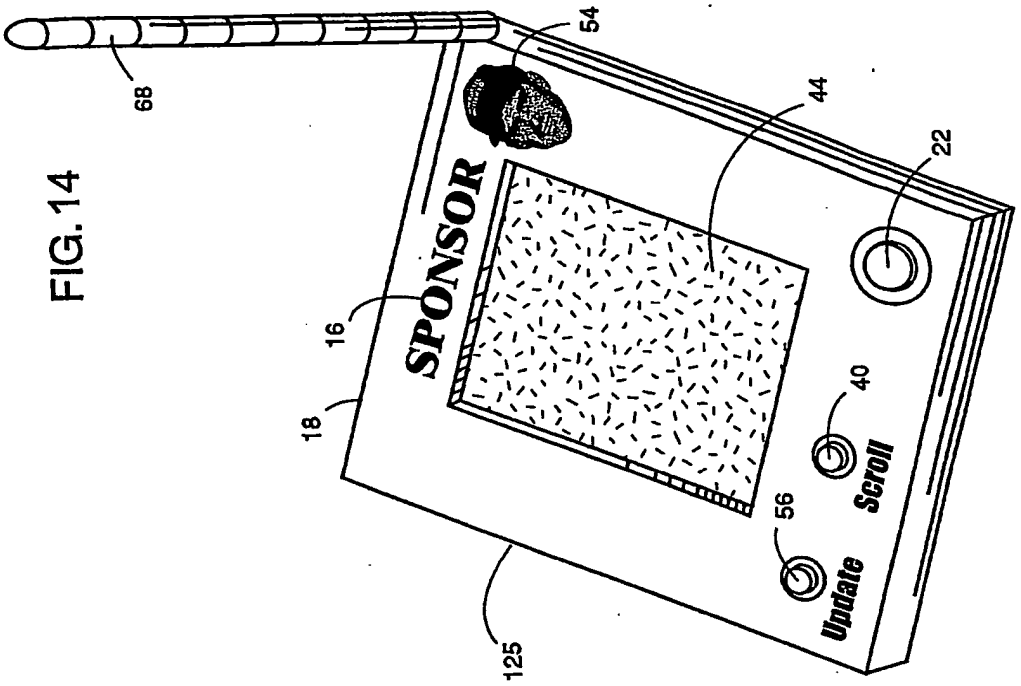


FIG. 14

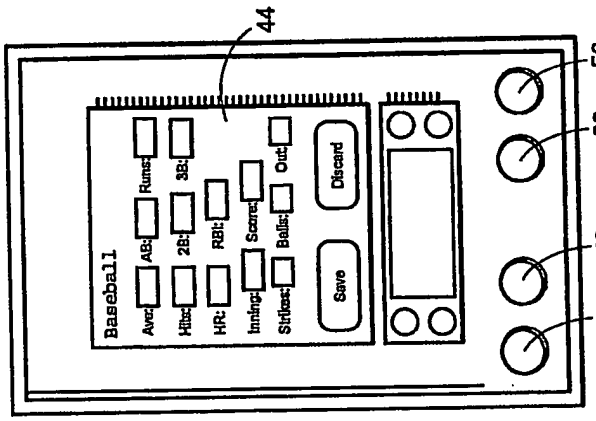


FIG. 15

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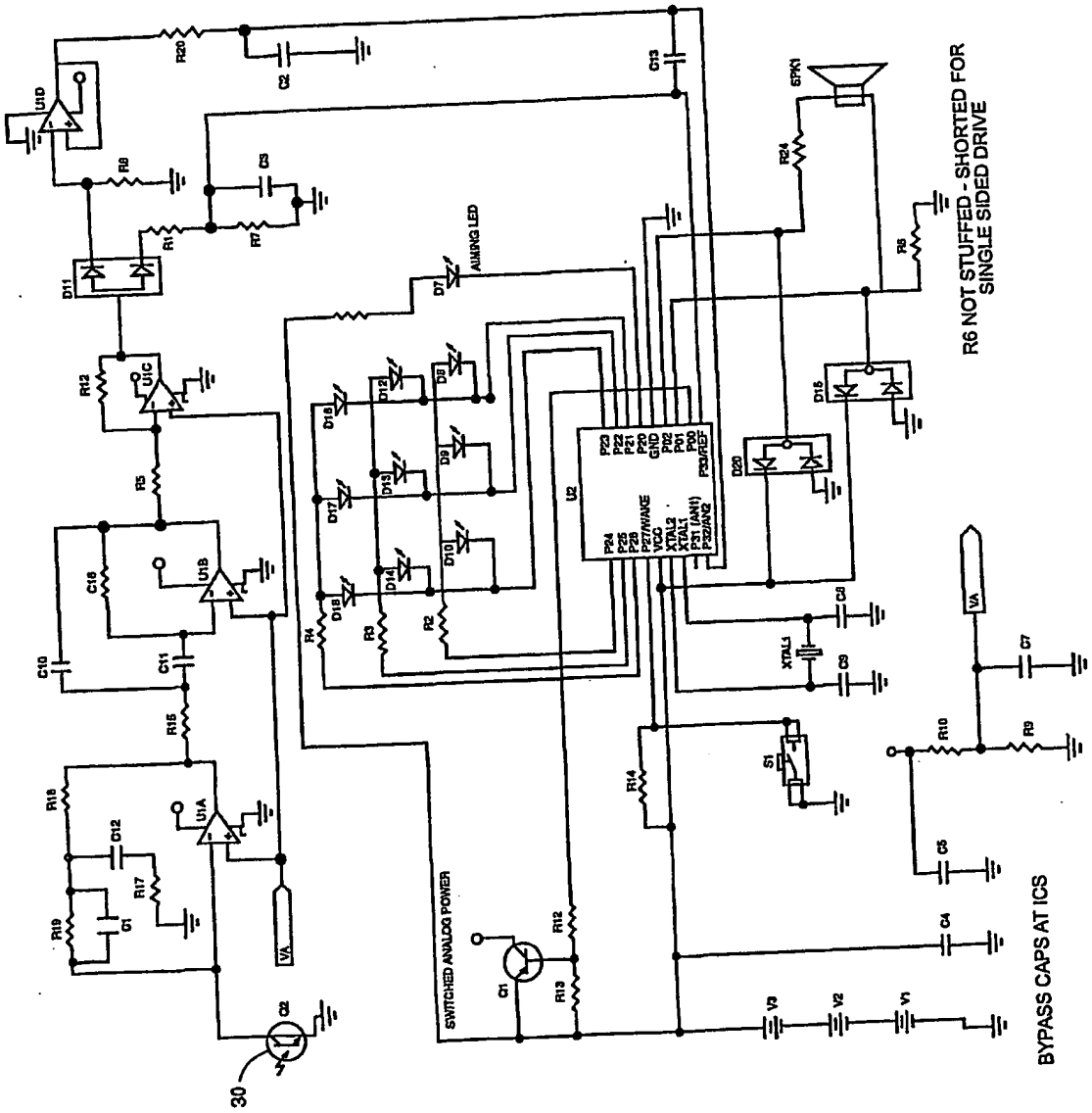


FIG. 16

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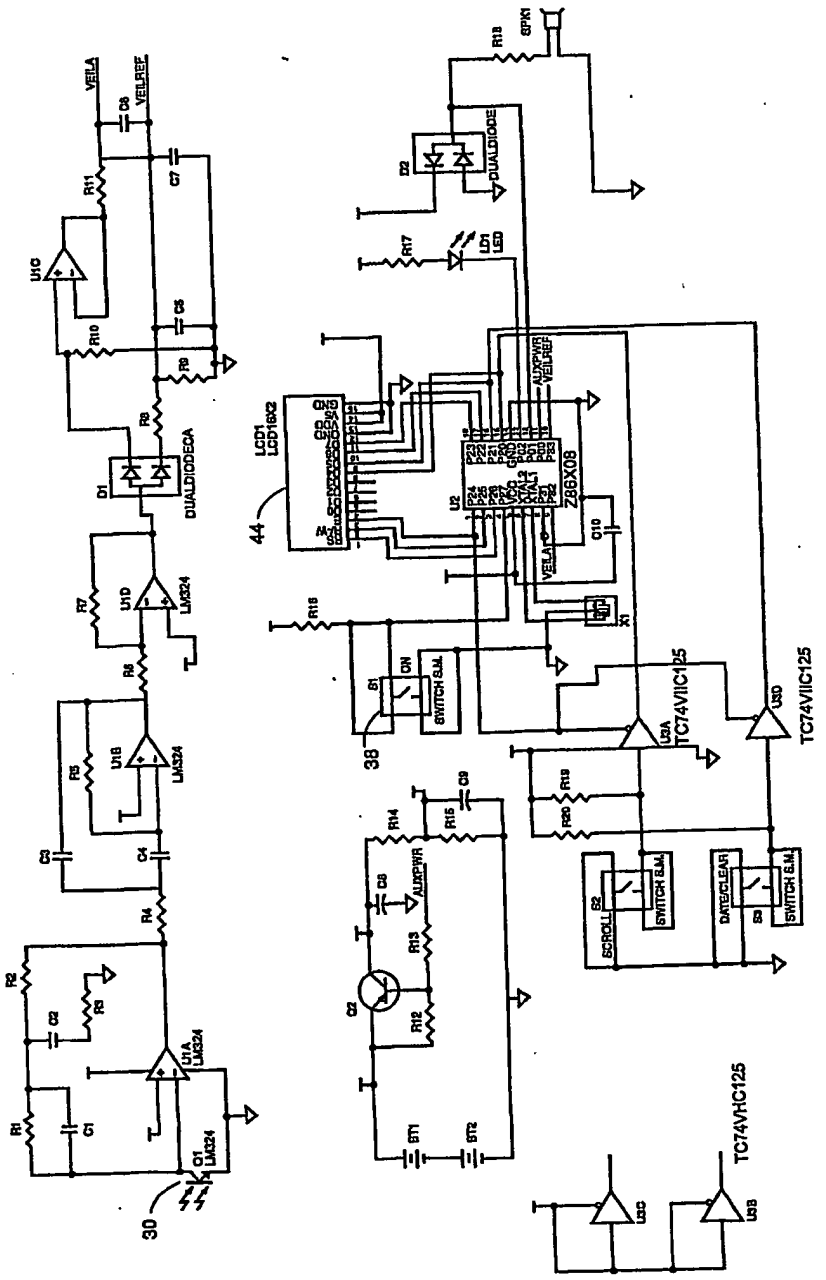
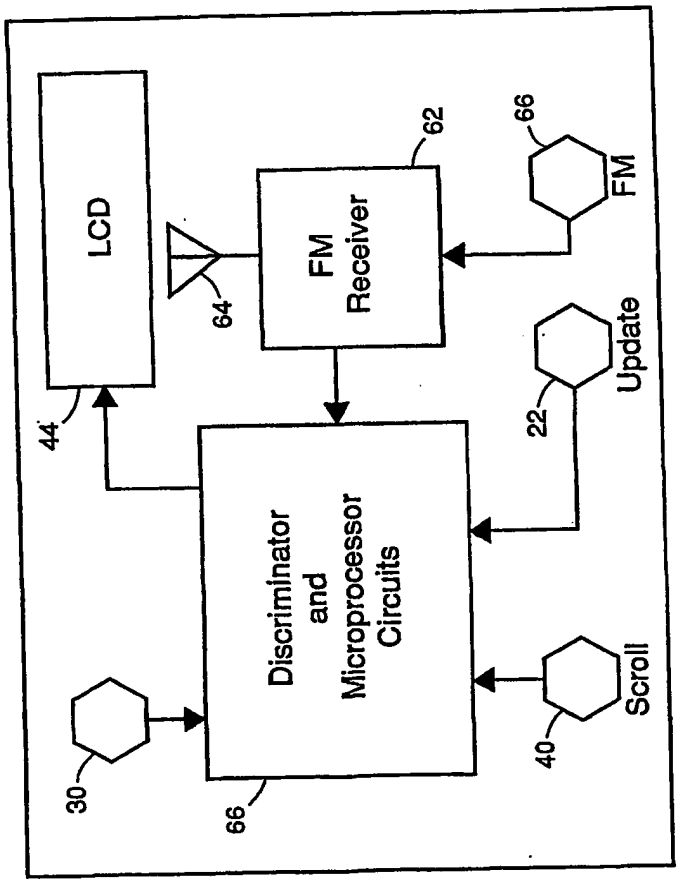


FIG. 17

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FIG. 18



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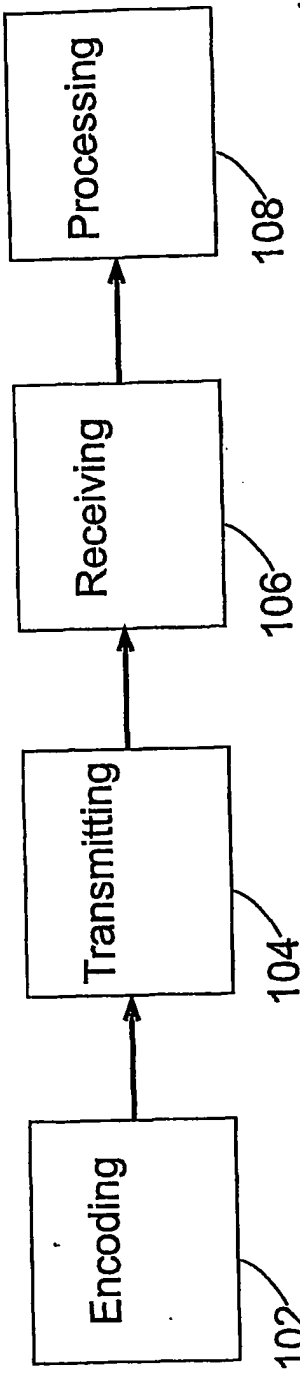


Fig. 19

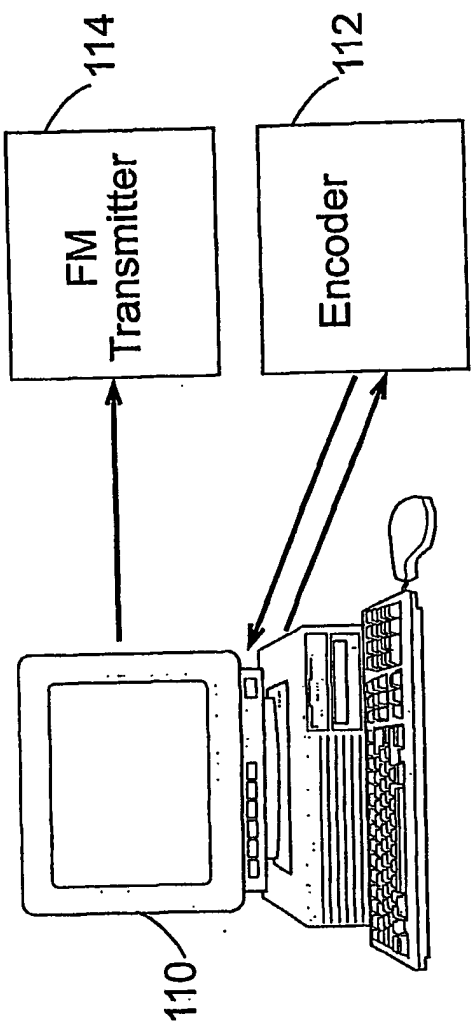


Fig. 20

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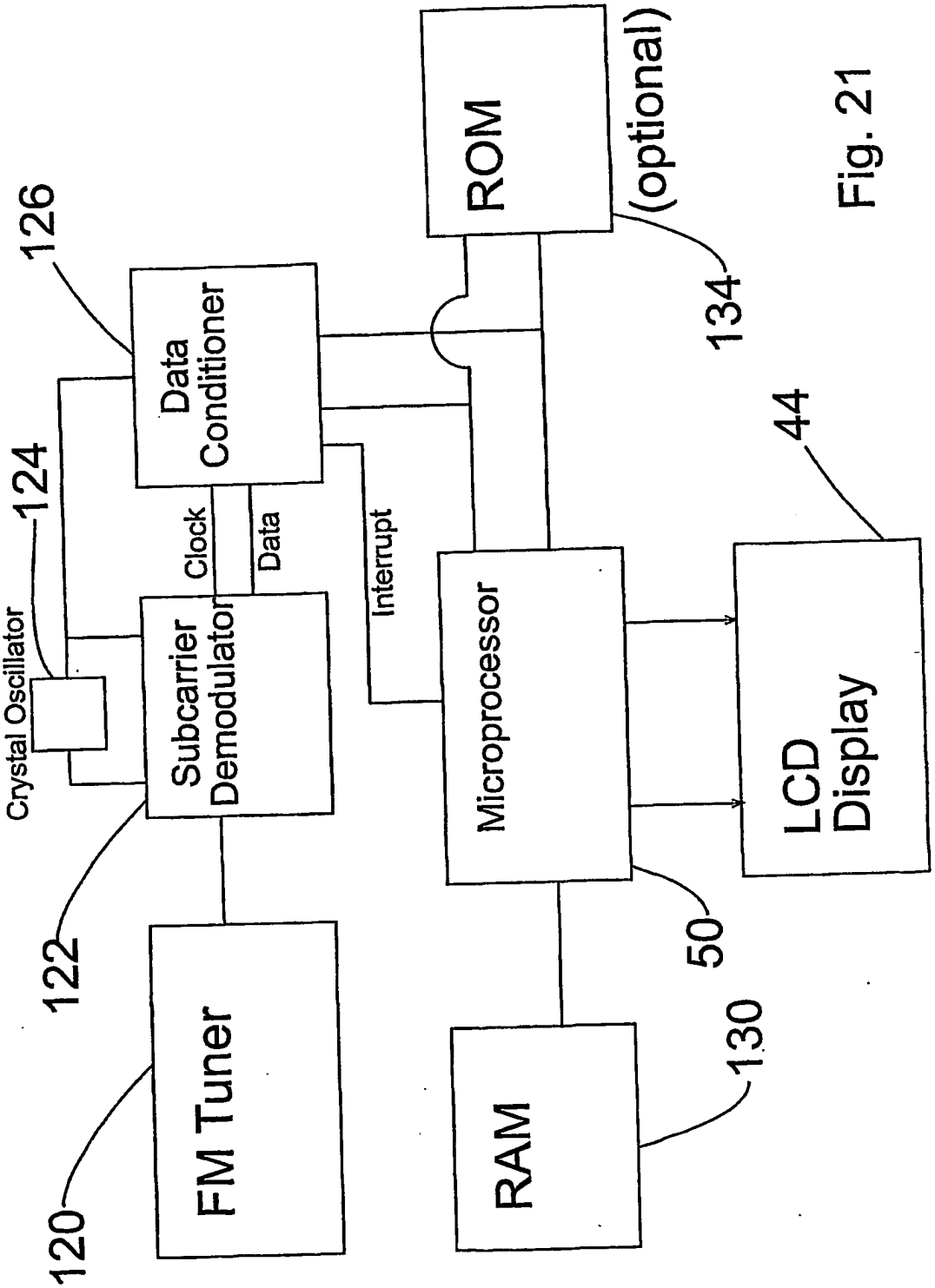
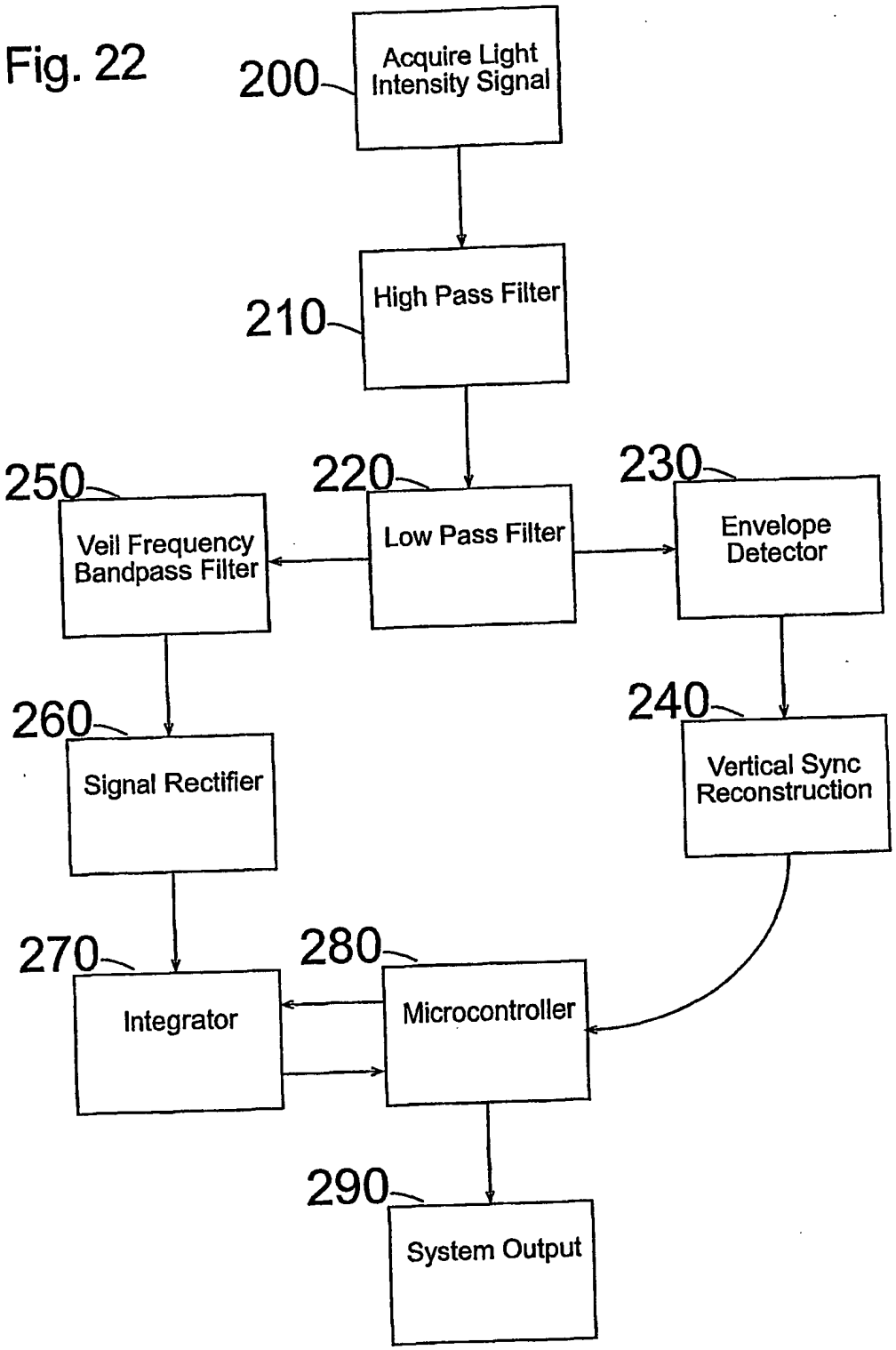


Fig. 21

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Fig. 22



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/11118

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :H04H 9/00, 1/00; H04N 7/173, 7/16
US CL :455/3.05, 3.04, 3.01, 2.01, 556; 725/62, 123
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 455/3.05, 3.04, 3.01, 2.01, 556; 725/62, 123

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

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST - RF, wireless, promotional, audio, video, PDA, interactive

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,104, 334 A (ALLPORT) 15 August 2000, whole document	1-25
A	US 6,088,730 A (KATO et al) 11 July 2000, whole document	1-25
A	US 6,192,340 B1 (ABECASSIS) 20 February 2001, whole document	1-25

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
16 JUNE 2002

Date of mailing of the international search report
12 JUL 2002

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231
Facsimile No. (703) 305-3230

Authorized officer
Vivek Srivastava
Telephone No. (703) 305-4038

IPR2024-00731
APPLE EX1008 Page 199

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/407,222	04/07/2003	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	07/10/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 16	Minus	** 37	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***6	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/KAREN VESTAL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017-5	2604

7590 06/15/2009

PAUL PONIATOWSKI
74 GLEN AGAR DR.
ETOBICOKE, ON M9B-5N1
CANADA

EXAMINER	
DEANE JR, WILLIAM J	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
06/15/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Interview Summary	Application No.	Applicant(s)	
	10/407,222	PONIATOWSKI, PAUL	
	Examiner	Art Unit	
	William J. Deane	2614	

All participants (applicant, applicant's representative, PTO personnel):

(1) *William J. Deane*.

(2) *Ralph Dowell*.

(3)*Paul Poniatowski*.

(4)_____.

Date of Interview: *11Jun2009*.

Type: a)☐ Telephonic b)☐ Video Conference
c)☒ Personal [copy given to: 1)☐ applicant 2)☒ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *Claim 1*.

Identification of prior art discussed: *U.S. Patent Application No. 2002/0194264 (Uchiyama et al.) & U.S. Patent No. 6,222,826 (Faynberg)*.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Mr. Dowell explained the difference between the instant application and the primary reference (Uchiyama et al.). The examiner agreed that the audio did not pass through the telephone. Mr. Dowell said that he would respond with an RCE and the examiner stated that he will conduct a new search.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/William J Deane/ Primary Examiner, Art Unit 2614	

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017-5	2604

7590 04/13/2009

PAUL PONIATOWSKI
74 GLEN AGAR DR.
ETOBICOKE, ON M9B-5N1
CANADA

EXAMINER	
DEANE JR, WILLIAM J	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
04/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/407,222	PONIATOWSKI, PAUL	
	Examiner	Art Unit	
	William J. Deane	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is 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.

Disposition of Claims

4)☒ Claim(s) *1-11 and 14-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 14-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

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

> (a) 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.

Claims 1 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2002/0194264 (Uchiyama et al.) in view of U.S. Patent No. 6,222,826 (Faynberg et al.).

With respect to claims 1 – 2, 8, 10 – 11 and 15, Uchiyama et al. teaches a network hub for receiving information (Figs. 1 -2); a plurality of public viewable video displays (see paragraph 0041), video distribution, audio distribution and telephone interface (see mobile phone 4, paragraphs 0028, 0036 – 0037, 0040 and 0045). Note the use of codes at least in Figs. 3 – 5. Uchiyama et al. does not teach the synchronization aspects of the claimed limitations. However, note that Faynberg et al. teach that such is old in the art (see Col. 6, lines 33 - 49 of Faynberg).

With respect to claim 3, thermal audio feeds are well known in the art and it would have been obvious to use such by one of ordinary skill in the art wherever it was deemed necessary.

With respect to claims 4 – 5, and 9, wireless means and closed circuit means and close captioning are well known in the art and it would have been obvious to use such wherever it is deemed necessary.

With respect to claims 6 – 7, placement on a vehicle whether in or outside the vehicle is of no patentable weight.

With respect to claim 14, note the rejections above. It is noted that the use of promotional codes to route an end user to a call center is well known in the art. For example, promotional codes can be the combination of a phone number and the promotional code or a promotional code can be embedded in a URL address.

With respect to claims 16 -18, such limitations are well known in the art.

Response to Arguments

Applicant's only arguments deal with the secondary reference and not the primary reference. It is believed that the primary reference teaches the claimed limitations except for the synchronized aspects of the limitations and only that. That is, that synchronization is well-known in the art. The viewable display screen is in the primary reference not in the Faynberg et al. reference,

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply 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 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bill Deane whose telephone number is (571) 272-7484. In addition, facsimile transmissions should be directed to Bill Deane at facsimile number (571) 273-8300.

11Apr2009

/William J Deane/

Primary Examiner, Art Unit 2614

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/17/2008	04/11/2009							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	-							
	13	✓	-							
	14	✓	✓							
	15	✓	✓							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	-							
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	24	✓	-							
	25	✓	-							
	26	✓	-							
	27	✓	-							
	28	✓	-							
	29	✓	-							
	30	✓	-							
	31	✓	-							
	32	✓	-							
	33	✓	-							
	34	✓	-							
	35	✓	-							
	36	✓	-							

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/17/2008	04/11/2009							
	37	✓	-							

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

SEARCHED			
Class	Subclass	Date	Examiner
	Updated prior search	17Aug2008	WJD
	Updated the prior search.	11Apr2009	WJD

SEARCH NOTES		
Search Notes	Date	Examiner

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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OIPE
JAN 21 2009
IAP81
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Paul Poniatowski
Appl. No. : 10/407,222
Filed : 04/07/2003
Title : AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

Grp./A.U. : 2614
Examiner : Deane Jr., William J.

New Docket No.: 16593

Honorable Commissioner of Patents
Alexandria, VA 22313-1450

RESPONSE TO NON-FINAL OFFICE ACTION

In response to the Non-Final Office Action mailed August 21 , 2008, the following is submitted:

An amendment to and a complete listing of claims begins at page 2 of this response; and

Remarks/Arguments begin at page 9 of this response.

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In the Claims:

The following is an amendment to and a complete listing of claims that replaces all prior listings and versions of claims in this application.

1.(currently amended) A system for distributing information to the public, [[said]] wherein the information ~~comprising~~ includes at least one video feed and a plurality of audio feeds, the system comprising:

a network hub for receiving [[said]] information from a source to be distributed to the public;

a plurality of publicly viewable video display screens;

at least one video distribution hub, each video distribution hub receiving at least one video feed from said network hub and including transmitter means for transmitting said at least one video feed that is to be displayed to the public to at least one of said display screens;

at least one audio distribution hub, each audio distribution hub receiving a plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users by way of codes entered into end users' telephones and at least one of the audio feeds relates to the at least one video feed that is being displayed to the public;

a telephone interface including means for receiving an end user telephone call for accessing said plurality of audio feeds and such that an end user may input a selected code for selection of at least one audio feed from the plurality of audio fees, said telephone interface communicating with said at least one audio distribution hub, said telephone interface automatically routing an audio feed [[feeds]] from said at least one audio distribution hub to said end [[user]] user's telephone [[call]] based on [[an]] the end [[user]] user's input, and

~~wherein~~ at least one of the plurality of audio [[feed]] feeds is synchronized with ~~one of~~ the at least one video feed that is to be displayed to the public.

2. (currently amended) A system according to claim 1 wherein said network hub receives [[said]] the information from the source as separate video and audio feeds.

3.(previously presented) A system according to claim 1 wherein at least one audio feed received by said network hub is a thermal audio feed.

4.(original) A system according to claim 1 wherein at least one of said plurality of publicly viewable display screens

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receives a video feed from said video distribution hub by wireless means.

5.(original) A system according to claim 1 wherein at least one of said plurality of publicly viewable display screens receives a video feed from said video distribution hub through a closed circuit network.

6.(currently amended) A system according to claim 4 wherein said at least one of said plurality of publicly viewable display screens is deployed on an outside of a vehicle.

7.(currently amended) A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screen is deployed on an inside of a vehicle.

8.(previously presented) A system according to claim 1 wherein said network hub receives multiple video feeds, each of said multiple video feeds being transmitted to said video display screens located in different geographic regions.

9.(original) A system according to claim 1 wherein said at least one video feed is provided with closed circuit captioning.

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10.(original) A system according to claim 1 wherein said at least one video feed is provided with advertisements.

11.(currently amended) A system for providing at least one audio feed to end users based at least in part on a video feed being displayed to the public, the system comprising:

a network hub for receiving a plurality of audio feeds, wherein at least one of said plurality of audio [[fees]] feeds is synchronized with a video feed also being received by the network hub;

a video distribution hub for receiving video feed from the network hub and for transmitting the video feed to at least one publicly viewable display screen so that the video feed is displayed publicly;

at least one audio distribution hub receiving said at least one audio feed from said network hub; and

a telephone interface for receiving telephone calls from [[said]] end users viewing the at least one publicly viewable display screen and calling at least one telephone number shown on the video feed being displayed on that at least one publicly viewable display screen, said telephone interface having means [[and]] for selection of at least one audio feed from said plurality of audio feeds based upon input from end users calling into the telephone interface, said telephone interface

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communicating with said at least one audio distribution hub and said telephone interface automatically routing said at least one audio feed to ~~said telephone calls~~ end users based on input from [[said]] the end users.

12.(canceled)

13. (canceled)

14.(currently amended) A system ~~for providing advertising to one or more end users, the system comprising:~~ according to claim 11 wherein the video and audio feeds received by said [[a]] network hub ~~for receiving said~~ include advertisements from a source[[;]],

~~a plurality of publicly viewable video display screens used to display said advertisements;~~

~~at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;~~

~~at least one audio distribution hub, each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by one or more end users;~~

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[[a]] and said telephone interface ~~for receiving an end user telephone call for accessing said plurality of audio fees and for selecting at least one audio feed and~~ includes means for entering a promotional code related to ~~the displayed~~ video advertising being publicly displayed on the at least one display screen[[;]],

wherein entering the promotional code causes ~~the one or more~~ end users to be directed to a call center where the ~~one or more~~ end users ~~complete~~ may make a purchase.

15.(currently amended) A system ~~for allowing one or more end users to purchase merchandise, the system comprising:~~ according to claim 11 wherein the audio and video feeds being received by said [[a]] network hub ~~for receiving information from a source;~~

~~a plurality of publicly viewable video display screens used to display~~ include information about one or more items of merchandise for sale[[;]],

~~at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;~~

~~at least one audio distribution hub, each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users;~~ and

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[[a]] and said telephone interface ~~for receiving an end user telephone call for accessing said plurality of audio feeds and for selecting at least one audio feed and~~ includes means to enter commands to purchase at least one of the one or more items of merchandise.

16.(currently amended) The system of claim 15, wherein the ~~one or more~~ end users have [[a]] user ~~account used~~ accounts associated with said telephone interface to purchase the merchandise.

17.(currently amended) The system of claim 16 wherein [[the]] each user account is adapted to store credit card information, an end user address, and a personal identification number.

18.(currently amended) The system of claim 15, wherein the ~~one or more~~ end users specify a personal identification number to authorize the purchase of the merchandise.

19.-37.(canceled)

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Remarks/Arguments

This application has been carefully considered in light of the Non-Final Office Action mailed August 21, 2008. As a result, amendments have been made to the claims to further distinguish the claims over the prior art cited by the Examiner in the office action. In view of the amendments and for the reasons set forth below, reconsideration of the rejections and allowance of the claims is respectfully requested. Claims 12, 13 and 24-37 have been canceled without prejudice such that claim 1-11 and 14-23 remain pending.

Claims 1-37 have been rejected under 35 U.S.C. 103(a) as being obvious over US Patent Application 2002/0194264 to Uchiyama et al in view of the teachings of US Patent 6,222,826 to Faynberg et al. These references have been considered but are not believed to teach the inventive aspects of the current application as claimed.

With the present invention, video transmissions are publicly displayed in a variety of public areas. The video displays may include newscasts, alerts, entertainment programming, advertising and the like. Included within the video display is information regarding call-in telephone numbers and codes that may be used by

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individuals using their cell or other phones. By calling in the numbers being displayed, a person can select various audio options to be transmitted to the caller from a plurality of audio options with at least one portion of the audio transmission being synchronized with the video being displayed. By way of example, the caller may be reviewing a news program and may call the displayed telephone number and select an audio feed from a plurality of potential audio feeds of the news program in a selected language to be transmitted to the caller which selected audio feed of the news program is synchronized with the video being displayed.

In the office action, the Examiner recognizes that Uchiyama et al et al does not teach synchronization between an audio feed and a video feed and thus recites the patent of Faynberg et al as teaching this feature of the present invention. However, the system of Faynberg et al is not a public display system in accordance with the present invention wherein a video feed is directed to publicly viewable screens or displays. Further Faynberg et al is not a system wherein a person may obtain a selected version of an audio feed from a plurality of audio feeds, at least a portion of which is synchronized with the video being displayed based upon selected input from the person calling in and selecting an audio feed from the plurality of audio feeds.

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Rather, in Faynberg et al, a method of making a telephone call through the internet is disclosed wherein a caller requests a call to be made to a destination user through a WWW server, however, before the call can be completed, an advertisement or the like must be reviewed by the caller. The advertisement is in the form of an audio/visual or multimedia presentation wherein a video of the advertisement is feed to the caller's computer while a synchronized audio is feed to the caller via the caller's phone. Once the presentation has been completed, the internet call may be completed. Thus, unlike the currently claimed invention, only predetermined audio and video feeds are presented to the caller with the video feed being made to the caller's computer and the audio feed to the caller's phone.

From the foregoing, there is nothing in Faynberg et al that suggests a public video display and a separate audio feed that is accessible by a caller wherein the caller must select the audio feed from a plurality of audio feeds utilizing a separate communication device such as the caller's cell phone. Faynberg et al does not have a system that provides a selection from a plurality of audio feeds that relate to a publicly displayed video feed. The Faynberg et al system deals with sending both a predetermined audio and a predetermined video to a person but splitting the audio and video signals such that the video is

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directed to the person's computer while the audio is forwarded to the person's phone.

As the system of Faynberg et al is directed to only synchronized sending of predetermined messages, it is not clear how the system would suggest modifying the teachings of Uchiyama et al. Faynberg et al does not suggest modifying a system wherein a video is being publicly displayed so that a person may call a number and make a personal selection of a particular audio feed from a plurality of possible audio feeds such that the system there after transmits the selected audio feed to the person's mobile telephone and wherein the a least a portion of the selected audio feed is synchronized with the video being displayed. However, even if one were to combine the teachings as suggested, the resultant system would still be one wherein combined audio and visual of a chosen media are feed simultaneously to a display area. This is unlike the system of the present invention wherein a first video feed is made to a public viewing area and selection of an audio feed is only made by calling a telephone number and thereafter selecting a particular audio feed which is then directed to the caller with a least a portion of the requested feed being synchronized to the publicly displayed audio display.

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The two prior art references taken alone or in combination do not teach the above. They do not teach the use of telephones to access and select an audio feed, at least in part of which is synchronized with a publicly displayed video being display, from a plurality of audio feeds.

The systems of the invention do have additional features, such as allowing for purchasing information or products that are being advertised wherein the payments may be based on the use of PIN numbers and/or pre-approved accounts which protect the suppliers of the products and information. Such features are dependent features from the primary inventive features set forth above.

An earnest effort has been made to place this application in condition for allowance, which action is respectfully solicited. Should the Examiner have any questions regarding the amendments submitted herewith, the Examiner is invited to contact the undersigned attorney at the telephone number shown below. In the event the Examiner has any questions with respect to the allowability of the claims, the undersigned hereby respectfully requests a personal interview with the Examiner before any action is taken that may be considered as final.

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As this response is being filed after the shortened statutory period, a separate request for a two month extension of time is submitted herewith together with the required fee. Any deficiency in the extension fee may be charged to Deposit Account 04-1577. Also submitted is a new power of attorney. Please direct all future correspondence to the address and numbers shown below.

Respectfully submitted

DOWELL & DOWELL, P. C.

Ralph A. Dowell
Reg. No.: 26,868
Date: January 21, 2009

DOWELL & DOWELL, P. C.
Suite 406, 2111 Eisenhower Avenue
Alexandria, VA 22314
Telephone: (703) 415-2555
e-mail: dowell@dowellpc.com
Customer Number: 000293

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APPLE EX1008 Page 224

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PTO/SB/81 (11-08)
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POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	Paul Poniatowski
Title	AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
Art Unit	2614
Examiner Name	Deane Jr., William J.
Attorney Docket Number	16593

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 000293

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

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OR

☐ The address associated with Customer Number:

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☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☒ Applicant/Inventor.

OR

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Assignee of Record

Signature		Date	01/21/2009
Name	Paul Poniatowski	Telephone	
Title and Company	Inventor		

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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2614

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Paul Poniatowski
Appl. No. : 10/407,222
Filed : 04/07/2003
Title : AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
Grp./A.U. : 2614
Examiner : Deane Jr., William J.

Docket No.: 16593

Honorable Commissioner of Patents
Alexandria, VA 22313-1450

REQUEST FOR EXTENSION OF TIME

It is respectfully requested that a two month extension of time, until January 21, 2009, be granted in which to respond to the Non-Final Office Action dated August 21, 2008. The statutory fee of $245.00 for the two month extension is attached. Any deficiencies in the extension of time fees may be charged to Deposit Account No. 04-1577.

Respectfully submitted,

DOWELL & DOWELL, P. C.

Ralph A. Dowell, Reg. No.: 26,868
Date: January 21, 2009

DOWELL & DOWELL, P. C.
Suite 406, 2111 Eisenhower Avenue
Alexandria, VA 22314
Telephone: (703) 415-2555
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01/22/2009 AWONDAF1 00000020 10407222
01 FC:2252 245.00 OP

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/407,222	04/07/2003	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	01/21/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 16	Minus	** 37	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***6	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Kim Downing/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Application

Address to:
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Alexandria, VA 22313-1450

Application Number	10/407222
Filing Date	04/07/2003
First Named Inventor	PAUL PONIATOWSKI
Art Unit	2614
Examiner Name	DEANE JR, WILLIAM J.
Attorney Docket Number	16017-5

Please change the Correspondence Address for the above-identified patent application to:

☐ The address associated with Customer Number: [ ]

OR

☑ Firm or Individual Name PAUL PONIATOWSKI

Address 74 GLEN AGAR DR.

City ETOBICOKE | State ONT | Zip M9B-5M1

Country CANADA

Telephone 416-312 8806 | Email PAULPONIATOWSKI@HOTMAIL.COM

This form cannot be used to change the data associated with a Customer Number. To change the data associated with an existing Customer Number use "Request for Customer Number Data Change" (PTO/SB/124).

I am the:

☑ Applicant/Inventor

☐ Assignee of record of the entire interest.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

☐ Attorney or agent of record. Registration Number _____.

☐ Registered practitioner named in the application transmittal letter in an application without an executed oath or declaration. See 37 CFR 1.33(a)(1). Registration Number _____.

Signature

Typed or Printed Name PAUL PONIATOWSKI

Date 31 AUG 2008 | Telephone 416-312 8806

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017-5	2604

7590 08/21/2008

PAUL PONIATOWAKI
570 LOCO ROAD
PORT MOODY, BC V3H 2W2
CANADA

EXAMINER	
DEANE JR, WILLIAM J	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
08/21/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/407,222	PONIATOWSKI, PAUL	
	Examiner	Art Unit	
	William J. Deane	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is 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.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

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APPLE EX1008 Page 230

DETAILED ACTION

Claim Rejections - 35 USC § 103

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

> (a) 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.

Claims 1 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application No. 2002/0194264 (Uchiyama et al.) in view of U.S. Patent No. 6,222,826 (Faynberg et al.).

With respect to claims 1 – 2, 8, 10 – 13, 15, 23 – 24, 31 and 37 Uchiyama et al. teaches a network hub for receiving information (Figs. 1 -2); a plurality of public viewable video displays (see paragraph 0041), video distribution, audio distribution and telephone interface (see mobile phone 4, paragraphs 0028, 0036 – 0037, 0040 and 0045. Uchiyama et al. does not teach the synchronization aspects of the claimed limitations. However, note that Faynberg et al. teach that such is old in the art (see Col. 6, lines 33 - 49 of Faynberg).

With respect to claim 3, thermal audio feeds are well known in the art and it would have been obvious to use such by one of ordinary skill in the art wherever it was deemed necessary.

With respect to claims 4 – 5, and 9, wireless means and closed circuit means and close captioning are well known in the art and it would have been obvious to use such wherever it is deemed necessary.

With respect to claims 6 – 7, placement on a vehicle whether in or outside the vehicle is of no patentable weight.

With respect to claim 14, note the rejections above. It is noted that the use of promotional codes to route an end user to a call center is well known in the art. For example, promotional codes can be the combination of a phone number and the promotional code or a promotional code can be embedded in a URL address.

With respect to claims 16 -18, such limitations are well known in the art.

With respect to claims 19 – 22, such limitations are well known in the art known as sub-categories. Note that Uchiyama et al. teach sub categories (see Fig. 6). One chooses a music type then the name of an artist. There are other sub-categories taught by Uchiyama et al. throughout the specification.

With respect to claims 25 – 29 and 32 - 36, such limitations are well known in the art.

Response to Arguments

Applicant's arguments with respect to claims 1 - 37 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bill Deane whose telephone number is (571) 272-7484. In addition, facsimile transmissions should be directed to Bill Deane at facsimile number (571) 273-8300.

17Aug2008

/William J Deane/

Primary Examiner, Art Unit 2614

Notice of References Cited	Application/Control No. 10/407,222	Applicant(s)/Patent Under Reexamination PONIATOWSKI, PAUL	
	Examiner William J. Deane	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0194264	12-2002	Uchiyama et al.	709/203
*	B	US-6,222,826	04-2001	Faynberg et al.	370/252
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/17/2008								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	33	✓								
	34	✓								
	35	✓								
	36	✓								

IPR2024-00731
APPLE EX1008 Page 235

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/17/2008								
	37	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10407222	PONIATOWSKI, PAUL
	Examiner	Art Unit
	William J Deane	2614

SEARCHED			
Class	Subclass	Date	Examiner
	Updated prior search	17Aug2008	WJD

SEARCH NOTES		
Search Notes	Date	Examiner

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

	/William J Deane/ Primary Examiner.Art Unit 2614

IPR2024-00731
APPLE EX1008 Page 237

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 2604

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/407,222	04/07/2003 RULE	707	2614	16017-5

APPLICANTS
Paul Poniatowski, Toronto, CANADA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/03/2003

Foreign Priority claimed	☐ Yes ☑ No	☐ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	☐ Yes ☑ No		CANADA	2	13	2
Verified and Acknowledged	/WILLIAM J DEANE JR/ Examiner's Signature	Initials				

ADDRESS

PAUL PONIATOWAKI
570 LOCO ROAD
PORT MOODY, BC V3H 2W2
CANADA

TITLE

Audio/visual information dissemination system

FILING FEE RECEIVED		
1100	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Bib Data Sheet

CONFIRMATION NO. 2604

SERIAL NUMBER	FILING OR 371(c) DATE / RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/407,222	04/07/2003	370	2614	16017-5

APPLICANTS

Paul Poniatowski, Toronto, CANADA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS *********************

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 06/03/2003 **** SMALL ENTITY ****

		STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
Foreign Priority claimed	☐ yes ☐ no	CANADA	2	13	2
35 USC 119 (a-d) conditions met	☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged	Examiner's Signature / Initials				

ADDRESS

AIR MAIL

PAUL PONIATOWAKI
570 LOCO ROAD
PORT MOODY, BCV3H 2W2
CANADA

TITLE

Audio/visual information dissemination system

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
1100	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/407,222	04/07/2003	Paul Poniatowski	16017-5

CONFIRMATION NO. 2604

POWER OF ATTORNEY NOTICE

1059
BERESKIN AND PARR
40 KING STREET WEST
BOX 401
TORONTO, ON M5H 3Y2
CANADA

OC000000031565336

Date Mailed: 08/14/2008

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/07/2008.

- The withdrawal as attorney in this application has been accepted. Future correspondence will be mailed to the new address of record. 37 CFR 1.33.

/magraves/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IPR2024-00731
APPLE EX1008 Page 240

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BERESKIN AND PARR
40 KING STREET WEST
BOX 401
TORONTO, ON M5H 3Y2 CA
CANADA

COPY MAILED

AUG 14 2008

OFFICE OF PETITIONS

In re Application of :

PONIATOWSKI, Paul :
Application No. 10/407,222 : DECISION ON PETITION
Filed: April 7, 2003 : TO WITHDRAW
Attorney Docket No. 16017-5 : FROM RECORD
:

This is a decision on the Request to Withdraw as attorney or agent of record under 37 C.F.R. § 1.36(b), filed July 7, 2008.

The request is APPROVED.

A grantable request to withdraw as attorney/agent of record must be signed by every attorney/agent seeking to withdraw or contain a clear indication that one attorney is signing on behalf of another/others. A request to withdraw will not be approved unless at least 30 (thirty) days would remain between the date of approval and the later of the expiration date of a time to file a response or the expiration date of the maximum time period which can be extended under 37 C.F.R. § 1.136(a).

The request was signed by Bhupinder Randawa on behalf of all attorneys of record. All attorneys/agents associated have been withdrawn. Applicant is reminded that there is no attorney of record at this time.

All future correspondence will be directed to the sole named inventor Paul Poniatowski at the address indicated below.

Telephone inquiries concerning this decision should be directed to the undersigned at 571-272-7253.

Monica A. Graves
Petitions Examiner
Office of Petitions

cc: PAUL PONIATOWSKI
570 LOCO ROAD
PORT MOODY, BC V3H 2W2
CANADA

Doc Code: PET.POA.WDRW
Document Description: Petition to withdraw attorney or agent (SB83)

PTO/SB/83 (04-08)
Approved for use through 12/31/2008. OMB 0651-0035
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/407222
Filing Date	04-07-2003
First Named Inventor	Paul Poniatowski
Art Unit	2614
Examiner Name	DEANE JR., WILLIAM J.
Attorney Docket Number	16017-5

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Please withdraw me as attorney or agent for the above identified patent application, and

- [x] all the practitioners of record;
- [ ] the practitioners (with registration numbers) of record listed on the attached paper(s); or
- [ ] the practitioners of record associated with Customer Number: _____

NOTE: The immediately preceding box should only be marked when the practitioners were appointed using the listed Customer Number.

The reason(s) for this request are those described in 37 CFR :

[ ] 10.40(b)(1)	[ ] 10.40(b)(2)	[ ] 10.40(b)(3)	[x] 10.40(b)(4)
[ ] 10.40(c)(1)(i)	[ ] 10.40(c)(1)(ii)	[ ] 10.40(c)(1)(iii)	[ ] 10.40(c)(1)(iv)
[ ] 10.40(c)(1)(v)	[ ] 10.40(c)(1)(vi)	[ ] 10.40(c)(2)	[ ] 10.40(c)(3)
[ ] 10.40(c)(4)	[ ] 10.40(c)(5)	[ ] 10.40(c)(6) Please explain below:	

Certifications

Check each box below that is factually correct. WARNING: If a box is left unchecked, the request will likely not be approved.

1. [x] I/We have given reasonable notice to the client, prior to the expiration of the response period, that the practitioner(s) intend to withdraw from employment.

2. [x] I/We have delivered to the client or a duly authorized representative of the client all papers and property (including funds) to which the client is entitled.

3. [x] I/We have notified the client of any responses that may be due and the time frame within which the client must respond.

Please provide an explanation, if necessary:

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/83 (04-08)
Approved for use through 12/31/2008. OMB 0651-0035
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

Complete the following section only when the correspondence address will change. *Changes of address will only be accepted to an inventor or an assignee that has properly made itself of record pursuant to 37 CFR 3.71.*

Change the correspondence address and direct all future correspondence to:

A. ☐ The address of the inventor or assignee associated with Customer Number: _____

OR

B. ☑ Inventor or Assignee name: Paul Poniatowski

Address 570 loco Road

City	State	Zip	Country
Port Moody	BC	V3H 2W2	Canada

Telephone	Email
416 312 8806	paulponiatowski@hotmail.com

I am authorized to sign on behalf of myself and all withdrawing practitioners.

Signature	Bhupinder Randawa		
Name	Bhupinder Randawa	Registration No.	47,726

Address 40 King St. W., 40th Floor

City	State	Zip	Country
Toronto	ON	M5H 3Y2	Canada

Date	Telephone No.
July 7/08	416 957 1630

NOTE: ***Withdrawal is effective when approved rather than when received.***

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	3570892
Application Number:	10407222
International Application Number:	
Confirmation Number:	2604
Title of Invention:	Audio/visual information dissemination system
First Named Inventor/Applicant Name:	Paul Poniatowski
Customer Number:	1059
Filer:	Bhupinder Singh Randhawa/Vicky Medeiros
Filer Authorized By:	Bhupinder Singh Randhawa
Attorney Docket Number:	16017-5
Receipt Date:	07-JUL-2008
Filing Date:	07-APR-2003
Time Stamp:	11:38:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	WithdrawalofAttorney.PDF	318704 8adbc7b39f96d9fbb8602eaa882075ca9fd9dae5	no	3

Warnings:	
Information:	

Total Files Size (in bytes):	318704

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/30EFS (03/08)
Approved for use through 05/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	10/407,222	Filing Date	2003-04-07	Docket Number (if applicable)	16017-5	Art Unit	2614
First Named Inventor	PONIATOWSKI, Paul			Examiner Name	DEANE, William J.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☒ Other Request for Extension of Time

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 022095

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (03/08)
Approved for use through 05/31/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/TO/	Date (YYYY-MM-DD)	2008-05-01
Name	Tony R. Orsi	Registration Number	55831

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	10407222
Filing Date:	07-Apr-2003
Title of Invention:	Audio/visual information dissemination system
First Named Inventor/Applicant Name:	Paul Poniatowski
Filer:	Tony Rosario Orsi/Cheryl DeVall
Attorney Docket Number:	16017-5

Filed as Small Entity

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	525	525

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**930**

Electronic Acknowledgement Receipt

EFS ID:	3241938
Application Number:	10407222
International Application Number:	
Confirmation Number:	2604
Title of Invention:	Audio/visual information dissemination system
First Named Inventor/Applicant Name:	Paul Poniatowski
Customer Number:	1059
Filer:	Tony Rosario Orsi/Cheryl DeVall
Filer Authorized By:	Tony Rosario Orsi
Attorney Docket Number:	16017-5
Receipt Date:	01-MAY-2008
Filing Date:	07-APR-2003
Time Stamp:	16:48:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$930
RAM confirmation Number	1987
Deposit Account	022095
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	Transmittal.pdf	53765 8f8009bc0ea472b8b71eabaae6927368f3b7ab8e	no	1
Warnings:					
Information:					
2		Amendment.pdf	423238 0d9db37e06e3d8b25d5ace8af76a2fdd4657172	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	9
	Applicant Arguments/Remarks Made in an Amendment	10	12

Warnings:					
Information:					
3	Extension of Time	Extension.pdf	124817 25f5da9fe1c3544c8811fc80a8a98614ee8bb865	no	2
Warnings:					
Information:					
4	Request for Continued Examination (RCE)	RCE.pdf	830799 7fa36baad5068d235bd6cc711430b8da97acfc1d	no	3
Warnings:					
Information:					
5	Fee Worksheet (PTO-06)	fee-info.pdf	8311 4ce44350a55bf8e6bf194a5fb0cd3bf4a3493611	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1440930		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/21 (01-08)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/407,222
Filing Date	April 7, 2003
First Named Inventor	PONIATOWSKI
Art Unit	2614
Examiner Name	DEANE, William J.
Attorney Docket Number	16017-5

Total Number of Pages in This Submission

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☑ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☑ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):
  Request for Continued Examination

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Bereskin & Parr		
Signature	/TO/		
Printed name	Tony R. Orsi		
Date	May 1, 2008	Reg. No.	55,831

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

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Tony R. Orsi
B.A.Sc., M.A.Sc. (Elec. Eng.)
416 957 1603 torsi@bereskinparr.com

Appl. No:		10/407,222
Confirmation No.:		2604
Applicant	:	Paul Poniatowski
Filed	:	April 07, 2003
Title	:	AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
TC./A.U.	:	2614
Examiner	:	Deane Jr., William J.
Docket No.	:	16017-5
Customer No.	:	001059

Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313–1450

AMENDMENT

Sir:

This is in response to the Office Action mailed November 1, 2007, in which a three-month term was set for response. Accordingly, this response is accompanied with a request for a three-month extension of time. In addition, a Request for Continued Examination is being filed herewith.

Please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. In this listing of claims, claim 11 has been amended and claim 12 has been cancelled without prejudice.

Listing of Claims

Claim 1 (Previously presented): A system for distributing information to the public, said information comprising at least one video feed and a plurality of audio feeds, the system comprising:

a network hub for receiving said information from a source;

a plurality of publicly viewable video display screens;

at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;

at least one audio distribution hub, each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users;

a telephone interface for receiving an end user telephone call for accessing said plurality of audio feeds and for selection of at least one audio feed, said telephone interface communicating with said at least one audio distribution hub, said telephone interface automatically routing audio feeds from said at least one audio distribution hub to said end user telephone call based on an end user input,

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wherein at least one audio feed is synchronized with one of the at least one video feed.

Claim 2 (Original): A system according to claim 1 wherein said network hub receives said information as separate video and audio feeds.

Claim 3 (Previously presented): A system according to claim 1 wherein at least one audio feed received by said network hub is a thermal audio feed.

Claim 4 (Original): A system according to claim 1 wherein at least one of said plurality of publicly viewable video display screens receives a video feed from said video distribution hub by wireless means.

Claim 5 (Original): A system according to claim 1 wherein at least one of said plurality of publicly viewable video display screens receives a video feed from said video distribution hub through a closed circuit network.

Claim 6 (Original): A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screens is deployed outside a vehicle.

Claim 7 (Original): A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screens is deployed inside a vehicle.

Claim 8 (Previously presented): A system according to claim 1 wherein said network hub receives multiple video feeds, each of said multiple video feeds being transmitted to said video display screens located in different geographic regions.

Claim 9 (Original): A system according to claim 1 wherein said at least one video feed is provided with closed captioning.

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Claim 10 (Original): A system according to claim 1 wherein said at least one video feed is provided with advertisements.

Claim 11 (Amended): A system for providing at least one audio feed to end users, the system comprising:

a network hub for receiving ~~at least one audio feed~~ a plurality of audio feeds, wherein at least one of said plurality of audio fees is synchronized with a video feed;

at least one audio distribution hub receiving said at least one audio feed from said network hub~~.~~; and

a telephone interface for receiving telephone calls from said end users and for selection of at least one audio feed from said plurality of audio feeds, said telephone interface communicating with said at least one audio distribution hub and said telephone interface automatically routing said at least one audio feed to said telephone calls based on input from said end users.

Claim 12 (Cancelled): A system according to claim 11 wherein a plurality of audio feeds are received by said network hub and at least one of said plurality of audio feeds is synchronized with a video feed.

Claim 13 (Original): A system according to claim 12 wherein said video feed is publicly viewable.

Claim 14 (Previously presented): A system for providing advertising to one or more end users, the system comprising:

a network hub for receiving said advertisements from a source;

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a plurality of publicly viewable video display screens used to display said advertisements;

at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;

at least one audio distribution hub, each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by one or more end users;

a telephone interface for receiving an end user telephone call for accessing said plurality of audio feeds and for selecting at least one audio feed and for entering a promotional code related to the displayed advertising;

wherein entering the promotional code causes the one or more end users to be directed to a call center where the one or more end users may complete a purchase.

Claim 15 (Previously presented): A system for allowing one or more end users to purchase merchandise, the system comprising:

a network hub for receiving information from a source;

a plurality of publicly viewable video display screens used to display one or more items of merchandise for sale;

at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;

at least one audio distribution hub, each audio distribution hub receiving a plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users; and

a telephone interface for receiving an end user telephone call for accessing said plurality of audio feeds and selecting at least one audio feed and to enter commands to purchase at least one of the one or more items of merchandise.

Claim 16 (Previously presented): The system of claim 15, wherein the one or more end users have a user account used to purchase the merchandise.

Claim 17 (Previously presented): The system of claim 16, wherein the user account is adapted to store credit card information, an end user address, and a personal identification number.

Claim 18 (Previously presented): The system of claim 15, wherein the one or more end users specify a personal identification number to authorize the purchase of the merchandise.

Claim 19 (Previously presented): The system of claim 15, wherein the system provides the one or more end users with one or more choices related to the merchandise.

Claim 20 (Previously presented): The system of claim 19, wherein the choices comprise a colour of the merchandise.

Claim 21 (Previously presented): The system of claim 19, wherein the choices comprise a size of the merchandise.

Claim 22 (Previously presented): The system of claim 19, wherein the choices comprise a type of merchandise.

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Claim 23 (Previously presented): The system of claim 15, wherein the one or more end users are located remotely from the displayed merchandise.

Claim 24 (Previously presented): A method for purchasing merchandise displayed on a video display screen, the method comprising:

viewing one or more items of merchandise for sale upon a video display screen;

calling a telephone gateway and selecting an audio feed from one or more audio feeds;

entering a promotional code provided in the audio feed associated with the one or more items of merchandise; and

authorizing upon the telephone device the purchase of one or more items of merchandise for an end user.

Claim 25 (Previously presented): The method of claim 24, wherein the method comprises associating the end user with an end user account.

Claim 26 (Previously presented): The method of claim 25, wherein the method comprises associating the end user account with one or more user credit cards.

Claim 27 (Previously presented): The method of claim 25, wherein the method comprises associating the end user account with a user personal identification number.

Claim 28 (Previously presented): The method of claim 25, wherein the method comprises associating the end user account with an end user address.

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Claim 29 (Previously presented): The method of claim 27, wherein the step of authorizing is performed by entering the user personal identification number.

Claim 30 (Previously presented): The method of claim 24, wherein the end user is remotely located from the one or more items of merchandise.

Claim 31 (Previously presented): A method for purchasing merchandise displayed on a video display screen, the method comprising:

viewing one or more items of merchandise for sale upon a video display screen;

calling a telephone gateway and selecting an audio feed from one or more audio feeds;

entering a purchase command upon a telephone device to purchase the one or more items of merchandise; and

authorizing upon a telephone device the purchase of one or more items of merchandise for an end user.

Claim 32 (Previously presented): The method of claim 31, wherein the method comprises associating an end user with a user account.

Claim 33 (Previously presented): The method of claim 31, wherein the method comprises associating the end user account with one or more user credit cards.

Claim 34 (Previously presented): The method of claim 33, wherein the method comprises associating the end user account with a user personal identification number.

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Claim 35 (Previously presented): The method of claim 32, wherein the method comprises associating the end user account has associated with an end user address.

Claim 36 (Previously presented): The method of claim 34, wherein the step of authorizing is performed by entering the user personal identification number.

Claim 37 (Previously presented): The method of claim 31, wherein the user is remotely located from the displayed merchandise.

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REMARKS/ARGUMENTS

This is a response to the Office Action of November 1, 2007, in which a three-month term was set for response. Accordingly, this response is accompanied with a request for a three-month extension of time.

This response is accompanied with a Request for Continued Examination with the appropriate funds.

Amendments to the Claims

There are a total of 37 claims pending in this application. Claims 11-37 stand rejected in this application. As there are 37 claims pending in this application, the Applicant, based on a discussion with the Examiner, understands that the Examiner meant to indicate that claims 11-37 stand rejected and not 11-32 as indicated in the office action of November 1, 2007.

Claim 11 has been amended, and claim 12 has been cancelled without prejudice. The Applicant respectfully submits that each of claims 1-37 is in condition for allowance.

Objections made to the Claims

Claim Rejections – 35 USC S. 103

The Examiner has rejected claims 11-37 under 35 U.S.C. 102(b) as being anticipated by what the Examiner argues is the well known concept of watching an advertisement and calling to purchase a product through use of a promotional code. Also, the Examiner has argued that claims 11-37 are rejected in view of U.S. Application No. 2002/0094787 (Avent et al.).

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Claim 11 has been amended to more clearly recite certain features. Specifically, claim 11 has been amended to recite that the network receives a plurality of audio feeds, wherein at least one of said plurality of audio feeds is synchronized with a video feed.

The Avent reference is directed to an information transmission system that comprises a broadcasting device that is used to upload information to a personal hand held electronic device. The device transmits data over a continuous loop, and a user has the option to use their device to receive the transmitted messages. The transmitted messages may be small files that are linked to an advertiser's web site or that may comprise additional text and information that the user can view immediately or store for subsequent retrieval. The user may view the transmitted data upon their receiving device, save any portion of the data, and may launch a web browser using the downloaded file to view an advertiser's home page. The Avent reference does not disclose the concept of making a call to a telephone gateway, after which the user selects from one or more audio feeds. In fact, the Avent reference does not disclose the concept of providing the user with options in relation to selecting audio feeds. The Avent reference does not discuss the selection and/or provision of any audio information to an end user.

The Examiner has also taken the position that claims 11 to 37 are anticipated with regards to what is argued to be the well known concept of watching an advertisement and calling in with a promotional code to purchase a product.

The Applicant respectfully submits that the concept of watching an advertisement and purchasing a product does not involve calling a telephone gateway to select from a plurality of audio feeds. Furthermore, neither the Avent reference or the concept of watching advertisements teach, or suggest the use of a dissemination system to be used for the sale of merchandise or a method for the purchase of merchandise from a dissemination system that incorporates an audio hub that allows a user to chose from one or more audio feeds.

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In the subject application, the audio video dissemination system is used to allow end users to view promotional information displayed on a screen and/or presented in audio and then engage their telephone devices to initiate the purchase.

Therefore, it is respectfully submitted that claims 11-37 are in a form of allowance.

CONCLUSION

In view of the foregoing comments, it is respectfully submitted that the application is now in condition for allowance. If the Examiner has any further concerns regarding the language of the claims or the applicability of the cited references, the Examiner is respectfully requested to contact the undersigned at 416-957-1603.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

Paul Poniatowski

By _____
Tony R. Orsi
Registration No. 55,831
Telephone No. 416-957-1603

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APPLE EX1008 Page 267

PTO/SB/22 (01-08)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) FY 2008 *(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)*	Docket Number (Optional) 16017-5
Application Number 10/407,222	Filed April 7, 2003
For AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM	
Art Unit 2614	Examiner DEANE, William J.

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$120	$60	$
☐	Two months (37 CFR 1.17(a)(2))	$460	$230	$
☒	Three months (37 CFR 1.17(a)(3))	$1050	$525	$ 525.00
☐	Four months (37 CFR 1.17(a)(4))	$1640	$820	$
☐	Five months (37 CFR 1.17(a)(5))	$2230	$1115	$

☒ Applicant claims small entity status. See 37 CFR 1.27.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 022095. I have enclosed a duplicate copy of this sheet.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the ☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).

☒ attorney or agent of record. Registration Number 55,831

☐ attorney or agent under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

Signature	May 1, 2008 Date
TONY R. ORSI Typed or printed name	416-957-1603 Telephone Number

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☐ Total of _____ forms are submitted.

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a) **FY 2008** ***(Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).)***	Docket Number (Optional) 16017-5
Application Number 10/407,222	Filed April 7, 2003
For AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM	
Art Unit 2614	Examiner DEANE, William J.

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☐	Four months (37 CFR 1.17(a)(4))	$1640	$820	$
☐	Five months (37 CFR 1.17(a)(5))	$2230	$1115	$

☒ Applicant claims small entity status. See 37 CFR 1.27.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 022095. I have enclosed a duplicate copy of this sheet.

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I am the ☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).

☒ attorney or agent of record. Registration Number 55,831

☐ attorney or agent under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

Tony Orsi
Signature

May 1, 2008
Date

TONY R. ORSI
Typed or printed name

416-957-1603
Telephone Number

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

☐ Total of _____ forms are submitted.

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/407,222	04/07/2003	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 05/01/2008	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 37	Minus	** 37	= 0	X $25 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $105 =	0	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/MARQUITA D. JONES/

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Petition to Directors Office

Dear Sir
I Have a application in USA app no. 10/407,222
I'd like to ask the Director for a allowance to file a CIP on this application .

The reason for that is that just couple weeks ago- in a shocking manner I 've discovered that my original local lawyer here in Canada (Arthuro Brion) has withheld an information from me on the procedure of fling a CIP for my Mobile Payment System(MPS) which is based on my dedicated Pay Button installed on a mobile phone with assigned PIN number - disclosed in 04 726 075.7 in EPO app. , and the same app. as prior art to file for CIP at the USPTO.

Mr.Brion has inform me that I can file the divisional but NEVER mentioned that there was a deadline to do so neither in USA or Europe.
I attach my emails to Mr Brion on that matter as evidence.

Kindly obliged

Paul Robert Poniatowski
paulponiatowski@yahoo.com
416 - 312 8806

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Date: Mon, 23 Oct 2006 16:03:40 -0700 (PDT)

From: "Paul Robert Poniatowski" <paulponiatowski@yahoo.com> Add to Address Book
Add Mobile Alert

Subject: RE: EU/ i'll ring you in the AM

To: "Art Brion" <abrion@cassanmaclean.com>

Art Brion <abrion@cassanmaclean.com> wrote:

> Paul –
>
> If you want to cover off the security system, then that would have to be a different patent application. The dedicated PAY button on the mobile handset is disclosed in this application as is the use of PIN numbers with the mobile phone.
>
> If you have something in the new security system, you can file for a new application covering the new security system with the phone PAY button and PIN numbers as a specific implementation of something that uses the security system.
>
> As for the other aspects of the mobile phone (removing the necessity for wallets/key/etc.), that's not in this application either and, really, that's another whole new invention altogether.
>
> Let me know how you wish to proceed with these new ideas. I'd suggest doing a search to see if something's already been done in this field that's similar. This is especially true for the mobile phone that replaces keys and wallets.
>
> As for the EPO Office Action, can we proceed with filing it with the EPO?
>
> Art
>
> ---
>
> **From:** Paul Robert Poniatowski [mailto:paulponiatowski@yahoo.com]
> **Sent:** Sunday, October 22, 2006 7:35 PM
> **To:** Art Brion
> **Subject:** RE: EU
>
> **Art**

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Thank you for drafting the response to the EU Office.

I trust in your professional opinion and legal advise on this matter , and that it's serves and protects my interests in its best .

There is one area on which needs to be written more about:

the payment method via the cell phone ;especially the dedicated PAY button installed on the mobile handsets that is registered with the individual personal bank account or Credit Card Co. protected by it's PIN number .

This system is so unique that as a result will eliminate IT machines or any other " quick pay devices" like tags/key chains or credit/ bank plastic cards.

All other payment systems that are out there 'll require you to carry additional piece of solid body- cc or key tag chain or other form of plastic... Hey maybe in the future you can have your personal data like SIN, Health Ins. or your DL stored on your phone even a 'digital key' to open your lock at home/car- so there'll be no need to carry a wallet/keys any more!

As I've mentioned few months ago I even have created a security system that'll be very safe to carry out and execute perfectly safe financial transactions and other sensitive transfers....

Maybe I have to apply for separate patent?
Since there was no claims made at the time I filled in 2003; but there is quiet a lot written about it in my app.non the less.

Please let me know what you advice by Mon 23 Oct 2006 .

Thank you
Paul R. Poniatowski

Art Brion <abrion@cassanmaclean.com> wrote:

> Mr Poniatowski :
>
> Please find enclosed our proposed draft response to the outstanding Office Action.
>
> Sincerely,
> CASSAN MACLEAN
>
> Art Brion
>
> Art Brion
> **Cassan Maclean**
> *Barristers & Solicitors*
> *Patent & Trade Mark Agents*
> 307 Gilmour Street
> Ottawa, Ontario K2P 0P7
>
> Tel: 613.238.6404
> Fax: 613.230.8755
> Email: abrion@cassanmaclean.com
>
> **WARNING: This e-mail is confidential and may be subject to legal privilege. It is intended solely for the recipient(s) named above. If you are not an intended recipient, please so advise, by calling Cassan Maclean at 613-238-6404, and kindly delete this e-mail permanently from your system. Any unauthorized review, copying or other handling of this e-mail is strictly prohibited.**

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01/30/2008 WED 20:43 APPLE EX1008 Page 273

From: Paul Robert Poniatowski [mailto:paulponiatowski@yahoo.com]
Sent: Wednesday, October 18, 2006 9:00 PM
To: Art Brion
Subject: RE: EU

Mr. Brion

the response to the EU office **MUST** be filled before 26 Oct. deadline. I also require to have a draft of your reply for review and approval (2 bus days) prior to filling within EU.

Poniatowski

Art Brion <abrion@cassanmaclean.com> wrote:

> Hi Paul –
>
> I've received your email and I'll send you a draft response once I've had a chance to look at the file.
>
> Art
>
> Art Brion
> **Cassan Maclean**
> *Barristers & Solicitors*
> *Patent & Trade Mark Agents*
> 307 Gilmour Street
> Ottawa, Ontario K2P 0P7
>
> Tel: 613.238.6404
> Fax: 613.230.8755
> Email: abrion@cassanmaclean.com
>
> **WARNING: This e-mail is confidential and may be subject to legal privilege. It is intended solely for the recipient(s) named above. If you are not an intended recipient, please so advise, by calling Cassan Maclean at 613-238-6404, and kindly delete this e-mail permanently from your system. Any unauthorized review, copying or other handling of this e-mail is strictly prohibited.**

From: Paul Robert Poniatowski
[mailto:paulponiatowski@yahoo.com]
Sent: Thursday, September 28, 2006 8:43 PM
To: Art Brion
Subject: RE: EU

art
please send me a draft let. reply to the European office for my review - I'd rather have that taken care -off sooner than later...
best p.

Art Brion <abrion@cassanmaclean.com> wrote:

> Hi Paul –

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Art Brion <abrion@cassanmaclean.com> wrote:

> It shouldn't matter since patentability is determined from your filing date and what was available to the public then. If it wasn't available to the public then but is available now, then your filing date wins.
>
> > ----Original Message----
> > **From:** paul poniatowski [mailto:paulponiatowski@yahoo.com]
> > **Sent:** October 7, 2004 1:44 PM
> > **To:** Art Brion
> > **Subject:** RE: D-day?
> >
> > hi art
> > can you do a quick search with uspo again just to see if there is maybe anything else?
> > or it wan't matter?
> > paul
> >
> > ***Art Brion <abrion@cassanmaclean.com>*** wrote:
> >
> > > Paul –
> > >
> > > Yes, it should be the publishing day today. You can tell people now about the invention BUT STICK WITH WHAT IS IN THE APPLICATION. Once I have the publication number, I'll send it on so that you can give it to your contacts.
> > >
> > > And yes, we received the check in good order. We've filed the supplementary IDS at the USPTO. When I hear anything new, I'll let you know.
> > >
> > > Art
> > >
> > > > -----Original Message-----
> > > > **From:** paul poniatowski [mailto:paulponiatowski@yahoo.com]
> > > > **Sent:** October 6, 2004 11:07 AM
> > > > **To:** Art Brion
> > > > **Subject:** D-day?
> > > >
> > > > Hi Art
> > > > Well... today is the 6 Oct.04 the publishing day.
> > > > Would it be OK. to have a glass of Champaign..... I guess?
> > > > Couple of new contacts I've made in the recent weeks : Reuters , Goggle, and above all Arnold Schwarzenegger in California (remember Total Recall?).
> > > > On the home turf two weeks ago TTC announced on City TV that they are interested in placing TV monitors
> > > > in the subway.I contact their office and the tender for the project should be in place next year.
> > > > I think that's a very good news.
> > > > Please let me know if there are any developments on your end.(e-mail or cell 416-312 8806)
> > > > I assume that you've received the cheque in order.
> > > >
> > > > The powder is dry..... :-)
> > > > And again - thanks for everything.
> > > > Paul
> > > >
> > > > ***Art Brion <abrion@cassanmaclean.com>*** wrote:
> > > >
> > > > > Paul – see my comments below.
> > > > >
> > > > > > ----Original Message----
> > > > > > **From:** paul poniatowski [mailto:paulponiatowski@yahoo.com]
> > > > > > **Sent:** September 15, 2004 11:49 AM
> > > > > > **To:** Art Brion
> > > > > > **Subject:** 3 questions
> > > > > >
> > > > > > Art
> > > > > > - knowing how busy you are simple yes/no or possibly to those 3 questions

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1) can I add on or remove what is claimed in the app., based on what's we came across as already out there(I guess since DOcommo/AT&T had the Mmode up and running in 2002 the idea of teleradio is already explored.) although the difference in the type of signal is there analogue versus digital.
[Art Brion]
You can add to the US application by filing what is known as a continuation-in-part (CIP) application. In a CIP, you can add material to the application but the new material will only take its patentability from the date of filing of the new application

2) something that is detailed in the application but it was not listed as a claim.
[Art Brion]
We can always add claims to the application based on what is detailed in the application.

3)das it make since to file for the copy rights, since and - if , once the patent expires in 20 years, the concept is still the same.....they can't create another telephone....
[Art Brion]
Copyright doesn't protect the idea but only its expression. Copyright is used to software, drawings, the written word, etc. It doesn't really apply to telephones or ideas related to telephones Sorry!

paul

Art Brion <abrion@cassanmaclean.com> wrote:

> Paul:
>
> I think they DO use the phone. They'd have to – the radio frequencies are only used to connect to the base tower. Basically, the base tower sends and receives signals to the phone. The processing is done at the base tower. The audio feeds are also added at the base tower or at the base. The user dials a number that the base tower recognizes as NOT being a regular phone number. This means that the number dialled by the user is processed differently. Thus, if the user dials #123, the # at the beginning of the string signals to the receiving station that this is NOT meant to be a regular phone call. The 123 that follows means that some function is being accessed by the user. The audio associated with that function then routed to the tower servicing the phone and the signal is converted to a radio signal that is sent to the phone.
>
> Radio frequncies ARE used by phones. Basically, the signal is encoded digitally so only the phone can decode the signal.
>
> What is covered by your application (the clearest coverage) is the synchronized nature of the audio (via phone) with a video. The audio feed is synchronized with a video feed but the two feeds have different distribution channels. There's also a claim for the use of a phone to access widely available audio feeds using a network hub and a distribution hub.
>
> With the whole AT&T thing, since we're so close to the publication date, it should be ok to disclose to AT & T the broad outlines of what is covered by the application. Mention to them. as well, the expected publication date and tell them that you have an application pending in the US.
>
> -----Original Message-----
> **From:** paul poniatowski
> [mailto:paulponiatowski@yahoo.com]
> **Sent:** September 9, 2004 2:48 PM
> **To:** Art Brion
> **Subject:** It ok. we are safe!

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01/30/2008 WED 20:43 APPLE EXHIBIT 1008 Page 276

Art here is couple of my thoughts;

Essentially what's sort of device is used by end user to receive the sound.

If it's a direct satellite signal without dialing the phone number that's fine but is still attached to the phone ,and the only way you can get the signal directed to your phone is by dialing a number of a modem inside phone , it's still the number that's need to be dialed to get a connection for an individual/custommer-provider/seller;
Radio-whether fm , short wave or walkie-talkie,pagers has a certain frequencies receiver build in that allows you to hear if you have the same device .So unless you format the waves/frequencies....well you can't hear the other one.

Question of frequencies for radio waves and the telephone : there are certain frequencies assign to each company I assume?So it's safe to speculate That AT&T is using the frequency that is assign to them by US Telecom. Department which is a phone frequency not radio?
If they want to get connected thru the radio they can't use cell by punching #123 to gain access(it says right there on their web site) ;it'll have to be a separate device like a satellite radio or short wave radio.
Otherwise they'll have replace the whole population of the cell phone users 2Bl. and again people carry their phones for communicational purposes not just to listen.
Also the buying/purchasing aspect, so it has to be done thru the phone .radio wan't tale you your name, where you live your credit card number.....or even if it's a MP3 format they'll have to send it to your phone or computer(modem).

By the way this concept was developed jointly by AT&T and Nokia,whom I contacted last year (AT&T) and earlier this year (Nokia).It's only available in US as of 10 Aug 2004 for a monthly 10.99$ fee.
So I'm keeping my powder dry but just wandering .....

Please review the application and let me know what I should do.
I think we should do something.
I'll wait for your reply.
Paul

Art Brion <abrion@cassanmaclean.com> wrote:

> http://www.internetnews.com/ec-news/article.php/1458201
>
> -----Original Message-----
> **From:** paul poniatowski
> [mailto:paulponiatowski@yahoo.com]
>
> **Sent:** September 9, 2004 10:18 AM
> **To:** Art Brion
> **Subject:** AT&T launch Mmode on 10 Aug 2004;we need to talk. Paul
>
> just do a Google news search

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	16017-5	2604

1059 7590 11/01/2007

BERESKIN AND PARR
40 KING STREET WEST
BOX 401
TORONTO, ON M5H 3Y2
CANADA

EXAMINER	
DEANE JR, WILLIAM J	
ART UNIT	**PAPER NUMBER**
2614	

MAIL DATE	DELIVERY MODE
11/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/407,222	PONIATOWSKI, PAUL	
	Examiner	Art Unit	
	William J. Deane	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is 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.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-10* is/are allowed.

6)☒ Claim(s) *11-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

Claims 1 –10 are allowed.

Claim Rejections - 35 USC § 102

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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11 – 32 are rejected under 35 U.S.C. 102(b) as being anticipated by the well known watching an advertisement and calling in with a promotional code or in view of U.S. Application No. 2002/0094787 (Avent et al.).

Claims 11 – 32 are rejected in view of one seeing a commercial on TV or over the Internet and calling in with a promotional code. In addition, note paragraphs 0026 – 0030 of Avent et al.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Note the references contained on the 892 contained herewith.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply 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 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bill Deane whose telephone number is (571) 272-7484. In addition, facsimile transmissions should be directed to Bill Deane at facsimile number (571) 273-8300.

29OCT2007

WILLIAM J. DEANE, JR.
PRIMARY EXAMINER

Notice of References Cited	Application/Control No. 10/407,222	Applicant(s)/Patent Under Reexamination PONIATOWSKI, PAUL	
	Examiner William J. Deane	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,869,013	03-2005	Allen et al.	235/381
*	B	US-2001/0032122	10-2001	Hankla, James Kirk	705/14
*	C	US-2002/0056121	05-2002	Ledbetter, Michael	725/87
*	D	US-2002/0087335	07-2002	Meyers et al.	705/1
*	E	US-2002/0094787	07-2002	Avnet et al.	455/68
*	F	US-2003/0103644	06-2003	Klayh, John	382/100
*	G	US-2004/0103437	05-2004	Allegrezza et al.	725/095
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
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	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/407,222	PONIATOWSKI, PAUL
Examiner	**Art Unit**
William J. Deane	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date									
Final	Original	1/15/03	2/26/07								
	1	√	√								
	2	√	=								
	3	√	=								
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Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination
10/407,222	PONIATOWSKI, PAUL
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William J. Deane	2614

SEARCHED			
Class	Subclass	Date	Examiner
370	352	13Mar07	mjd
	329		
	338		
455	566		
	reviewed	29Oct07	mjd

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR

Bereskin & Parr
INTELLECTUAL PROPERTY LAW

OIPE
AUG 13 2007
PATENT & TRADEMARK OFFICE

FTFW

August 10, 2007

Ebad Rahman B.Sc. (Comp. Sci.), LL.B.
416 957 1664 erahman@bereskinparr.com

Our Reference: 16017-5

Response to Notice Requiring Excess Claims Fees

Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia
U.S.A. 22313-1450

Attention: William J. Deane, Jr.

Dear Sir:

Re: AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
Serial No.: 10/407,222
Filing Date: April 7, 2003
Applicant: Paul Poniatowski
Group Art Unit: 2800

This is in response to the Notice Requiring Excess Claims Fees mailed July 11, 2007.

The required excess claims fee of $725.00 is included in our cheque No. 8722.

Respectfully submitted,

PAUL PONIATOWSKI

Tony R. Orsi DAVID LANGTON
Registration No. 55,831 27,747

Ebad Rahman/sam
Encl.

08/14/2007 HDESTA1 00000067 10407222

01 FC:2201 300.00 OP
02 FC:2202 425.00 OP

IPR2024-00731
APPLE EX1008 Page 285

PE IAP28
AUG 13 2007
PATENT & TRADEMARK OFFICE

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/407,222	04/07/2003	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
FOR	NUMBER FILED	NUMBER EXTRA					
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 06/22/2007

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 37	Minus	** 20	= 17	X $25 =	425	OR	X $ =	
Independent (37 CFR 1.16(h))	* 6	Minus	***3	= 3	X $100 =	300	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	725	OR	TOTAL ADD'L FEE	

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Jacquelyn L. Williams

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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1059 e 07/11/2007

BERESKIN AND PARR
40 KING STREET WEST
BOX 401
TORONTO, ON M5H 3Y2 CANADA

Paper No.

Application No.:	**10/407,222**	**Date Mailed:**	**07/11/2007**
First Named Inventor:	Poniatowski, Paul,	Examiner:	DEANE JR, WILLIAM J
Attorney Docket No.:	16017-5	Art Unit:	2614
Confirmation No.:	2604	Filing Date:	04/07/2003

Please find attached an Office communication concerning this application or proceeding.

Commissioner for Patents

PTO-90c (Rev.08-06)

NOTICE REQUIRING EXCESS CLAIMS FEES	Application No.	Applicant(s)	
	10/407,222	PONIATOWSKI, PAUL	
		Art Unit	
		2800	

The excess claim(s) filed on 22 June, 2007 is not accompanied by the appropriate payment of excess claims fees set forth in 37 CFR 1.16(h)-(j) or 1.492(d)-(f). Excess claims fees are required for each claim in independent form in excess of three (§ 1.16(h)), each claim (whether dependent or independent) in excess of twenty (note that § 1.75(c) indicates how multiple dependent claims are considered for fee calculation purposes) (§ 1.16(i)), and each application that contains a multiple dependent claim (§ 1.16(j)).

Since the application is not under a final rejection, applicant is given a time period of **ONE (1) MONTH or THIRTY (30) DAYS** from the mailing date of this notice, whichever is longer, to submit either: (1) the fee payment of $ 725, or (2) an amendment in compliance with 37 CFR 1.121 that cancels the excess claim(s), in order to avoid ABANDONMENT. Extensions of this time period may be granted under 37 CFR 1.136, unless the excess claim(s) was presented in a preliminary amendment.

☐ 1 The funds in Deposit Account No. are insufficient to cover the entire fee due. The balance is due within the time period set forth in this notice. See note below regarding the appropriate service charge.

☐ 2. The Credit Card payment to cover the entire fee due to Account (**Card type + last 4 digits ONLY**) was refused. The balance is due within the time period set forth in this notice. See note below regarding the appropriate service charge.

☒ 3. The amendment that includes the excess claim(s) has not been entered, since applicant has failed to remit (or authorize charge to a Deposit Account or Credit Card) the fee as indicated on the attached Patent Application Fee Determination Record (PTO/SB/06). Remittance or authorization is due within the time period set forth in this notice.

☐ 4. The fee submitted in this application is insufficient. A balance of $ is due for presentation of excess claims (37 CFR 1.16(h)-(j) or 1.492(d)-(f)).

☒ 5. Other.

Explanation (*Provide specific details of the required correction in order to assist the applicant. Indicate whether a service charge has been added to the fee due*): own for 17 depended and 3 independed claims

THE AMOUNT OF THE FEE(S) DUE IS SUBJECT TO CHANGE, GENERALLY ON OCTOBER 1 OF EACH YEAR (37 CFR 1.16, 1.21 & 1.492). THE **AMOUNT OF THE FEE(S) DUE IS DETERMINED AS OF THE DATE A COMPLETE REPLY WITH THE APPROPRIATE FEE(S) IS RECEIVED BY THE OFFICE** (37 CFR 1.8 & 1.10). BECAUSE THE AMOUNT DUE IS SUBJECT TO CHANGE, IT IS RECOMMENDED THAT APPLICANT CHECK THE CURRENT FEE SCHEDULE WHICH IS AVAILABLE ON THE USPTO'S WEBSITE AT: ***http://www.uspto.gov/web/offices/ac/qs/ope/fees.htm***

Service Charges: There is a $50 service charge for processing each payment refused (including a check returned "unpaid") or charged back by a financial institution (37 CFR 1.21(m)). There is a $25.00 service charge for each month when the balance of a deposit account is below $1000 at the end of the month (37 CFR 1.21(b)(2)).

Technical Support Staff (TSS): Jacquelyn L. Williams Phone Number: 571-272-1640

Note to TSS: Please do NOT use this notice if the application is under a final rejection.

Appl. No:		10/407,222
Confirmation No.	:	2604
Applicant	:	Paul Poniatowski
Filed	:	April 07, 2003
Title	:	AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
TC./A.U.	:	2635
Examiner	:	Deane Jr, William J
Docket No.	:	16017-5
Customer No.	:	001059

Honorable Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313–1450

INTRODUCTORY COMMENTS

Sir:

This is in response to the Examiner's Office Action dated March 22, 2007. Since this response is filed within three months of the Office Action, the Applicant submits that this response is timely filed.

Please amend the above identified application as follows:

Amendments to the Claims begin on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. In this listing of claims, claims 1, 3, 8 and 11 have been amended and clams 14-37 have been added.

Listing of Claims

Claim 1 (Currently Amended): A system for distributing information to the public, said information comprising at least one video feed and a plurality of audio feeds, the system comprising:

a network hub for receiving said information from a source;

a plurality of publicly viewable video display screens;

at least one video distribution hub, ~~the or~~ each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;

at least one audio distribution hub, ~~the or~~ each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users;

a telephone interface for receiving an end user telephone call for accessing said plurality of audio feeds and for selection of at least one audio feed, said telephone interface communicating with said at least one audio distribution hub, said telephone interface automatically routing audio feeds from said at least one audio distribution hub to said end user telephone call~~s~~ based on an end user input,

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wherein at least one audio feed is synchronized with one of the at least one video feed.

Claim 2 (Original): A system according to claim 1 wherein said network hub receives said information as separate video and audio feeds.

Claim 3 (Currently Amended): A system according to claim ~~1~~ 1 wherein at least one audio feed received by said network hub is a thermal audio feed.

Claim 4 (Original): A system according to claim 1 wherein at least one of said plurality of publicly viewable video display screens receives a video feed from said video distribution hub by wireless means.

Claim 5 (Original): A system according to claim 1 wherein at least one of said plurality of publicly viewable video display screens receives a video feed from said video distribution hub through a closed circuit network.

Claim 6 (Original): A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screens is deployed outside a vehicle.

Claim 7 (Original): A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screens is deployed inside a vehicle.

Claim 8 (Currently Amended): A system according to claim 1 wherein said network hub receives multiple video feeds, each of said multiple video feeds being transmitted to said video display screens located in different geographic regions.

Claim 9 (Original): A system according to claim 1 wherein said at least one video feed is provided with closed captioning.

Claim 10 (Original): A system according to claim 1 wherein said at least one video feed is provided with advertisements.

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Claim 11 (Currently Amended): A system for providing at least one audio feed to end users, the system comprising:

a network hub for receiving at least one audio feed;

at least one audio distribution hub receiving said at least one audio feed from said network hub:

a telephone interface for receiving telephone calls from said end users and for selection of at least one audio feed, said interface communicating with said at least one audio distribution hub and said telephone interface automatically routing said at least one audio feed to said telephone calls based on input from said end users.

Claim 12 (Original): A system according to claim 11 wherein a plurality of audio feeds are received by said network hub and at least one of said plurality of audio feeds is synchronized with a video feed.

Claim 13 (Original): A system according to claim 12 wherein said video feed is publicly viewable.

Claim 14 (New): A system for providing advertising to one or more end users, the system comprising:

a network hub for receiving said advertisements from a source;

a plurality of publicly viewable video display screens used to display said advertisements;

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at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;

at least one audio distribution hub, each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by one or more end users;

a telephone interface for receiving an end user telephone call for accessing said plurality of audio feeds and for selecting at least one audio feed and for entering a promotional code related to the displayed advertising;

wherein entering the promotional code causes the one or more end users to be directed to a call center where the one or more end users may complete a purchase.

Claim 15 (New): A system for allowing one or more end users to purchase merchandise, the system comprising:

a network hub for receiving information from a source;

a plurality of publicly viewable video display screens used to display one or more items of merchandise for sale;

at least one video distribution hub, each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;

at least one audio distribution hub, each audio distribution hub receiving a plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users; and

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a telephone interface for receiving an end user telephone call for accessing said plurality of audio feeds and selecting at least one audio feed and to enter commands to purchase at least one of the one or more items of merchandise.

Claim 16 (New): The system of claim 15, wherein the one or more end users have a user account used to purchase the merchandise.

Claim 17 (New): The system of claim 16, wherein the user account is adapted to store credit card information, an end user address, and a personal identification number.

Claim 18 (New): The system of claim 15, wherein the one or more end users specify a personal identification number to authorize the purchase of the merchandise.

Claim 19 (New): The system of claim 15, wherein the system provides the one or more end users with one or more choices related to the merchandise.

Claim 20 (New): The system of claim 19, wherein the choices comprise a colour of the merchandise.

Claim 21 (New): The system of claim 19, wherein the choices comprise a size of the merchandise.

Claim 22 (New): The system of claim 19, wherein the choices comprise a type of merchandise.

Claim 23 (New): The system of claim 15, wherein the one or more end users are located remotely from the displayed merchandise.

Claim 24 (New): A method for purchasing merchandise displayed on a video display screen, the method comprising:

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viewing one or more items of merchandise for sale upon a video display screen;

calling a telephone gateway and selecting an audio feed from one or more audio feeds;

entering a promotional code provided in the audio feed associated with the one or more items of merchandise; and

authorizing upon the telephone device the purchase of one or more items of merchandise for an end user.

Claim 25 (New): The method of claim 24, wherein the method comprises associating the end user with an end user account.

Claim 26 (New): The method of claim 25, wherein the method comprises associating the end user account with one or more user credit cards.

Claim 27 (New): The method of claim 25, wherein the method comprises associating the end user account with a user personal identification number.

Claim 28 (New): The method of claim 25, wherein the method comprises associating the end user account with an end user address.

Claim 29 (New): The method of claim 27, wherein the step of authorizing is performed by entering the user personal identification number.

Claim 30 (New): The method of claim 24, wherein the end user is remotely located from the one or more items of merchandise.

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Claim 31 (New): A method for purchasing merchandise displayed on a video display screen, the method comprising:

viewing one or more items of merchandise for sale upon a video display screen;

calling a telephone gateway and selecting an audio feed from one or more audio feeds;

entering a purchase command upon a telephone device to purchase the one or more items of merchandise; and

authorizing upon a telephone device the purchase of one or more items of merchandise for an end user.

Claim 32 (New): The method of claim 31, wherein the method comprises associating an end user with a user account.

Claim 33 (New): The method of claim 31, wherein the method comprises associating the end user account with one or more user credit cards.

Claim 34 (New): The method of claim 33, wherein the method comprises associating the end user account with a user personal identification number.

Claim 35 (New): The method of claim 32, wherein the method comprises associating the end user account has associated with an end user address.

Claim 36 (New): The method of claim 34, wherein the step of authorizing is performed by entering the user personal identification number.

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Claim 37 (New): The method of claim 31, wherein the user is remotely located from the displayed merchandise.

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REMARKS/ARGUMENTS

This is a response to the Office Action of March 22, 2007, in which a three month term was set for response. Accordingly, this response is timely filed.

Amendments to the Claims

By this response, there are now a total of 37 claims pending in this application.
Claims 1-13 stand rejected in this application. Claims 1, 3, 8 and 11 have been amended, and claims 14-37 have been added. The Applicant respectfully submits that each of claims 1-37 is in condition for allowance.

Objections made to the Claims

Claim Rejections – 35 USC S. 103

The Examiner has rejected claims 1-13 under 35 U.S.C. 103(a) as being unpatentable over WO 98/11686 (Troxel et al.) in view of U.S. Patent No. 7,149,549 (Ortiz et al.).

Claims 1 and 11 have been amended to more clearly recite certain claimed features. Specifically, claims 1 and 11 have been amended to recite that the telephone interface receives telephone calls from end users, and receives selections regarding an audio feed from the end users.

The Troxel reference is used for broadcast distribution on-board an airplane. It is not designed for, nor does it teach or suggest a system that is used for the widespread dissemination of audio and video information. The users of the system, as taught by Troxel, are passengers in an aircraft that are viewing information shown to them on their

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screen. The audio that is provided to the viewers is the audio that is associated directly with the video that is displayed to the user. The user is not able to engage the system other than by being located in front of it, and may not select from one or more audio streams.

The Ortiz reference discloses a system for receiving and displaying venue-based data on hand-held devices. The hand-held devices are used to permit images such as television broadcast images to be displayed for a user to view. The Ortiz reference does not teach or suggest the use of a telephone to select between and receive one or more audio feeds. The hand-held devices are used in Ortiz for the purposes of receiving images only. They are not used to select between and receive one or more audio feeds.

As neither the Ortiz reference nor the Troxel reference teach or suggest the use of telephone devices to select from and receive one or more audio feeds, it is respectfully submitted that claims 1 and 11 are now in a form for allowance. As claims 2-10 and 12-13 depend on claims 1, and 11 respectively and introduce other patentable features, it is further respectfully submitted, that claims 2-10 and 12-13 are in a form for allowance.

Furthermore, neither of the Troxel or Ortiz systems teach, or suggest the use of a dissemination system to be used for the sale of merchandise or a method for the purchase of merchandise from a dissemination system. In the subject application, the audio video dissemination system is used to allow end users to view promotional information displayed on a screen and/or presented in audio and then engage their telephone devices to initiate the purchase. Therefore, it is respectfully submitted that claims 14-37 are in a form of allowance.

CONCLUSION

In view of the foregoing comments, it is respectfully submitted that the application is now in condition for allowance. If the Examiner has any further concerns regarding the language of the claims or the applicability of the cited references, the Examiner is respectfully requested to contact the undersigned at 416-957-1603.

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Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

Paul Poniatowski

By _____

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Electronic Acknowledgement Receipt

EFS ID:	1902987
Application Number:	10407222
International Application Number:	
Confirmation Number:	2604
Title of Invention:	Audio/visual information dissemination system
First Named Inventor/Applicant Name:	Paul Poniatowski
Customer Number:	1059
Filer:	Tony Rosario Orsi/Cheri Martin
Filer Authorized By:	Tony Rosario Orsi
Attorney Docket Number:	42092-0001
Receipt Date:	22-JUN-2007
Filing Date:	07-APR-2003
Time Stamp:	17:08:35
Application Type:	Utility

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1		160175oaresponseasfiled.pdf	421655	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment - After Non-Final Rejection	1	1
	Claims	2	9
	Applicant Arguments/Remarks Made in an Amendment	10	12
Warnings:			
Information:			
	Total Files Size (in bytes):	421655	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

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☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
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☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	06/22/2007	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
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	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	725	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Jacquelyn L. Williams

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/407,222	04/07/2003	Paul Poniatowski	42092-0001

CONFIRMATION NO. 2604

OC000000023774705

1059
BERESKIN AND PARR
40 KING STREET WEST
BOX 401
TORONTO, ON M5H 3Y2
CANADA

Date Mailed: 05/09/2007

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/26/2007.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/407,222	04/07/2003	Paul Poniatowski	42092-0001

CONFIRMATION NO. 2604

OC000000023774673

41018
CASSAN MACLEAN
307 GILMOUR STREET
OTTAWA, ON K2P 0P7
CANADA

Date Mailed: 05/09/2007

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/26/2007.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

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TFW 2614

PTO/SB/21 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
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OIPE APR 26 2007 PATENT & TRADEMARK OFFICE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission	2

Application Number	10/407,222
Filing Date	April 7, 2003
First Named Inventor	Paul Poniatowski
Art Unit	2614
Examiner Name	William J. Deane
Attorney Docket Number	16017-005/ER

ENCLOSURES ***(check all that apply)***

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment / Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply to Missing Parts under 37 CFR1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) *(please identify below)*:

Revocation of Power of Attorney with New Power of Attorney and Change of Correspondence Address

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm	BERESKIN & PARR		
Signature	Tony Orsi		
Printed Name	Tony R. Orsi		
Date	April 25, 2007	Reg. No.	55,831

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Signature			
Typed or printed name		Date	

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PTO/SB/82 (01-06)
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OIPE MAP31 APR 26 2007 PATENT & TRADEMARK OFFICE

REVOCATION OF POWER OF ATTORNEY WITH NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/407,222
Filing Date	April 7, 2003
First Named Inventor	Paul Poniatowski
Art Unit	2614
Examiner Name	William J. Deane
Attorney Docket Number	16017-005/ER

I hereby revoke all previous powers of attorney or authorizations of agent given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint the practitioners at Customer Number : 1059

☒ Please change the correspondence address for the above-identified application to:

☒ The address associated with Customer Number: 1059

OR

☐ Firm *or* Individual Name			
Address			
City		State	ZIP
Country			
Telephone		Email	

I am the:

☒ Applicant/Inventor.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

SIGNATURE of Applicant or Assignee of Record

Signature			
Name	Paul Poniatowski		
Date	20 APR 2007	Telephone	416 312 8806

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.36. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/407,222	04/07/2003	Paul Poniatowski	42092-0001	2604

41018 7590 03/22/2007

CASSAN MACLEAN
307 GILMOUR STREET
OTTAWA, ON K2P 0P7
CANADA

EXAMINER	
DEANE JR, WILLIAM J	
ART UNIT	PAPER NUMBER
2614	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/407,222	PONIATOWSKI, PAUL	
	Examiner	Art Unit	
	William J. Deane	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is 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.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 2 pages
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

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

> (a) 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.

Claims 1 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/11686 (Troxel et al.) in view of U.S. Patent No. 7,149,549 (Ortiz et al.).

With respect to claims 1 – 13, note Page 1, line 11 – page 2, line 9, page 3, line 20 – page 3, line 31 and page 17, line 5 – page 17, line 23 of Troxel et al. Therefore, with page 8, lines 8 –11 of the instant application in mind, the Troxel et al. device is for routing and synchronizing audio and video feeds on an aircraft for entertainment purposes. It appears that Ortiz et al. teach an appropriate telephone menu technology that produces the requisite telephone interface (see Abstract, Col. 1, lines 28 – 46, Col. 1, line 65 – Col. 2, line 20, Col. 2, lines 67, Col. 4, lines 7 – 25, Col. 5, lines 37 – 40, Col. 9, lines 10 – 63, Col. 11, lines 18 – 29, Col. 12, line 58 – Col. 13, line 11, Col. 14, lines 25 – 40 and Col. 15, line 65 – Col. 16, line 53.

It would have been obvious to one of ordinary skill in the art to have incorporated such a means for routing such data to a telephone as taught by Ortiz et al. into the WO reference as an obvious means for getting information or entertainment to more people since many people carry cell phones or PDAs. Therefore, companies could also save

money by not having to invest in the receiving equipment because people already have cell phones.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bill Deane whose telephone number is (571) 272-7484. In addition, facsimile transmissions should be directed to Bill Deane at facsimile number (571) 273-8300.

14Mar2007

WILLIAM J. DEANE, JR.
Primary PATENT EXAMINER

OIPE JC139 OCT 06 2004 PATENT & TRADEMARK OFFICE

PTO/SB/08A (08-03)
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	Poniatowski, Paul
Art Unit	2662
Examiner Name	KIZOU, Hassan
Attorney Docket Number	42092-0001

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
WS		US- 5 412 708	05/02/1998	Katz	
WS		US- 5 896 129	04/20/1999	Murphy	
		US-			
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
WS		WO 98/11686	03-19-1998	TROXEL ET AL		
WS		WO 01/33859	05-10-2001	GLASER		

Examiner Signature	Bill Deane	Date Considered	14 Mar 07

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

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OIPE JC139 JUL 10 2003 PATENT & TRADEMARK OFFICE

PTO/SB/08A (04-03)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet | | of | |

Complete if Known	
Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	Paul Poniatowski
Art Unit	2171
Examiner Name	unknown
Attorney Docket Number	42092-0001

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
WP	A1	US- 5,774,534	06-30-1998	MAYER	
	A2	US- 2001/0032131 A1	10-18-2001	MOWRY	
	A3	US- 2002/0022476 A1	02-21-2002	GO	
	A4	US- 2002/0094787 A1	07-18-2002	AVNET ET AL	
	A5	US- 2002/0130967 A1	09-19-2002	SWEETSER	
	A6	US- 2002/0162113 A1	10-31-2002	HUNTER	
	A7	US- 2002/0194622 A1	12-19-2002	LORD	
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
WP	B1	GB 2 344 009 A	05-24-2000	Roke Manor...		
WP	B2	WO 01/27899 A1	04-19-2001	Adapt Media Inc		
WP	B3	WO 02/093544 A1	11-21-2002	Monarch Adver		

Examiner Signature	Bill Deane	Date Considered	14Mar07

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

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Notice of References Cited	Application/Control No. 10/407,222	Applicant(s)/Patent Under Reexamination PONIATOWSKI, PAUL	
	Examiner William J. Deane	Art Unit 2614	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,149,549	12-2006	Ortiz et al.	455/566
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
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	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/407,222	PONIATOWSKI, PAUL
Examiner	**Art Unit**
William J. Deane	2614

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date
Final	Original	1/14/2007
	1	√
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Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination
10/407,222	PONIATOWSKI, PAUL
Examiner	**Art Unit**
William J. Deane	2614

SEARCHED			
Class	Subclass	Date	Examiner
370	352	13Nov07	
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APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/407,222		2662	06B0

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Serial No.	:	10/407,222	Filing Date:	04/07/2003
Group Art Unit:		2662	Confirmation No.:	2604
Examiner	:	KIZOU, Hassan		
Title	:	AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM		
Inventor	:	Paul Poniatowski		
Our File	:	42092-0001	Customer No.:	41018

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October 5, 2004
AB:aey

By: _____
Arturo Brion Reg. No. 51,374

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Filing Date	04/07/2003
First Named Inventor	Poniatowski, Paul
Art Unit	2662
Examiner Name	KIZOU, Hassan
Attorney Docket Number	42092-0001

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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		US- 5 896 129	04/20/1999	Murphy	
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Application Number	10/407,222
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First Named Inventor	Paul Poniatwoski
Art Unit	2662
Examiner Name	KIZOU, Hassan
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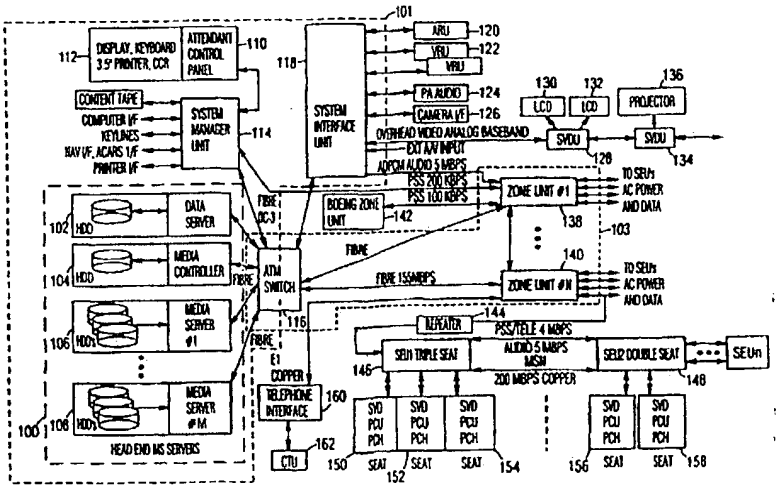
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(54) Title: COMBINED DIGITAL AUDIO/VIDEO ON DEMAND AND BROADCAST DISTRIBUTION SYSTEM

(57) Abstract

An in-flight passenger entertainment system has a first digital network for communication among components of a headend system including a data server, media controller, one or more media servers, system interface unit, system manager unit and attendant control panel. The in-flight entertainment system is coupled to an aircraft's existing systems through the system interface unit and the system manager unit. The components of the headend system are all coupled to a network switch for routing data within the first network. The network switch is also coupled to one or more zone bridge units, each of which is coupled to multiple seat electronics units. The zone bridge units and the seat electronics units together form a second digital network. The first digital network is preferably an ATM network with fibre optic cables used to carry the data. The second digital network is preferably an IEEE 1394 serial bus network. The zone bridge units control all communications between the networks, converting all communications into the format required by the respective network. All communications across the networks are transmitted as digital data and when necessary are converted to analog signals at the seat electronics units. Through passenger control sets coupled to the seat electronics units, a passenger has access to audio and video on demand, video games, gambling, telephone service and information services. A passenger also has the ability to fast forward, rewind and pause a video feature. An overhead audio and video distribution system is used to provide audio and video content as a backup to the video on demand system or as an alternative subsystem in zones of the aircraft in which there are passenger control sets with less than full capability. A first audio path for transmitting audio content from the headend system is routed to predetermined seat entertainment units through the network switch and the zone bridge units. A second audio path for transmitting audio from the system interface unit is routed to the seat entertainment units through the zone bridge units.



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COMBINED DIGITAL AUDIO/VIDEO ON DEMAND AND BROADCAST DISTRIBUTION SYSTEM

FIELD OF THE INVENTION:

The present invention relates to the field of audio and video on demand entertainment systems. More particularly, the present invention relates to the field of distributed network video on demand entertainment and broadcast distribution systems for use onboard an aircraft during flight.

BACKGROUND OF THE INVENTION:

In-flight entertainment on an airplane has traditionally consisted of the ability to watch a single video on an overhead screen and listen to one of multiple audio channels through a headset. The overhead screens are distributed throughout the airplane's cabin and are sometimes difficult to view from some seats within the cabin. The video is chosen by the airline and played simultaneously for viewing by all passengers. In most instances, a passenger desiring to hear the audio accompanying a featured film must rent or purchase a headset to be plugged into their seat console. A passenger who leaves their seat to stretch, go to the restroom or make a telephone call will end up missing a portion of the movie. Typically, the same feature film is played for a predetermined period of time on an airline, such as a calendar month, with different feature films played during travel in different directions within specific regions. For example, a first film will typically be played during travel within the United States in a western direction and a second film will be played during the same time period during travel within the United States in an eastern direction. Accordingly, for travellers travelling frequently during the same time period, it is highly likely that they will be on multiple flights featuring the same feature film. The airline is therefore losing potential revenue because it is likely that the passenger will not purchase a headset to view a movie that they have already watched.

Video on demand in-flight entertainment systems are being developed by multiple companies to provide numerous entertainment options to each passenger, thereby reducing the likelihood that a passenger has already viewed every option on the system. Video on demand entertainment systems typically include a control system and distributed individual video and audio systems of some form at each seat. Thus, each passenger with access to an individual video on demand entertainment unit has the ability to choose from among

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multiple movies, audio channels, video games, including gambling and other entertainment options. Previous video on demand systems have offered featured films at selected start increments during the airplane's flight, such as every ten minutes. With such systems, a passenger who leaves their seat to stretch, go to the restroom or make a telephone call, will still miss a portion of the movie. Each passenger however, is able to choose from among multiple feature films, reducing the likelihood that they have viewed all of the available movie options.

Some or all of these video on demand entertainment options are provided at an additional cost to the passenger. This cost can be collected through a credit card reader, integrated into the video on demand system, at each passenger's seat. The passenger can swipe their credit card through the credit card reader and can then choose the video on demand features which they desire to view or play. The cost of the chosen feature will then be automatically charged to the passenger's credit card. In this manner, gambling services can also be provided to passengers through the video on demand entertainment system, allowing a passenger to wager up to a specified limit, secured by authorization to charge their credit card. When the passenger is finished using the gambling services, the amount that the passenger has won or lost is credited or charged to their credit card.

One such video on demand in-flight entertainment system has been developed by Interactive Flight Technologies of Las Vegas, Nevada. This system is advertised to allow a passenger to choose from among thirty feature films, gambling, on-board shopping, video games and an Airshow feature. Airshow is a moving map display feature, provided by Airshow of Tustin, California, which allows the passenger to view the route of the current flight and the airplane's current position along that route. This video on demand system is controlled by cluster computers which serve groups of seats. Each seat is equipped with a 486 compatible computer with an integral hard drive and RAM, through which the user accesses the video on demand system.

Another video on demand in-flight entertainment system has been developed by B/E Aerospace of Irvine, California. This system is advertised to provide a passenger with over 500 channels for regular video programming such as movies, as well as live broadcast television and a variety of interactive features such as video games. This system also provides duty free and catalog shopping, information menus, and both ground-base and satellite in-cabin telephone distribution through an individual video on demand module at

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the passenger's seat. The control electronics for this system are installed in a former galley unit on the aircraft which has been retrofitted to house the video on demand system. The control electronics are then coupled to each individual video on demand module throughout the cabin by a star network, with separate data wires running between each individual module and the control electronics.

A safety video or demonstration is required to be performed for the passengers on an aircraft before the aircraft takes off. This safety demonstration is required by U.S. Federal law and provides instructions to the passengers regarding procedures to be followed in the event of an emergency. On smaller aircraft equipped for shorter flights, the text of this safety demonstration is read over the airplane's intercom system by one of the airline's staff, while other members of the staff demonstrate necessary functions of the airplane's safety and exit equipment for the passengers. On bigger airplanes equipped with video screens or monitors, a safety video is played for simultaneous viewing by all of the passengers. This safety video is prerecorded and includes the same required text and illustrations as the live safety demonstration. Sometimes, the flight attendants, in conjunction with the safety video, will also perform live equipment demonstrations during the playing of the video. Accordingly, it is important that all passengers are viewing the safety video simultaneously.

What is needed is a video on demand in-flight entertainment system which is fully interactive and can provide multiple features to a passenger through an individual module. What is further needed is a video on demand in-flight entertainment system which uses complete end-to-end digital delivery from the control system to the passenger seat units and also includes an overhead broadcast system. What is still further needed is a video on demand in-flight entertainment system which provides all entertainment features on demand to all passengers having access to a passenger seat unit at all authorized times. Additionally, what is needed is an in-flight entertainment system which incorporates a serial network and is therefore lighter, easier to maintain and easier to reconfigure than existing systems. What is also needed is an in-flight entertainment system which includes separate and redundant systems allowing a portion of the system to fail without rendering the entire system nonoperational.

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SUMMARY OF THE INVENTION:

An in-flight passenger entertainment system has a first digital network for communication among components of a headend system including a data server, media controller, one or more media servers, system interface unit, system manager unit and attendant control panel. The in-flight entertainment system is coupled to an aircraft's existing systems through the system interface unit and the system manager unit. The components of the headend system are all coupled to a network switch for routing data within the first network. The network switch is also coupled to one or more zone bridge units, each of which is coupled to multiple seat electronics units. The zone bridge units and the seat electronics units together form a second digital network. The first digital network is preferably an ATM network with fibre optic cables used to carry the data. The second digital network is preferably an IEEE 1394 serial bus network. The zone bridge units control all communications between the networks, converting all communications into the format required by the respective network. All communications across the networks are transmitted as digital data and when necessary are converted to analog signals at the seat electronics units. Through passenger control sets coupled to the seat electronics units, a passenger has access to audio and video on demand, video games, gambling, telephone service and information services. A passenger also has the ability to fast forward, rewind and pause a video feature. An overhead audio and video distribution system is used to provide audio and video content as a backup to the video on demand system or as an alternative subsystem in zones of the aircraft in which there are passenger control sets with less than full capability. A first audio path for transmitting audio content from the headend system is routed to predetermined seat entertainment units through the network switch and the zone bridge units. A second audio path for transmitting audio from the system interface unit is routed to the seat entertainment units through the zone bridge units.

BRIEF DESCRIPTION OF THE DRAWINGS:

Figure 1 illustrates a system block diagram of a digital video on demand and backup broadcast distribution system of the present invention.

Figure 2 illustrates the interface couplings between the in-flight entertainment system 200 of the present invention and the aircraft's existing systems.

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Figure 3 illustrates a detailed block diagram of the components within the preferred embodiment of the media server units.

Figure 4 illustrates a detailed block diagram of the components within the preferred embodiment of the media controller and the data server.

Figure 5 illustrates a detailed block diagram of the components within the preferred embodiment of the system manager unit.

Figure 6 illustrates a detailed block diagram of the preferred functional components and connections of the system manager unit and the attendant control panel.

Figure 7 illustrates a detailed block diagram of the preferred embodiment of the system interface unit.

Figure 8 illustrates a block diagram of the preferred embodiment of the ATM switch circuit.

Figure 9 illustrates a block diagram of the preferred embodiment of the zone bridge unit.

Figure 10 illustrates a block diagram of a triple seat electronics unit.

Figure 11 illustrates a block diagram of a preferred embodiment of a passenger set of seat peripherals.

Figure 12 illustrates an audio distribution path configuration within the in-flight entertainment system of the present invention.

Figure 13 illustrates an alternate audio distribution path configuration.

Figure 14 illustrates an alternate subsystem audio distribution path configuration.

Figure 15A illustrates a block diagram of a subsystem of the present invention without video on demand capabilities.

Figure 15B illustrates the additions to the subsystem of Figure 15A which are required to provide video on demand within the system of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT:

An in-flight entertainment system includes a headend system having a data server, a media controller, one or more media servers, a system interface unit, a system manager unit and an attendant control panel. The components of the headend system are coupled together for communications by a digital ATM network. Preferably, fibre optic cables are used to form the ATM network. The components of the headend system are all coupled,

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through the ATM network, to an ATM network switch, for routing data within the network. The network switch is also coupled to one or more zone bridge units. Each of the zone bridge units is coupled to multiple seat electronics units. Each seat electronics unit is coupled to control one or more passenger control sets through which passengers on the aircraft access the in-flight entertainment system of the present invention. The zone bridge units and the multiple seat electronics units are coupled together by an IEEE 1394 serial bus network. All communications across both of the networks are transmitted as digital data and when necessary, are converted to analog signals at the seat electronics units.

The in-flight entertainment system is coupled to the aircraft's existing systems through the system interface unit and the system manager unit. An overhead audio and video distribution system, controlled by the system interface unit, is used to provide audio and video content as a backup to the ATM/1394 network and as an alternate subsystem in zones of the aircraft in which there are passenger control sets with less than full capability. Audio and video content data for use at the seat electronics units is stored and delivered from the media servers. When requested by a passenger, this audio and video content data is transmitted from the media servers, over the ATM network to the appropriate zone bridge unit. This transmission is controlled by the media controller at the headend of the system. From the zone bridge unit, the data is then transmitted over the IEEE 1394 serial bus to the appropriate seat electronics unit. Through each passenger control set of seat peripherals, a passenger has access to audio and video on demand, video games, gambling, telephone service and information services, such as the airline's flight schedule. When utilizing the video on demand features, a passenger also has the ability to fast forward, rewind and pause a video feature.

Within the in-flight entertainment system of the present invention, data is collected, stored and arranged in data sets, in a conventional manner. It should be understood that, as used herein, data sets can include audio data, video data or both audio and video data, game information, purchasing information, gambling information, software and control data. It should also be understood that, as used herein, data sets can also include any other appropriate collection of data.

Dual audio distribution paths are maintained from the headend system to the seat electronics units. A first audio distribution path is routed from the headend servers

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through the ATM network switch to the zone bridge units. From the zone bridge units, the first audio path is then distributed to the seat electronics units. The first audio distribution path is used for the distribution of audio content from the media servers. A second audio distribution path is routed from the system interface unit to the zone bridge units and then to the seat electronics units. The second audio distribution path is used for the distribution of audio for public address announcements and for overhead entertainment audio. The second audio distribution path is provided to all of the seat electronics units. The first audio distribution path is provided to seat electronics units within selected zones where the audio and video on demand features of the in-flight entertainment system are available. As will be described below, an alternate embodiment of the present invention also allows a subsystem to be implemented with only the second audio distribution path. This subsystem can then be upgraded to include the first audio distribution path in those zones of the aircraft including video on demand features.

A system block diagram of an in-flight entertainment system including a digital video on demand and backup broadcast distribution system of the present invention is illustrated in Figure 1. Headend servers 100 of the system include a data server 102, a media controller 104 and multiple media servers 106 and 108. The data server 102 includes a hard disk drive which stores and transmits data necessary for playing video games at a passenger's seat electronics unit and also maintains the data and statistics related to the amount of money and time spent on different features at each individual passenger seat.

The media controller 104 preferably includes a hard disk drive and is responsible for the scheduling of continuous media streams from the headend servers 100 to the seat electronic units, loading of content to the media servers 106 and 108 and control of trick mode operation at each individual seat electronic unit. The trick mode operation includes the rescheduling of a data stream when a passenger sends fast forward, rewind, pause or stop instructions while viewing a video feature.

Each of the media servers includes one or more hard disk drives and stores data to support the video on demand and audio on demand features of the system, including data representing feature films and audio content. The number of media servers necessary is dependent upon both the content storage requirements and the number of simultaneous streams of data supported by the system. Constant bit rate, isochronous intervals are used

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to distribute data from the media servers 106 and 108 through the seat electronics units to the passenger sets of seat peripherals. The data server 102, the media controller 104 and the media servers 106 and 108 are all coupled to an asynchronous transfer mode (ATM) network switch 116, preferably by fibre optic cables.

A system manager unit 114 is also coupled to the ATM switch 116, preferably by a fibre optic cable. The system manager unit 114 is coupled to an attendant control panel 110 for receiving data from and providing data to a system attendant. The attendant control panel 110 is coupled to a set of input/output devices 112, including a display, a keyboard, a printer and a credit card reader. For purposes of this document, the term credit card reader will be understood to include smart card reader where appropriate. The system manager unit 114 provides the interface to the attendant control panel 110. The system manager unit 114 also includes a computer, for entering data into and reading data from the video on demand system, which is accessed through conventional electronic media readers such as a floppy disk drive, CD Rom drive or a magnetic tape drive. Content data for the video on demand system is loaded through the system manager unit 114 and decrypted before being stored on the appropriate one of either the data server 102, the media controller 104 and the media servers 106 and 108.

Data is provided to and extracted from the system through this computer. The system manager unit 114 also provides an interface to the aircraft's navigational system (NAV) and to an airline communication addressing response system (ACARS), which allows air to ground communication between the aircraft and the airline. The system manager unit 114 further provides an interface to a printer for extracting data reports and receipts from the system in printed form. The system manager unit 114 is also coupled to receive, generate and monitor keyline control signals for monitoring conditions of the airplane such as decompression and weight on the wheels. The system manager unit 114 is also coupled to a first zone bridge unit 138 for monitoring and controlling communications relating to the passenger service system (PSS).

A system interface unit 118 is also coupled to the ATM switch 116, preferably by a fibre optic cable. The system interface unit 118 is coupled to the aircraft's conventional entertainment system and drives the overhead display system including overhead video monitors and audio system, as will be described below. This overhead audio system a public address (PA) audio system. The system interface unit 118 and the overhead video

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monitors and audio system together provide an alternate and backup broadcast system which allows the airline flexibility in the design of the interior of the airplane's cabin and a backup system in the event of a failure of the video on demand entertainment system. The system interface unit 118 is coupled to an audio reproducer unit 120, which preferably includes a compact disk player with multiple compact disks containing audio data. The system interface unit 118 is also coupled to one or more video reproducer units 122, which each preferably include a video cassette player and the ability to output video content from inserted video cassettes. The video reproducer units 122 could also include one or more video disk players.

The system interface unit 118 is also coupled to the aircraft's public address audio system 124, over which the pilot, crew and flight attendants of the airplane can address the passengers. The system interface unit 118 implements an override condition which overrides any other audio content being presented to the passengers when the pilot or crew is using the PA audio system. The system interface unit 118 further provides a camera interface 126 to a camera which is mounted to the outside of the airplane and used for observation of certain aspects of the airplane's flight, such as takeoff and landing. Multiple smart video distribution units (SVDU) 128 and 134 are coupled to the system interface unit 118 in a daisy-chain configuration for controlling overhead video monitors 130 and 132, which may be LCDs as shown or any other substantially flat, light-weight display, or a projection system 136, depending on the configuration of the airplane. The system interface unit 118 is also coupled to receive an external audio/video input. The system interface unit 118 is further coupled to the first zone box unit 138.

The smart video display units 128 and 134 distribute video from the system interface unit 118 at the headend to the overhead displays 130 and 132 or a display system 136. The smart video display units 128 and 134 also provide power and display controls to the display system 136 and the overhead displays 130 and 132. The display system can be either a projection system or monitor depending on the configuration of the aircraft.

The data server 102, media controller 104, media servers 106 and 108, system management unit 114, attendant control panel 110 and system interface unit 118 are all components of the headend control system 101. Together, these components provide centralized storage of content, control of content delivery, system code storage, data storage, aircraft system interfaces, attendant station functions, network administration,

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maintenance management, billing services, live audio/video distribution and overhead audio/video generation and control.

Each of the zone bridge units 138 and 140 are coupled to the ATM switch 116, preferably by fibre optic cables. In addition, the zone bridge units 138 and 140 are coupled to one another, preferably by IEEE 1394 standard digital cables. Likewise, the zone bridge units 138 and 140 are coupled to a predetermined set of seat electronics units, preferably via an IEEE 1394 serial bus network. An IEEE 1394 serial bus network is therefore formed between the zone bridge units 138 and 140 and their respective seat electronics units for communicating with the system manager unit 114 and receiving data from the headend servers 100 through the ATM switch 116. Each zone bridge unit is coupled to the ATM switch 116 and to control multiple seat electronics units, including providing power and data to and from the seat electronics units. In the system of the preferred embodiment, each zone bridge unit is configured to control up to 50 seat electronics units. For illustration purposes, only a portion of the configuration of the zone bridge unit 140, relative to specific seat electronics units within its zone, is illustrated in Figure 1. It should be readily understood, that the remaining zone bridge units within the system and the remaining seat electronic unit ports of the zone bridge unit 140 will include similar configurations.

The zone bridge unit 140 is coupled to a repeater 144. The repeater 144 is coupled to a triple seat electronics unit 146. The triple seat electronics unit 146 is coupled to control and provide data to three sets of seat peripherals 150, 152 and 154. The triple seat electronics unit 146 is further coupled to a double seat electronics unit 148. The double seat electronics unit 148 is coupled to control and provide data to two sets of seat peripherals 156 and 158. The double seat electronics unit 148 is coupled to one or more additional seat electronics units 149, depending on the exact configuration of the aircraft. This exact configuration is representative only. Combinations of triple seat electronics units 146 and double seat electronics units 148 are used to cover numerous configurations of seats within the airplane's cabin, to allow an airline maximum flexibility to configure each individual aircraft.

Each set of seat peripherals 150, 152, 154, 156 and 158 include a seat video display, a passenger control unit and a passenger control handset and together with the controlling seat electronics unit effectively implement a personal computer, including

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internal memory, which receives content data based on the passenger's request, over the IEEE 1394 serial bus network. As will be described in detail below, communications between the seat electronics units, within this zone, and other components within the system are all transmitted using digital data through the ATM network switch 116 and the zone bridge unit 140. The seat electronics units then convert the digital data to analog data as necessary.

The zone bridge unit 140 is also coupled to a telephone interface circuit 160. Each telephone interface circuit 160 is coupled to a communications telephone unit 162, through which a passenger is connected to the aircraft's telephone system and is able to make an air to ground telephone call. Each of the passenger control handsets include a telephone handset. In the preferred embodiment, ten simultaneous telephone calls are permitted within a zone having 50 seat entertainment units.

The ATM switch unit 116 and the zone bridge units 138 and 140 together form a network distribution system 103. The network distribution system provides for and controls the delivery of data, such as stored content, code, application data, live content and control data, from the servers of the headend control system to the seat electronics units. The network distribution system also provides for and controls the delivery of data, such as, but not limited to, switch data, billing data and game data, from the seat electronics units to the servers of the headend control system. Between each of the components of the headend control system and the ATM switch 116, data is preferably transmitted in a digital format through fibre optic cables. Between each of the zone bridge units 138 and 140 and their respective seat electronics units 146 and 148, data is transmitted in a digital format through IEEE 1394 standard cables. Accordingly, an ATM network is formed between the components of the headend control system, the ATM switch 116 and the zone bridge units 138 and 140, while an IEEE 1394 serial bus network is formed between each zone bridge unit 138 and 140 and the seat electronics units to which it is coupled.

Data transmitted from the headend control system to the seats is sent over the ATM network, through the ATM switch 116 to the proper zone bridge unit 138 and 140, where it is adapted to the IEEE 1394 format and delivered to the proper seat electronics unit over the IEEE 1394 serial bus. Data sent from the seat electronics units to one of the headend servers or to the system manager unit travels over the IEEE 1394 serial bus to the

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appropriate zone bridge unit where it is adapted to the ATM network, sent to the ATM switch 116 and routed to the proper headend server. The IEEE standard, "P1394 Standard For A High Performance Serial Bus," Draft 8.01v1, June 16, 1995, is an international standard for implementing an inexpensive high-speed serial bus architecture which supports both asynchronous and isochronous format data transfers.

The passenger set of seat peripherals each provide passenger video display and audio listening capability. Each passenger is provided a control interface that includes a passenger control unit and preferably a handset. The passenger control handset preferably includes a telephone handset, a game controller, a content selection device and a credit card reader. The game controller provides an enhanced game interface. The credit card reader allows entry of billing information and provides security of payment for services and entertainment enjoyed by the passenger. While preferably the audio listening capability is provided through a conventional audio headset, alternatively, this capability can also be provided through a noise cancelling headset. Also, while preferably an LCD display is included within a passenger set of seat peripherals, other types of relatively light weight and relatively high brightness and definition displays are acceptable for use with the present invention, including, for example, goggle-type LCD displays such GLASTRON™ sold by Sony Corporation, Tokyo Japan.

The in-flight entertainment system of the present invention is designed to allow adaptability and flexibility in the configuration and design of the aircraft's cabin. The inclusion of the system interface unit 118, which interfaces to the overhead portion of the entertainment system allows the overhead system to be used in conjunction with or as a backup to the on-demand portion of the entertainment system of the present invention. This flexibility allows for the use of the video on demand entertainment system in one or more classes or zones of seats within the cabin and the use of the conventional overhead entertainment system in the remaining classes or zones of seats. Also, in the event of failure of the on-demand portion of the entertainment system, the overhead entertainment system is used as a backup to provide entertainment and other content features to the passengers.

In an alternate embodiment, illustrated in the block diagram of Figure 15A, only an overhead subsystem is implemented. This subsystem includes only the components necessary to provide entertainment through the overhead portion of the system. These

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components include the data server unit 102, the system manager unit 114, the system interface unit 118, the audio reproducer unit 120 and the attendant control panel 110, within the headend system 101. The subsystems also include the ATM switch 116, the zone bridge units 140, the seat electronics units 146 and the smart video display units 128 and 134 with either overhead monitors 130 and/or overhead projectors 136. In the implementation of this subsystem, each passenger set of seat peripherals includes only a passenger control unit 1104.

The modifications necessary to upgrade the subsystem of Figure 15A to a full video on demand system, according to the present invention, are illustrated in Figure 15B. These modifications are shown outlined in solid lines, while the components already included within the subsystem are shown in dotted lines. Within the headend system 101, these modifications include the addition of one or more media server units 106 and 108, and the addition of control boards within the data server unit 102, and MPEG encoder and decoder boards within the system interface unit 118. Within the ATM switch unit 116, the addition of network module boards is also required. A zone bridge module must also be added to each zone bridge unit 138. Each passenger set of seat peripherals must be upgraded to include the display unit 1102 and the passenger control handset 1108. Each seat electronics unit must be upgraded to include a daughter board. With these modifications, a subsystem, as illustrated in Figure 15A, can be upgraded to a full video on demand system, as illustrated in Figure 15B.

The interface couplings between the in-flight entertainment system 200 of the present invention and other existing systems within the aircraft are illustrated in Figure 2. The aircraft system and headend interface 202 is coupled to the in-flight entertainment system 200 by multiple audio signal lines, including the public address audio signal lines, the audio output from the video reproducer units and prerecorded announcement and boarding music (PRAM) audio. The aircraft system and headend interface 202 is also coupled to the in-flight entertainment system 200 by headend interface signals including public address related discrete control signals, decompression signals, configuration data signals, airplane mode signals and airplane operational discrete signals. A passenger service system (PSS) zone box 204 is coupled to the in-flight entertainment system 200 for communication of control signals related to the passenger service system. Signals from the aircraft's navigational system 206 are coupled to the in-flight entertainment system

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200. The aircraft's operating maintenance system 208 is coupled to the in-flight entertainment system 200 for providing communications related to the maintenance of the aircraft. The airline communication addressing response system (ACARS) 210 is also coupled to the in-flight entertainment system 200 for providing air to ground communications between the airline and the aircraft. The aircraft's cabin telecommunications unit 212 is also coupled to the in-flight entertainment system 200 for linking the telephone handsets at the seat electronics units to the aircraft's telephone system, thereby allowing passengers to make air to ground telephone calls from the aircraft, through a link to a satellite or through radios to the ground.

A detailed block diagram of the components within the media server units 106 and 108 is illustrated in Figure 3. A preferred media server is the Microsoft Media Server, available from Microsoft of Redmond, Washington. A control processor 300 is coupled to a data bus 302 for controlling communications and providing instructions within the media server unit. The data bus 302 may be configured as a Peripheral Component Interconnect (PCI) bus, an Industry Standard Architecture (ISA) bus or any other appropriate type of data bus. The control processor 300 is also coupled to a system hard drive 306, an internal random access memory (RAM) 304 and a temperature sensor which includes a fan control circuit 310. The temperature sensor and fan control circuit 310 is coupled to one or more fans 312 for controlling the temperature within the media server unit. The data bus 302 is coupled to an ATM network adapter 308. The ATM network adapter 308 is coupled to the ATM switch 116 for communicating over the ATM network with other components within the system. Preferably, the ATM network adapter 308 is coupled to the ATM switch 116 by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to couple the ATM network adapter 308 and the ATM switch 116. The data bus 302 is also coupled to one or more content disk drive adapters 318. Each content disk drive adapter 318 is coupled to one or more content disk drives 320 for storing data in and obtaining data from each of the content disk drives 320. The content disk drives 320 store audio and video content data to be accessed through the seat electronics units. A 115 volt, 400 Hertz, AC power line and a power disable keyline control signal are coupled to a power supply control circuit 314. The temperature sensor and fan control circuit 310 is also coupled to the power supply control circuit 314. The power supply control circuit 314 is coupled to a power supply circuit 316. The power supply circuit 316 is coupled to

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the temperature sensor and fan control circuit 310 and to the data bus 302 for providing power to the circuits within the media server unit.

A detailed block diagram of the components within the media controller server 104 and the data server 102 are illustrated in Figure 4. Within the preferred embodiment of the present invention, the media controller server 104 and the data server 102 are implemented within a single line replaceable unit. The data server unit 102 includes a control processor 400 which is coupled to a data bus 402 for controlling communications and providing instructions within the data server unit 102. The control processor 400 is also coupled to an internal RAM 408 and a system hard drive 404. The system hard drive 404 is coupled to a mirror hard drive 406 for providing redundancy and backup data. The data bus 402 is also coupled to an ATM network adapter 410. The ATM network adapter 410 is coupled to the ATM switch 116 for communicating over the ATM network. Preferably, the ATM network adapter 410 is coupled to the ATM switch 116 by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to couple the ATM network adapter 410 and the ATM switch 116.

A control processor 420 is coupled to a data bus 422 for controlling communications and providing instructions within the media controller unit 104. The control processor 420 is also coupled to an internal RAM 428 and a system hard drive 424. The system hard drive 424 is coupled to a mirror hard drive 426 for providing redundancy and backup data. In addition, the data bus 422 is coupled to an ATM network adapter 430. The ATM network adapter 430 is coupled to the ATM switch 116 for communicating over the ATM network with other components within the system. Preferably, the ATM network adapter 430 is coupled to the ATM switch 116 by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to coupled the ATM network adapter 430 and the ATM switch 116.

A 115 volt, 400 Hertz, AC power line and a power disable keyline control signal are coupled to a power supply control circuit 416. The power supply control circuit 416 is coupled to a power supply circuit 418. The power supply circuit 418 is coupled to the data bus 402, to the data bus 422 and to a temperature sensor and fan monitor circuit 412 for providing power to the circuits within the line replaceable unit including the data server unit 102 and the media controller unit 104. The temperature sensor and fan monitor circuit 412 is coupled to the control processor 400, to the control processor 420

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and to one or more fans 414 for controlling the temperature within the line replaceable unit. The temperature sensor and fan monitor circuit 412 is coupled to the power supply control circuit 416 to control the power if excessive temperature is detected.

A detailed block diagram of the components within the system manager unit 114 is illustrated in Figure 5. A control processor 500 is coupled to a backplane 502 through a data bus 510 for controlling communications and providing instructions to the components within the system manager unit 114. A power supply circuit 504 is also coupled to the backplane 502 for providing power to the components within the system manager unit 114. A power control circuit 519 is coupled to the power supply 504 and to the control processor 500. through the printer port 518. The control processor 500 is coupled to an internal RAM 506. a system hard drive 508 and a floppy disk drive 512. The control processor 500 is also coupled to a keyboard 524. through a keyboard interface circuit 522. to a maintenance port 208. through a RS-232 interface 516. and to a touch screen panel in a display 536. through a RS-232 interface 514. The backplane 502 is also coupled to an ATM network interface 526 by a PCI bus 528. The system manager unit 114 is coupled to the ATM switch 116 through the ATM network interface 526 for communications over the ATM network. The backplane 502 is also coupled to an MPEG video graphics adapter (VGA) interface 530 by a PCI bus 532. The MPEG VGA interface 530 is coupled to the system interface unit 118 for receiving audio and video input from the system interface unit. The MPEG VGA interface 530 is also coupled to the display 536 and to a set of audio headphones, through a display, headphone interface circuit 534 for communicating with an attendant.

The backplane 502 is further coupled to an Arinc 429 standard interface circuit 540, through an ISA bus 542, for communication with the systems within the aircraft. including the operational maintenance system, the navigational computer and the ACARS. The backplane 502 is also coupled to a RS-232 interface circuit 544, through an ISA bus 546, for communication with components of the attendant control panel 110. including a credit card and a receipt printer 520. The backplane 502 is also coupled to an Arinc 485 standard interface circuit 548, through an ISA bus 550. for communication with a cabin passenger management system (CPMS), a secondary attendant station. the aircraft's headend system and the passenger service system. The backplane 502 is also coupled to a

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power control keyline circuit 552, through an ISA bus 554, for providing power to disable keyline signals and coupling to other input/output keyline signals. The backplane 502 is further coupled to a SCSI-2 interface circuit 556, through a PCI bus 558, for coupling to and receiving data from a tape drive 560.

A detailed block diagram of the functional components and couplings of the system manager unit 114 and the attendant control panel 110 is illustrated in Figure 6. The system manager unit 114 includes multiple input/output devices, including a magnetic tape reader 606, a floppy disk drive 512 and a SCSI content loading interface 556 to which a tape drive or multiple tape drives can be connected to input content data to the in-flight entertainment system or to read data from the in-flight entertainment system. The attendant control panel 110 also includes multiple input/output devices, including a CD Rom drive 604, a credit card reader 602, one or more printers 520, a headphone port 538, a display 536 and a keyboard port 524. The keyboard which is coupled to the keyboard port 524 will preferably include an integral pointing device, such as a trackball, mouse or 'eraser head'. The credit card reader 602 allows attendants to read a passenger's credit card directly at the attendant station. Preferably, the credit card reader is part of the attendant control panel 110. A credit card receipt printer is used by an attendant to print a credit card receipt when a credit card is used by a passenger or entered by an attendant.

The display 536 is used by the attendant for menu navigation, through function or task menus, on the attendant control panel 110 and for movie previews. Preferably, the display 536 is a ten inch, liquid crystal display, having a resolution of 640 x 480 and incorporating active matrix color display technology. Additionally, the preferred embodiment of the display 536 includes a touch screen interface and function keys.

Content data, such as updated feature films and audio content, is loaded from a tape unit, onto the media servers 106, through the SCSI content loading interface 556 or the magnetic tape drive 606. This loading of content data onto the media servers is preferably performed while the aircraft is at the terminal being serviced. In this manner, an airline can maintain a portable tape drive system which is brought out to each aircraft during routine servicing, in order to update the content available through the in-flight entertainment system of the present invention. Preferably, the tape unit interface supports a minimum read throughput of 1.5 megabytes per second and the tape unit is SCSI-2 fast compatible. Alternatively, the system will include multiple tape unit interfaces, providing

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for concurrent loading of content data from multiple tape units. It should also be noted that the system of the present invention preferably, only allows content data to be uploaded into the system. In order to protect proprietary content programming and prevent unauthorized copying by unscrupulous persons, content data cannot be downloaded from the preferred embodiment of the system of the present invention.

Control data, used to configure and control the in-flight entertainment system, is loaded into the system through floppy disks read by the floppy disk drive 512 or through CD Roms read by the CD Rom drive 604. Preferably, the floppy disk drive 512 and the CD Rom drive 604 support a minimum read throughput of 500 kilobytes per second. Alternatively, control data can be loaded using any other available means, including an electronic data link.

A detailed block diagram of the system interface unit 118 is illustrated in Figure 7. A control processor 700 including memory is coupled to both a PCI bus 724 and an ISA bus 726 for communicating with the other components within the system interface unit 118. A hard disk drive 702 is also coupled to the control processor 700. A keyline interface circuit 706 is coupled to the ISA bus 726 to receive and send keyline control signals. An ATM network interface 704 is coupled to the ATM switch 116 and to the PCI bus 724, thereby allowing the system interface unit 118 to communicate over the ATM network. A first audio/video multiplexer 712 is coupled to receive both video and audio data from one or more video cameras positioned on the aircraft, the passenger flight information system, one or more video reproducer units and television signals. The first audio/video multiplexer 712 is also coupled to an MPEG encoder circuit 714 and to the ISA bus 726. The MPEG encoder circuit 714 is coupled to the PCI bus 724. A second audio/video multiplexer 710 is coupled to provide video signals to the one or more smart video distribution units and audio signals to a multiplexed audio interface. The second audio/video multiplexer 710 is also coupled to receive public address system audio signals. The second audio/video multiplexer 710 is further coupled to the first audio/video multiplexer 712, to an MPEG decoder circuit 708 and to the ISA bus 726. The MPEG decoder circuit 708 is coupled to the PCI bus 724. A power control and power supply circuit 716 is coupled to receive power control keyline signals and to provide power to the components within the system interface unit 118. An elapsed time indicator circuit 718 is coupled to the power control and power supply circuit 716, to a display 720 and to the

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ISA bus 726. An RS-485 standard interface circuit 722 is coupled to communicate with the video reproduce units, cameras and smart video distribution units. The RS-485 standard interface circuit 722 is also coupled to the ISA bus 726. The interfaces that are discussed above are explanatory only, and are related to the new standard aircraft interface. It will be apparent to one of ordinary skill in the art that other appropriate interfaces could be included.

A block diagram of the ATM switch circuit 116 is illustrated in Figure 8. A switch backplane 800 is coupled to one or more switch control processors 802. Each switch control processor 802 is coupled to one or more network modules 808, which each include multiple ATM network ports through which communications are transmitted and received. Each ATM port interfaces with an ATM network interface within a component of the system for directing communications over the ATM network. Each network module 808 preferably includes four ATM ports. The switch control processor 802 is also coupled to an RS-232 serial port 804. Alternatively, each switch control processor 802 is coupled to an ethernet port 806. A power control keyline signal is coupled to a power control circuit 812. The power control circuit 812 is coupled to a dual redundant power supply circuit 810. The power supply circuit 810 is coupled to receive a 115 volt AC, 400 Hertz, power line signal. The power supply circuit 810 is also coupled to the switch backplane circuit 800 for providing power to the components within the ATM switch circuit 116. A preferred ATM switch is available from Fore Systems of Warrendale, Pennsylvania. Alternatively, any appropriate ATM switch can be implemented.

The ATM switch 116 is the in-flight entertainment system's central switching fabric for the headend control system's ATM network. The ATM switch 116 is used for data switching between the components of the headend control system and the zone bridge units. The ATM switch 116 is also used for switch call processing and switch maintenance processing. The ATM switch 116 further provides power supply redundancy through the dual redundant power supply circuit 810.

A block diagram of a zone bridge unit is illustrated in Figure 9. An optical receiver link 902 is coupled to the ATM network for communicating over the network. Preferably, the optical receiver link 902 is coupled to the ATM network by an OC3 fibre optic cable. Alternatively, any appropriate link can be used to couple the optical receiver link 902 to the ATM network. The optical receiver link 902 is coupled to an ATM

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segmentation and reassembly (SAR) device 904. The ATM SAR 904 is coupled to a control processor 906, to a memory circuit 908 and to a network link circuit 910 for communicating between the ATM network and the seat network. The network link circuit 910 is coupled to the seat network through a physical interface circuit 912 and for sending data to and receiving data from the seat electronic units within the zone. Overhead audio data is provided to the seat network through a buffer 914 within the zone bridge unit. A universal asynchronous receiver transmitter (UART) 916 is coupled to the passenger service system. The UART 916 is coupled to a control processor 920, to a memory circuit 922, to a digital signal processor 924 and to a buffer 918 for controlling communications between the passenger service system and the seat network. The buffer 918 is coupled to a combining circuit 926. Preferably, a CEPT-E1 standard circuit 930 is coupled to the aircraft's telephone system. The CEPT-E1 circuit 930 is coupled to the digital signal processor 924 and to a buffer 928 for controlling telephone communications from within the zone. Alternatively, any appropriate telecommunications link can be coupled to the aircraft's telephone system. The buffer 928 is coupled to the combining circuit 926. The combining circuit 926 is coupled to the seat network for controlling communications to and from the aircraft's passenger service system and telephone system.

A 115 volt, 400 Hertz, AC power line and a power disable keyline control signal are coupled to a power control circuit 940. The power control circuit 940 is coupled to the power supply circuit 942. The power control circuit 940 is coupled to seat electronics units within the zone for providing power signals to the seat electronics units.

Each of the zone bridge units bridge the high speed, fibre optic ATM network at the headend of the system to the IEEE 1394 serial bus seat distribution network for a particular zone within the aircraft. The zone bridge unit is responsible for managing the IEEE 1394 seat distribution network for a zone within the aircraft including the functions of IEEE 1394 bus management and IEEE 1394 bandwidth resource management. The zone bridge unit is further responsible for mapping IEEE 1394 addressing to ATM addressing as well as supporting broadcast and multicast functionality between the ATM network and the IEEE 1394 seat distribution network.

A block diagram of a triple seat electronics unit is illustrated in Figure 10. A peripheral interface 1000 is coupled to a system EEPROM 1002, to a buffer circuit 1004, to a buffer circuit 1012, to a passenger control unit for each of the three seat electronics

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units, to a video display bus and to a passenger service system, passenger address and telephone bus. The buffer circuit 1004 is coupled to a configuration EEPROM 1010, a RAM 1006 and a microcontroller circuit 1008. The buffer circuit 1012 is coupled to an ISA bus 1014 for each seat electronics unit controlled by the triple seat electronics box. The ISA bus 1014 for each seat electronics unit is coupled to a control processor/system DRAM, memory controller and bus bridge circuit 1016. The ISA bus 1014 for each seat electronics unit is also coupled to a MPEG decode and DRAM circuit 1020 and to an audio synthesizer 1022, including a wavetable ROM and audio DRAM. A graphics controller circuit 1018 is coupled between the control processor/system DRAM, memory controller and bus bridge circuit 1016 and the MPEG decode and DRAM circuit 1020. While, a triple seat electronics unit has been illustrated in Figure 10 for explanatory purposes, it should be apparent to those skilled in the art that a seat electronics unit could be implemented to provide an interface to any number of passenger sets of seat peripherals.

Each seat electronics unit provides the passenger electronics necessary to fully interface the features of the in-flight entertainment system of the present invention with the passenger at the seat. A block diagram of a seat electronics unit and accompanying peripherals is illustrated in Figure 11. The seat electronics unit 1100 is also coupled to up to three displays 1102 for providing video and graphics images to the passenger. Preferably, the display 1102 is an LCD. Alternatively, other types of relatively light weight and relatively high brightness and definition displays are acceptable for use with the present invention, including, for example, goggle-type LCD displays such GLASTRON™ sold by Sony Corporation, Tokyo Japan. The seat electronics unit 1100 is further coupled to up to three passenger control units 1104. The passenger control unit 1104 includes a modem jack to which a passenger's personal computer can be coupled. A headset 1106 is coupled to the passenger control unit 1104 for providing audio content to the passenger. While a conventional audio headset is preferred for use as the headset 1106, the audio headset 1106 can alternatively be a noise cancelling headset which includes a power connection to the headset in addition to the audio connections. A personal control handset 1108 is also coupled to the passenger control unit 1104. The personal control handset 1108 is coupled to the passenger control unit 1104 by a cord which is stored within and extends from the seat arm. A preferred passenger control

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handset 1108 includes an integral game controller, telephone handset and credit card reader. For additional details on one suitable embodiment of the passenger control handset 1108, see U.S. Patent No. 08/639,287, filed on April 25, 1996 and entitled An Integrated Electronic System Utilizing A Universal Interface To Support Telephone And Other Communication Services. The passenger control handset 1108 is used by the passenger to enter commands and data into the system. The seat electronics unit 1100 is coupled to the neighboring seat electronics units 1112 and 1114.

The seat video display 1102 provides the passenger with an LCD display for viewing personal entertainment data and information service data at their seat. Preferably, the seat video display 1102 is housed within a stowable seat display arm which is rotated out when in use and stored within an arm rest when not in use. Alternatively, the seat video display 1102 is located within the seatback or bulkhead in front of the passenger's seat. The viewing angle, high brightness and high contrast are characteristics which can be adjusted by a user in the preferred embodiment of the seat video display 1102. The data received by the seat electronics unit 1100, over the IEEE 1394 bus, is received in a digital format. Accordingly, the seat electronics unit 1100 includes one or more digital-to-analog converter circuits for converting the received digital data stream, representing the video and audio, to an analog data stream before it is transmitted to either the display 1102 or the headset 1106. While preferably the display is an LCD, other types of relatively light weight and relatively high brightness and definition displays are acceptable for use with the present invention, including, for example, goggle-type LCD displays such GLASTRON™ sold by Sony Corporation, Tokyo Japan. Also, while a conventional audio headset is preferred for use as the headset 1106, the audio headset 1106 can alternatively be a noise cancelling headset which includes a power connection to the headset in addition to the audio connection.

System configuration data is loaded from the floppy disk drive 512 of the system manager unit 114 or the CD Rom drive 604 of the attendant control panel 110 onto the data server 102, thereby forming a software configuration database. Once stored onto the data server 102, the software configuration database is writable to either the CD Rom drive 605 or to the floppy disk drive 512 for troubleshooting. If any configuration data is not loaded, is incorrectly loaded or loading is aborted, an error message will be displayed on the display 536 at the attendant control panel 110.

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The system configuration data includes specific cabin management data, expected system configuration, flight information data and billing system inputs. The specific cabin management data includes the data related to the overhead video selection and audio channel assignments, zone programming assignment and aircraft seat class assignment for the flight. The cabin management data also includes the data relating to customer menus and languages, including a greeting menu which is displayed with the airline's colors and logo. Alternatively, the cabin management data will also include the data for inventory management of meals, drinks and duty free items, as well as system usage statistics.

The expected system configuration data includes the data related to the specific hardware and software in use within the aircraft and the configuration of the hardware, including the number of seats, seat boxes, zones, servers and attendant stations and the specific seat arrangement. The flight information data contains the data on the passengers, including the passenger's names, where each passenger is sitting, their frequent flyer number, whether or not they are flying with a group and their pre-authorized spending account balances on the in-flight entertainment system. The billing system inputs include data on the billing system rates, currency exchange rates for international flights, prices of each product and service, list of free products and services and packages of products and services, an encrypted table of invalid credit card numbers and a list of statistics to be collected on use of the system during the flight.

Using the components of the system manager unit 114 and the attendant control panel 110, an attendant can obtain information from the in-flight entertainment system including maintenance data, passenger financial account data, passenger transaction log, system hardware and software identification, system content and configuration data, usage statistics, inventory management data and system error log files. This data can be loaded onto removable electronic media such as a floppy disk using the floppy disk drive 512 or onto a magnetic tape using the magnetic tape drive 606. Alternatively, this data can also be downloaded using an electronic data link. Again, it should be noted that the system of the present invention preferably allows content data to be only uploaded into the system. In order to protect proprietary content programming and prevent unauthorized copying by unscrupulous person, content data cannot be downloaded from the preferred embodiment of the system of the present invention.

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A block diagram showing the audio distribution paths of the entertainment system of the present invention is illustrated in Figure 12. The first audio distribution path 1220 is routed from the ATM network switch 116 to the headend servers 100 and to each of the zone bridge units 138, 140 and 1200. The second audio distribution path is routed from the system interface unit 118 to each of the zone bridge units 138, 140 and 1200. The first and second audio paths are then routed from the zone bridge units 1200, 1202 and 1204 to each seat electronics unit within the respective zones.

The first audio path is used to distribute audio content from the media servers 106 and 108 to the seat electronics units. The second audio path is used to distribute audio for the PA system and the overhead system to the seat electronics units. The second audio path is therefore provided to all seat electronics units within the aircraft. The first audio path is provided selectively to zones of the aircraft equipped with the video and audio on demand system. The seat electronics units within zones of the aircraft which are not equipped with the video and audio on demand system are only capable of receiving the audio content from the second audio path. The passengers in these zones will only receive video content from the overhead distribution system. The seat electronics units within zones of the aircraft that are equipped with the video and audio on demand system, are described in detail below, and are capable of receiving audio content from both the first and second audio paths. The seat electronics units within zones of the aircraft equipped with the video and audio on demand system include a display, an audio output, an input device, a telephone handset and a credit card reader, allowing a passenger to have access to audio and video on demand, video games, gambling, telephone service and information services, if implemented in a given embodiment. Seats which only receive audio content from the second path are not equipped with displays, but receive audio content through the second audio path and a set of headphones.

A block diagram showing the selective distribution of the first audio path is illustrated in Figure 13. The distribution of the audio paths are as described above in reference to Figure 12, with the exception that the first audio path is not provided to the zone 3 bridge unit 140 and the seat electronics units 1214 and 1216 coupled to the zone 3 bridge unit 1204. In this configuration, only the second audio path is provided to the zone 3 bridge unit 1204 and the seat electronics units 1214 and 1216 within that zone. In this

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manner, the first and second zones of the airplane, which could be first and business class, are provided with both the first and second audio paths. The third zone of the airplane, which could be economy class, is only provided with the second audio path. The passengers within the third zone will therefore only have access to the PA audio and entertainment audio provided from the system interface unit 118, while the passengers within the first and second zones will additionally have access to video and audio content from the media servers 106 and 108, as well as games and interactive services from the data server 102.

A block diagram showing an implementation of audio distribution within the subsystem of Figure 15A without on-demand features is illustrated in Figure 14. In this subsystem only the second audio path from the system interface unit 118 to the zone bridge units 138, 140 and 1200 and then to the seat electronics 1206, 1208, 1210, 1212, 1214 and 1216, is included.

DATA TRANSFERS TO THE SEAT ELECTRONICS UNITS

As described above, an IEEE 1394 network is formed between the zone bridge units and the seat electronics units for the communication of data within the zone. The IEEE standard, "P1394 Standard For A High Performance Serial Bus," Draft 8.01v1, June 16, 1995, is an international standard for implementing an inexpensive high-speed serial bus architecture which supports both asynchronous and isochronous format data transfers. Isochronous data transfers are real-time transfers which take place such that the time intervals between significant instances have the same duration at both the transmitting and receiving applications. Each packet of data transferred isochronously is transferred in its own time period. The IEEE 1394 standard bus architecture provides multiple channels for isochronous data transfer between applications. A six bit channel number is broadcast with the data to ensure reception by the appropriate application. This allows multiple applications to simultaneously transmit isochronous data across the bus structure. Asynchronous transfers are traditional data transfer operations which take place as soon as possible and transfer an amount of data from a source to a destination.

The IEEE 1394 standard provides a high-speed serial bus for interconnecting digital devices thereby providing a universal I/O connection. The IEEE 1394 standard defines a digital interface for the applications thereby eliminating the need for an application to

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convert digital data to analog data before it is transmitted across the bus. Correspondingly, a receiving application will receive digital data from the bus, not analog data, and will therefore not be required to convert analog data to digital data. Devices can be added and removed from an IEEE 1394 bus while the bus is active. If a device is so added or removed the bus will then automatically reconfigure itself for transmitting data between the then existing nodes. A node is considered a logical entity with a unique address on the bus structure. In the in-flight entertainment system of the present invention each seat electronic unit forms a node on the IEEE 1394 bus within its zone.

The in-flight entertainment system of the present invention provides both multicast and broadcast distribution of data to the seat electronics units in addition to the individualized streams of data supporting the video and audio on demand features. Multicast distribution of data is used to deliver common data, such as video from the observation camera or data from the passenger flight information system, to only those passengers who wish to receive it. Broadcast distribution of data is used to deliver public address announcement audio data and video content such as the safety video simultaneously to all of the seats. The broadcast data has priority over any other transfer of data on the network.

When transmitting the broadcast data, especially the safety video, it is important that all of the passengers within the aircraft receive the data stream simultaneously, in order that the video viewed by each passenger is synchronized to any live demonstrations by the flight attendants. Using the ATM network and the ATM switch 116, data broadcast through the ATM switch 116 is synchronized by setting up a multipoint to multipoint connection through the ATM switch 116. The ATM switch 116 combines the time multiplexed data stream coming in on several input ports of the distributed servers within the headend. The ATM switch 116 then copies the data to each output port coupled to a zone bridge unit. Thus, each zone bridge unit only receives a single copy of the broadcast data stream. The broadcast data stream passes through the zone bridge unit which routes the data to the seat network. The IEEE 1394 seat network then broadcasts this stream of data to each seat on each seat column output of the zone bridge unit. This secondary broadcast from the zone bridge unit uses a point to multipoint broadcast connection technique, with each seat electronics unit only seeing one copy of the data stream. This technique eliminates network bottlenecks and allows the server to broadcast a single data

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stream over an ATM network to all of the seat electronics units in synchronization. The few copies of the data stream within the network avoids flooding the network with stream copies guaranteeing a low distribution latency for the system. Using this multipoint to multipoint virtual channel connection between the headend servers and the seat electronics units, the entire aircraft can receive the same data stream in synchronization.

OPERATION OF THE VIDEO AND AUDIO ON DEMAND FUNCTIONS

The media controller 104 (Figure 1) is responsible for controlling the delivery of video and audio content data from the media servers 106 and 108 to a seat electronics unit. When a passenger selects a program for viewing or listening, a request is sent to the media controller 104. Once the media controller 104 receives such a request, a play slot is scheduled for the passenger. The media controller 104 then adds the passenger to the play schedule and sends a request to the media servers 106 to output data to the address of the passenger's seat electronics unit. Commands from the passenger, such as stop, pause, fast forward and rewind, are also sent to the media controller 104, which then modifies the play schedule for that passenger appropriately. The media controller 104 maintains a list of the available content on the media servers 106 and 108 which is updated whenever content on the media servers is changed.

Video content on the media servers is preferably stored in MPEG format, with support for multiple languages and subtitle information. The language or subtitle display is selected by the passenger via on screen menus when the video is initially selected. The content data is stored across multiple media servers. Each media server also stores a portion of each program as a redundant data block for fault recovery in the event a single disk should fail. Redundant data blocks are always stored on different media servers from the primary block. Should a disk fail, that part of a program which was stored on the failed disk can be retrieved from the redundant data blocks on the remaining servers.

To play a video or audio program, a passenger makes a selection at their passenger set of seat peripherals. This program request initiates a call setup to the media controller 104. The media controller 104 then schedules the program to be played with the media servers 106 and 108. A program connection to the passenger's set of seat peripherals consists of three virtual channels: one channel is used for transmission of the data stream; another channel is kept open for the transmission of control signals; and a third channel is

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kept open for ATM network management signals. The content data is read from the media servers 106 and 108 and sent to the ATM switch 116. At the ATM switch 116, the content data arrives on different ports from each media server. The ATM switch 116 then performs a multipoint to point recombination of the content data, thereby creating a single in-sequence data stream which is addressed to the passenger's seat electronics unit.

Content data streams for each seat electronics unit coupled to a zone bridge unit are sent from the ATM switch 116 to the zone bridge unit on a single ATM port, using multiple channels. At the zone bridge unit, the ATM cells for each seat electronics unit are reassembled and segmented into IEEE 1394 packets. The IEEE 1394 packets are then appended with the appropriate destination header and transmitted over the IEEE 1394 network to the appropriate seat electronics unit. At the seat electronics unit, the data is reassembled from the IEEE 1394 packets and sent to the applications within the appropriate passengers set of seat peripherals where the data is extracted from the headers and sent to the MPEG decoder for display.

The video on demand system of the present invention allows a passenger to fast forward and rewind a video program. Note, the term "rewind" is used to relate the present technology to the more familiar video tape technology. If video content is stored on a hard disk, in reality a new start address is selected. However, the form of read and write memory implemented is not critical to the system. These features are supported by only retrieving and displaying MPEG "I" frames which are extracted from the content data using the "I" frame index file, which is also derived from the content data. An MPEG "I" frame is a noncompressed full video frame within the MPEG stream which is used as a reference. When a passenger requests a pause of content, the system will pause all audio and video on demand content playback at the seat electronics unit. After the pause condition is removed, the audio or video content data stream will be resumed.

The audio on demand portion of the system of the present invention also allows a passenger to fast forward and rewind an audio program. Preferably, the in-flight entertainment system allows an airline to provide audio programming from either a jukebox style selection of audio programs, a conventional audio program or station format which plays a particular type of audio programs, or a list of compact disks which can be accessed by the passenger.

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The passenger will make selections from menus displayed on the monitor at the seat electronics unit. The passenger is able to point to and select on screen menu options through the use of a cursor control pad on the passenger control unit and a select button. Audio channels are selected from channel selector buttons on the passenger control unit or on screen menus.

OVERHEAD DISPLAY SYSTEM

The overhead display system is driven by the system interface unit 118. The system interface unit 118 drives each of the overhead monitors or projection system through a smart video display unit. Each smart video display unit preferably supports one or two monitor connections, a video feed through connection to another smart video display unit and an RS-485 multidrop digital control connection. The video content signal is driven baseband differential and is rebuffered in each of the smart video display units.

Each smart video display unit group distributes three independent video channels for a total of six videos per system. Video channels are assigned to a specific aircraft zone. Each smart video display unit is instructed which video channel is selected for each display via the RS-485 interface. The system interface unit 118 has a video multiplexer circuit for each of the three outputs. The multiplexer inputs are two video tape recorder channels, one camera channel, one airshow channel, one spare input and a digital video channel. The audio data corresponding to the overhead video data is broadcast for distribution to the passengers at the seats through the audio distribution system, as described above. This audio data is broadcast through the second audio path, from the system interface unit 118 through the zone bridge units 138, 140 and 1200 and then to the seat electronics units. The passengers ultimately receive this audio data from the second audio path, through a set of headphones.

The audio distribution system is used for distribution of public address audio, overhead display system audio and entertainment audio. This audio data is distributed to the seats through the second audio path. The system interface unit 118 is responsible for multiplexing the audio sources to the audio outputs. The public address audio inputs are set up for eight different public address zones, whereby audio messages can be selectively sent to predetermined zones within the aircraft.

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The in-flight entertainment system of the present invention will pause all video, audio, game and information services during a cabin wide announcement over the public address system. The system will issue public address override signals upon detection of a public address condition. The system interface unit 118 provides indication of the public address override condition to the seat electronics units and to the attendant control panel 110 within the effected zones via the ATM and IEEE 1394 networks, as well as via the second audio path. The seat electronics units will override entertainment audio with public address audio upon receiving a public address override command.

In this manner, as described above, the in-flight entertainment system of the present invention is used to provide flexibility of entertainment options within an aircraft's cabin by combining use of the seat electronics units and the overhead display system on a zone-by-zone basis. The overhead display system is also used as a backup to the seat electronics units. The audio/video on demand features of the in-flight entertainment system are fully interactive, allowing a passenger to stop, pause, fast forward and rewind, as desired. This allows a passenger to leave their seat and return, without missing a portion of their selected entertainment feature. In contrast to other in-flight entertainment systems, the in-flight entertainment system of the present invention also interfaces with other aircraft systems, allowing the crew or flight attendants to fully monitor the status of the aircraft's systems, as well as enter and extract data relating to inventory management and specific usage patterns of the in-flight entertainment system by the passengers.

The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be apparent to those skilled in the art that modifications may be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention. For example, while an ATM network and IEEE 1394 serial bus network have been chosen for use in the preferred embodiment, it will be apparent that other types of networks could alternatively be used for communications between the components of the in-flight entertainment system of the present invention. It will also be apparent that the entertainment system of the present invention can also be readily adapted for operation in

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environments other than aircraft, including but not limited to other transportation modes, e.g. train, bus, ferry and cruise ship.

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CLAIMS

We Claim:

1. A passenger entertainment system for providing content upon request to one or more users, comprising:

a. one or more control sets coupled together to form a first network, each control set for accessing the content programs and including a display, an audio output and an input device for entering controls;

b. one or more media servers for storing the content programs;

c. a routing device coupled to the one or more media servers, thereby forming a second network, and to the one or more control sets for routing content and control communications between the media servers and the control sets over the first and second networks; and

d. a media controller coupled to the one or more media servers and to the routing device for controlling and scheduling communications from the media servers to the control sets.

2. The entertainment system as claimed in claim 1 further comprising an overhead display system and a system interface unit, wherein the system interface unit is coupled to the routing device and to the overhead display system for controlling playing of programs on the overhead display system.

3. The entertainment system as claimed in claim 2 further comprising one or more video content players and one or more audio content players coupled to the system interface unit for presenting video and audio content via the overhead display system.

4. The entertainment system as claimed in claim 3 further comprising a first audio path from the routing device to a predetermined number of the control sets for providing on-demand audio content from the media servers and a second audio path from the system interface unit to the control sets for providing overhead system audio content.

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5. The entertainment system as claimed in claim 1 wherein each control set further comprises a telephone handset.

6. The entertainment system as claimed in claim 5 further comprising a card reader for securing payment by one of a credit card, a smart card and a debit card, from a user for content played and telephone calls made on one of the control sets.

7. The entertainment system as claimed in claim 1 further comprising one or more zone bridge units each coupled within the first network to a predetermined number of the control sets and to the routing device for routing communications from the routing device to an appropriate one or more of the control sets and also for routing communications from the control sets to components within the second network through the routing device.

8. The entertainment system as claimed in claim 7 wherein certain predetermined content programs are simultaneously broadcast through the first and second networks to the overhead display system and to the control sets.

9. The entertainment system as claimed in claim 8 wherein the first network is an IEEE 1394 serial bus network.

10. The entertainment system as claimed in claim 9 wherein the second network is an ATM network coupled together by fibre optic cables.

11. The entertainment system as claimed in claim 1 wherein each user with access to a control set has the ability to select content to be played at the control set, and further wherein the user has the ability to stop, pause, fast forward and rewind the selected content.

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12. An entertainment system for providing selected content to one or more users, comprising:

a. a first network which operates according to a first network protocol, the first network for storing and retrieving content data, wherein the content data is collected into a plurality of data sets;

b. a second network which operates according to a second network protocol, the second network having a plurality of nodes, each node configured for control by an individual user to select one of the data sets; and

c. an interface coupled between the first network and the second network for transmitting a request for a data set from a requesting node within the plurality of nodes to the first network and for transmitting the data set from the first network to the node at a time selected by the individual user and for selectively transmitting a common data set simultaneously to all the nodes.

13. The entertainment system as claimed in claim 12 wherein the first network includes one or more media servers.

14. The entertainment system as claimed in claim 13 wherein each of the plurality of nodes is an individual user control set including a display, an audio output and an input device for entering controls, and further wherein a user selects, controls and plays one of the data sets through a control set.

15. The entertainment system as claimed in claim 14 wherein each input device further comprises a telecommunications interface for personal telephone functions.

16. The entertainment system as claimed in claim 14 further comprising an overhead display system and a system interface unit, wherein the system interface unit is coupled to the interface and to the overhead display system for controlling playing of content on the overhead display system.

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17. The entertainment system as claimed in claim 16 further comprising one or more video content players and one or more audio content players coupled to the system interface unit for presenting video and audio content via the overhead display system.

18. The entertainment system as claimed in claim 17 further comprising a first audio path from the interface to a predetermined number of the control sets for providing on-demand audio content from the media servers and a second audio path from the system interface unit to the control sets for providing overhead system audio content.

19. The entertainment system as claimed in claim 17 wherein the media servers and the system interface unit are coupled within the first network.

20. The entertainment system as claimed in claim 19 further comprising one or more zone bridge units each coupled to the interface and to a predetermined number of the control sets, wherein together the zone bridge units and the control sets are coupled within the second network.

21. The entertainment system as claimed in claim 20 wherein the first digital network is an ATM network and the second digital network is an IEEE 1394 serial bus network.

22. The entertainment system as claimed in claim 20 further comprising a media controller coupled to the first digital network for controlling and scheduling communications from the first digital network to the second digital network.

23. The entertainment system as claimed in claim 22 wherein each control set includes a digital to analog conversion circuit for converting communications received over the second digital network to analog signals. as necessary for appropriately controlling operation of the display and audio output.

24. The entertainment system as claimed in claim 23 wherein the selected content includes video programs, audio, games and information services.

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25. The entertainment system as claimed in claim 24 wherein each control set further comprises a telephone handset.

26. The entertainment system as claimed in claim 25 further comprising a card reader for securing payment by one of a credit card, a smart card and a debit card, from a user for content played and telephone calls made on one of the control sets.

27. An in-flight entertainment system for providing selected content to one or more passengers on an aircraft during flight, comprising:

a. one or more media servers for storing predetermined content data;

b. a system manager unit and attendant control panel through which the entertainment system is controlled and through which content data is loaded for storage on the one or more media servers;

c. a system interface unit for interfacing to existing systems on the aircraft and to an overhead display system;

d. a network switch coupled to the one or more media servers, to the system manager unit and attendant control panel and to the system interface unit thereby forming a first network, wherein the network switch routes communications to and from the one or more media servers, the system manager unit and attendant control panel and the system interface unit;

e. one or more passenger control sets through which a passenger selects, controls and plays specific content data, each passenger control set including a display, an audio output and a keypad for entering data; and

f. one or more zone bridge units each coupled to the network switch and to a predetermined number of the one or more passenger control sets thereby forming a second network, wherein the zone bridge units route communications from the network switch to an appropriate one of the one or more passenger control sets and from the passenger control sets through the network switch.

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28. The in-flight entertainment system as claimed in claim 27 wherein the first network is a digital ATM network and the media servers, system manager unit and attendant control panel, system interface unit and the network switch are coupled together by fibre optic cables.

29. The in-flight entertainment system as claimed in claim 28 wherein the second network is a digital IEEE 1394 serial bus network and the zone bridge units and the passenger control sets are all coupled together by IEEE 1394 cables and further wherein the zone bridge units are coupled to the network switch by fibre optic cables.

30. The in-flight entertainment system as claimed in claim 29 wherein all communications across both the first and second networks are digital and the passenger control sets each include a conversion circuit for converting communications from digital to analog as necessary.

31. The in-flight entertainment system as claimed in claim 29 wherein the selected content includes video programs, audio, games and information services.

32. The in-flight entertainment system as claimed in claim 31 wherein the selected content further includes shopping and gambling services.

33. The in-flight entertainment system as claimed in claim 31 wherein each passenger with access to a passenger control set has the ability to select content to be played at the passenger control set, and further wherein the passenger has the ability to stop, pause, fast forward and rewind the selected content.

34. The in-flight entertainment system as claimed in claim 33 wherein certain predetermined content programs are simultaneously broadcast through the first and second networks to the overhead display system and to the passenger control sets for simultaneous playing for all passengers within one or more zones of the aircraft.

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35. The in-flight entertainment system as claimed in claim 34 further comprising a media controller coupled to the first network for controlling and scheduling content data streams from the media servers to the passenger control sets, wherein a content data stream is rescheduled when one of a stop, pause, fast forward and rewind command is received.

36. The in-flight entertainment system as claimed in claim 27 further comprising a first audio path from the network switch to a predetermined number of the passenger control sets through appropriate zone bridge units for providing on-demand audio content from the media servers and a second audio path from the system interface unit to all of the passenger control sets through the zone bridge units for providing PA audio content and overhead audio content to the passenger control sets.

37. The in-flight entertainment system as claimed in claim 27 wherein each passenger control set further comprises a telephone handset for making air to ground telephone calls.

38. The in-flight entertainment system as claimed in claim 37 further comprising a card reader and a receipt printer for securing payment by one of a credit card, smart card and debit card, for content played and telephone calls made by a passenger.

39. A passenger entertainment system for providing selected content to one or more passengers, comprising:

a. a first means for storing content;

b. a plurality of means for accessing content, each for use by passengers for accessing content and information, the plurality of means for accessing content coupled within a first network;

c. means for routing communications coupled to the first means for storing content within a second network, and to the plurality of means for accessing content for routing content between the first means for storing content and the plurality of means for accessing content over the first and second

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networks; and

d. means for controlling coupled to the first means for storing content and to the means for routing communications for controlling and scheduling delivery of content from the first means for storing content to the plurality of means for accessing content.

40. The passenger entertainment system as claimed in claim 39 further comprising a means for displaying and a means for interfacing, wherein the means for interfacing is coupled to the means for routing and to the means for displaying for controlling the display of content on the means for displaying.

41. The passenger entertainment system as claimed in claim 40 further comprising a second means for storing content coupled to the means for interfacing for providing content from the second means for storing content via the means for displaying.

42. The passenger entertainment system as claimed in claim 41 wherein the means for displaying is an overhead display system and further wherein the second means for storing content stores and provides both video and audio content via the overhead display system.

43. The passenger entertainment system as claimed in claim 42 wherein each of the plurality of means for accessing content includes a display, an audio output and an input device.

44. The passenger entertainment system as claimed in claim 43 wherein the first network is an IEEE 1394 serial bus network.

45. The passenger entertainment system as claimed in claim 44 wherein the second network is an ATM network coupled together by fibre optic cables.

BNSDOCID: <WO____9811686A2_I_>

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APPLE EX1008 Page 363

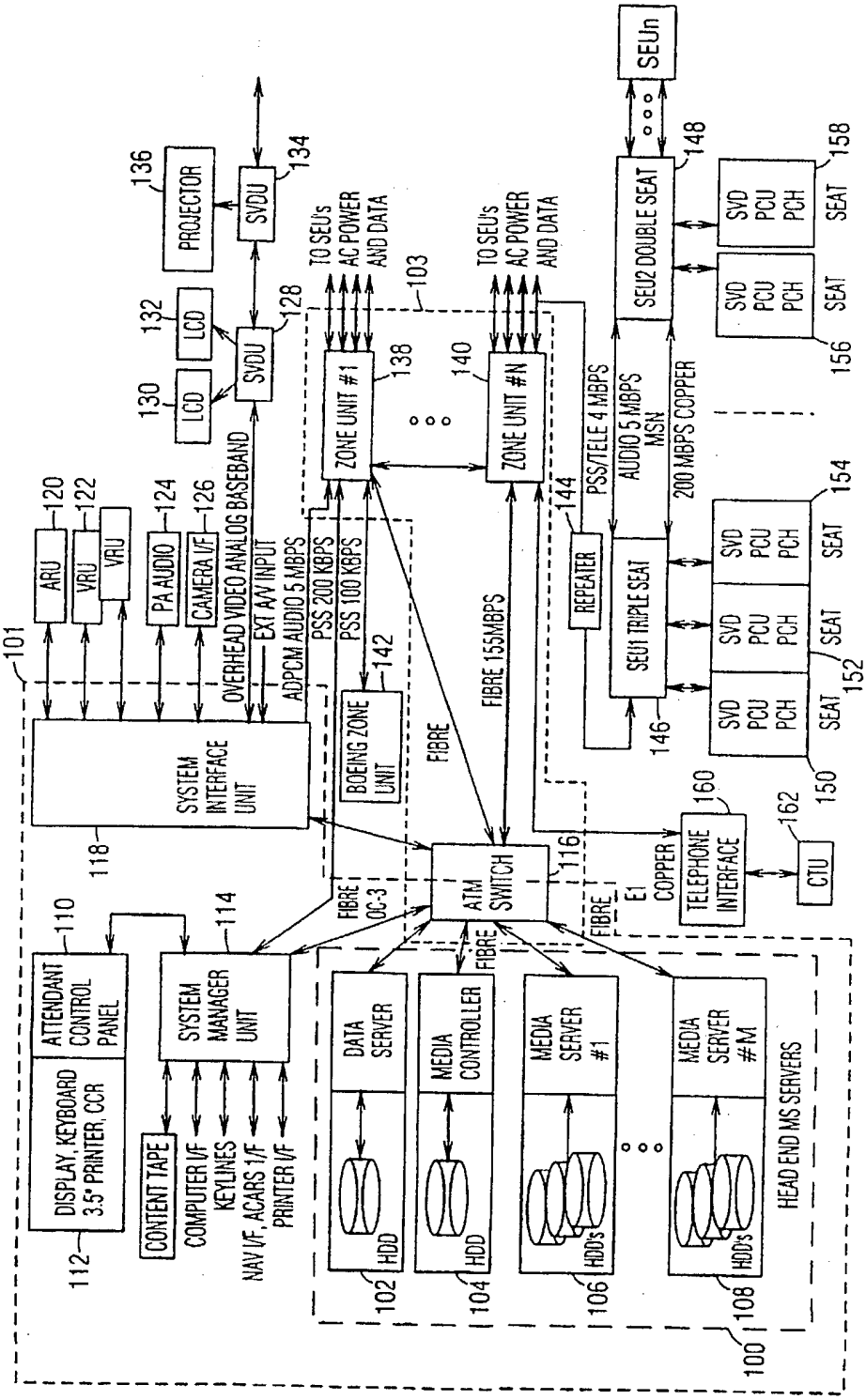

100
101
102 HDD
104 HDD
106 HDD's
108 HDD's
110 ATTENDANT CONTROL PANEL
112 DISPLAY, KEYBOARD 3.5" PRINTER, CCR
114 SYSTEM MANAGER UNIT
116 ATM SWITCH
118 SYSTEM INTERFACE UNIT
120 ARU
122 VRU
124 PA AUDIO
126 CAMERA I/F
128 SVDU
130 LCD
132 LCD
134 SVDU
136 PROJECTOR
138 ZONE UNIT #1
140 ZONE UNIT #N
142 BOEING ZONE UNIT
144 REPEATER
146 SEU1 TRIPLE SEAT
148 SEU2 DOUBLE SEAT
150 SEAT
152 SEAT
154 SEAT
156 SEAT
158 SEAT
160 TELEPHONE INTERFACE
162 CTU
SEUn
DATA SERVER
MEDIA CONTROLLER
MEDIA SERVER #1
MEDIA SERVER #M
HEAD END MS SERVERS
SVD PCU PCH
CONTENT TAPE
COMPUTER I/F KEYLINES
NAV I/F, ACARS 1/F
PRINTER I/F
OVERHEAD VIDEO ANALOG BASEBAND
EXT A/V INPUT
ADPCM AUDIO 5 MBPS
PSS 200 KBPS
PSS 100 KBPS
TO SEU's AC POWER AND DATA
FIBRE 155MBPS
FIBRE OC-3
FIBRE
E1 COPPER
PSS/TELE 4 MBPS
AUDIO 5 MBPS MSN
200 MBPS COPPER

Fig. 1

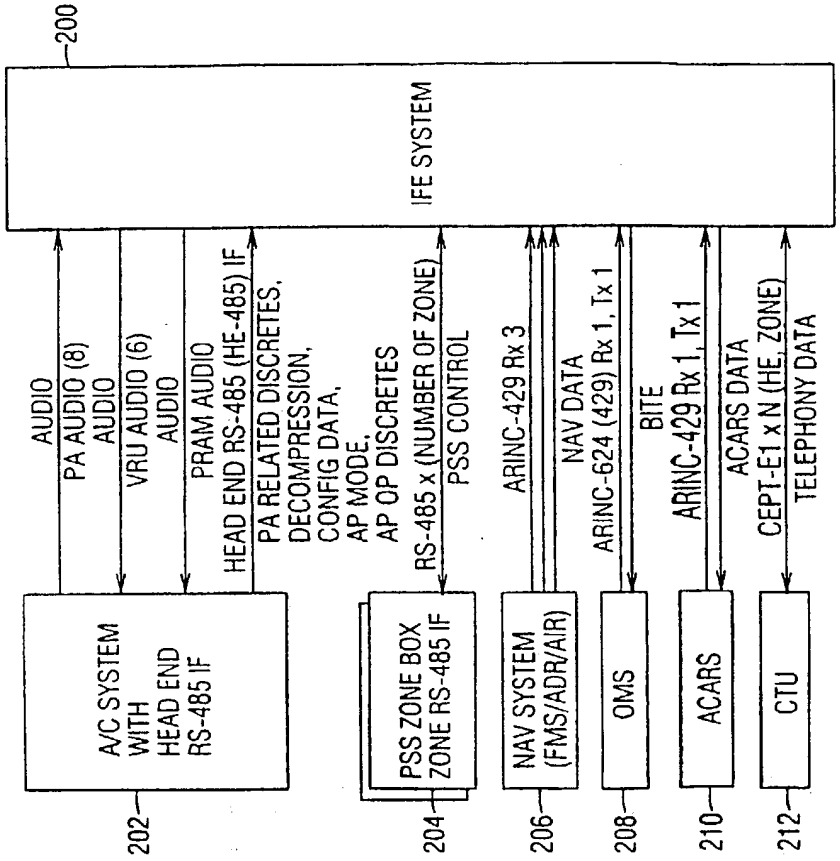

200
IFE SYSTEM
AUDIO
PA AUDIO (8)
AUDIO
VRU AUDIO (6)
AUDIO
PRAM AUDIO
HEAD END RS-485 (HE-485) IF
PA RELATED DISCRETES,
DECOMPRESSION,
CONFIG DATA,
AP MODE,
AP OP DISCRETES
RS-485 x (NUMBER OF ZONE)
PSS CONTROL
ARINC-429 Rx 3
NAV DATA
ARINC-624 (429) Rx 1, Tx 1
BITE
ARINC-429 Rx 1, Tx 1
ACARS DATA
CEPT-E1 x N (HE, ZONE)
TELEPHONY DATA
A/C SYSTEM
WITH
HEAD END
RS-485 IF
PSS ZONE BOX
ZONE RS-485 IF
NAV SYSTEM
(FMS/ADR/AIR)
OMS
ACARS
CTU
202
204
206
208
210
212

Fig. 2

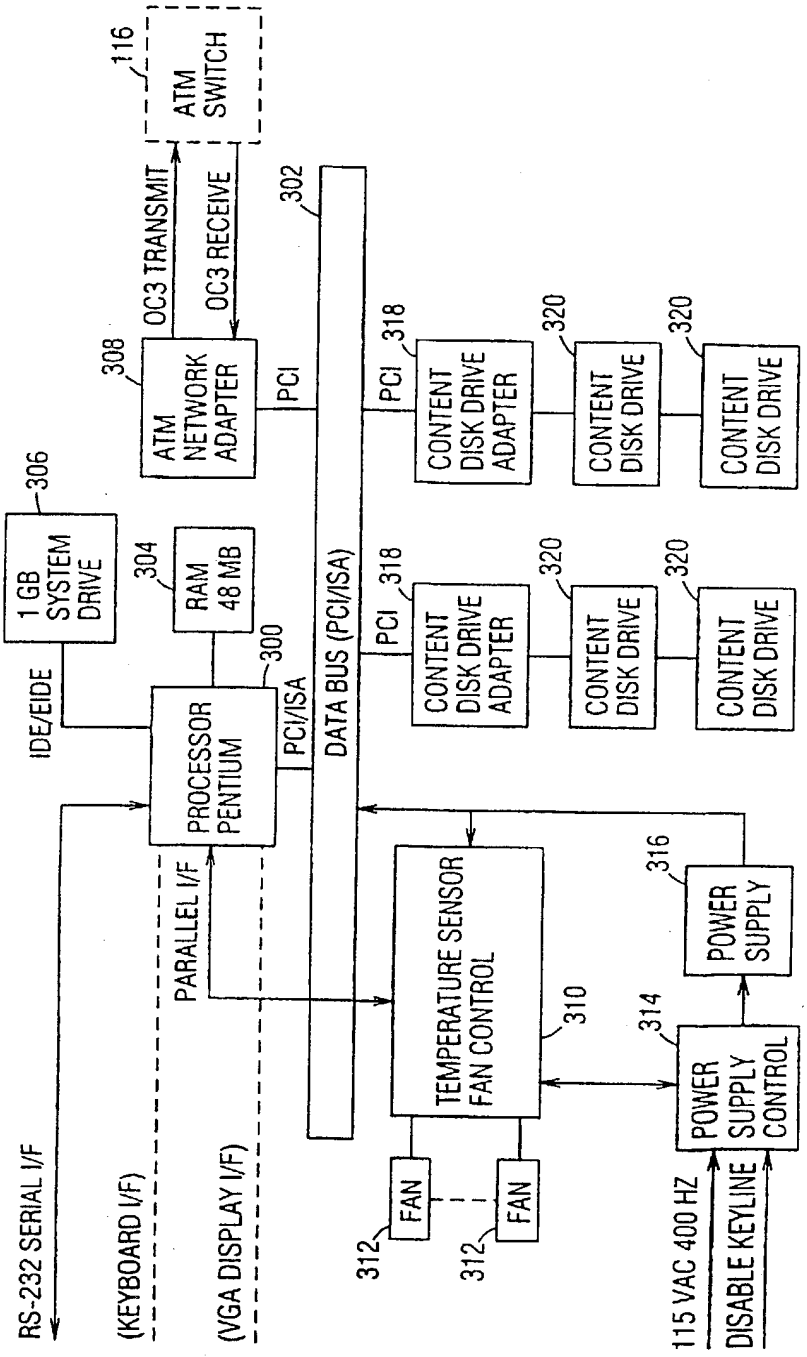

116
ATM SWITCH
OC3 TRANSMIT
OC3 RECEIVE
308
ATM NETWORK ADAPTER
PCI
302
DATA BUS (PCI/ISA)
PCI
318
CONTENT DISK DRIVE ADAPTER
320
CONTENT DISK DRIVE
320
CONTENT DISK DRIVE
306
1 GB SYSTEM DRIVE
304
RAM 48 MB
300
PROCESSOR PENTIUM
PCI/ISA
PCI
318
CONTENT DISK DRIVE ADAPTER
320
CONTENT DISK DRIVE
320
CONTENT DISK DRIVE
IDE/EIDE
PARALLEL I/F
TEMPERATURE SENSOR FAN CONTROL
310
316
POWER SUPPLY
314
POWER SUPPLY CONTROL
RS-232 SERIAL I/F
(KEYBOARD I/F)
(VGA DISPLAY I/F)
312
FAN
312
FAN
115 VAC 400 HZ
DISABLE KEYLINE

Fig. 3

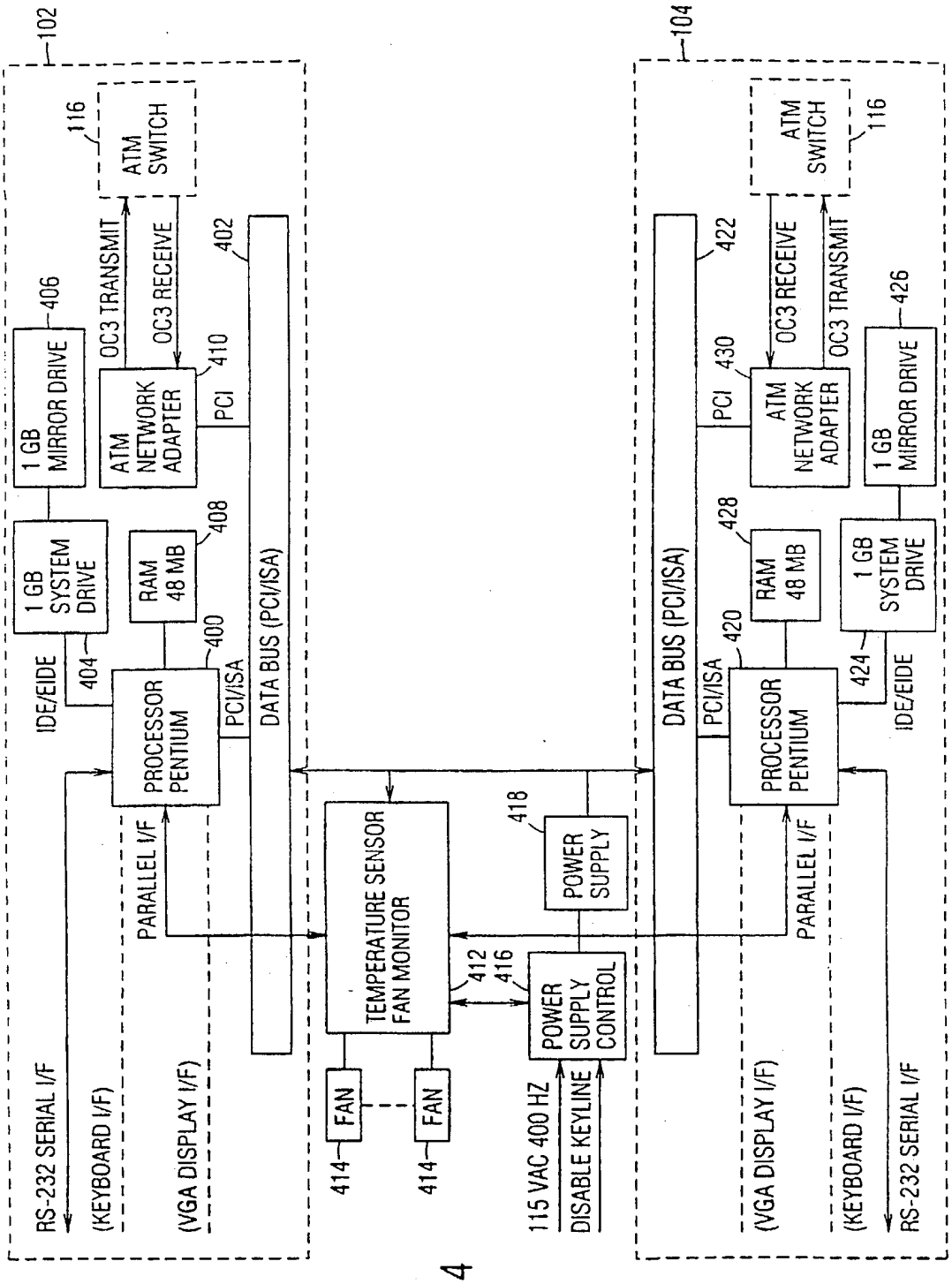

102
104
116
ATM SWITCH
406
1 GB MIRROR DRIVE
OC3 TRANSMIT
OC3 RECEIVE
410
ATM NETWORK ADAPTER
PCI
402
DATA BUS (PCI/ISA)
408
1 GB SYSTEM DRIVE
RAM 48 MB
400
IDE/EIDE
404
PROCESSOR PENTIUM
PCI/ISA
PARALLEL I/F
RS-232 SERIAL I/F
(KEYBOARD I/F)
(VGA DISPLAY I/F)
TEMPERATURE SENSOR FAN MONITOR
FAN
414
412
416
POWER SUPPLY CONTROL
418
POWER SUPPLY
115 VAC 400 HZ
DISABLE KEYLINE
422
430
428
420
424
426

Fig. 4

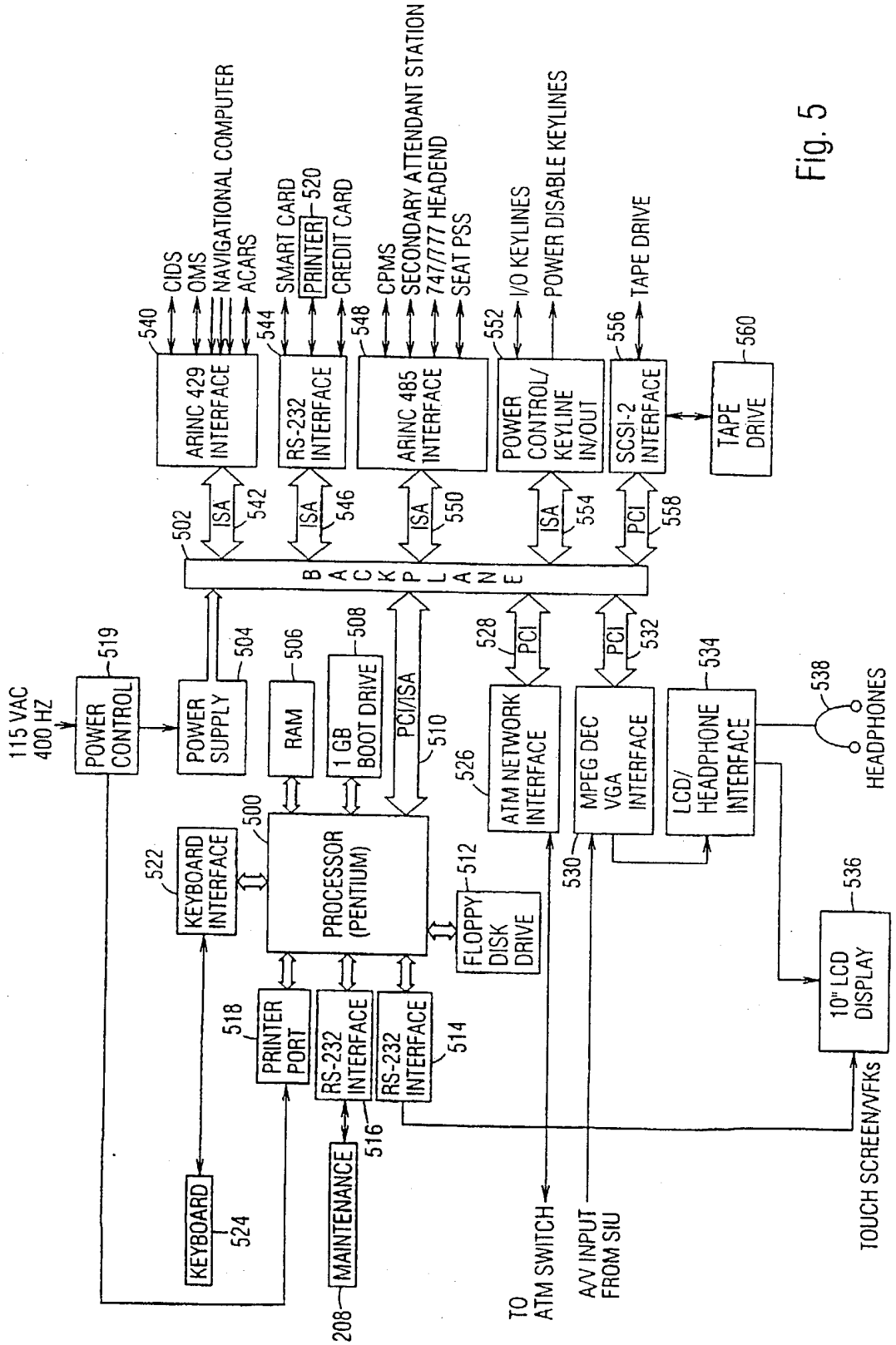

115 VAC
400 HZ
POWER CONTROL
519
POWER SUPPLY
504
RAM
506
1 GB BOOT DRIVE
508
PCI/ISA
510
BACKPLANE
502
ISA
542
ISA
546
ISA
550
ISA
554
PCI
558
ARINC 429 INTERFACE
540
RS-232 INTERFACE
544
ARINC 485 INTERFACE
548
POWER CONTROL/ KEYLINE IN/OUT
552
SCSI-2 INTERFACE
556
TAPE DRIVE
560
CIDS
OMS
NAVIGATIONAL COMPUTER
ACARS
SMART CARD
PRINTER
520
CREDIT CARD
CPMS
SECONDARY ATTENDANT STATION
747/777 HEADEND
SEAT PSS
I/O KEYLINES
POWER DISABLE KEYLINES
TAPE DRIVE
PCI
528
PCI
532
ATM NETWORK INTERFACE
526
MPEG DEC VGA INTERFACE
530
LCD/ HEADPHONE INTERFACE
534
HEADPHONES
538
10" LCD DISPLAY
536
TOUCH SCREEN/VFKs
KEYBOARD INTERFACE
522
PROCESSOR (PENTIUM)
500
FLOPPY DISK DRIVE
512
PRINTER PORT
518
RS-232 INTERFACE
RS-232 INTERFACE
514
516
KEYBOARD
524
MAINTENANCE
208
TO ATM SWITCH
A/V INPUT FROM SIU

Fig. 5

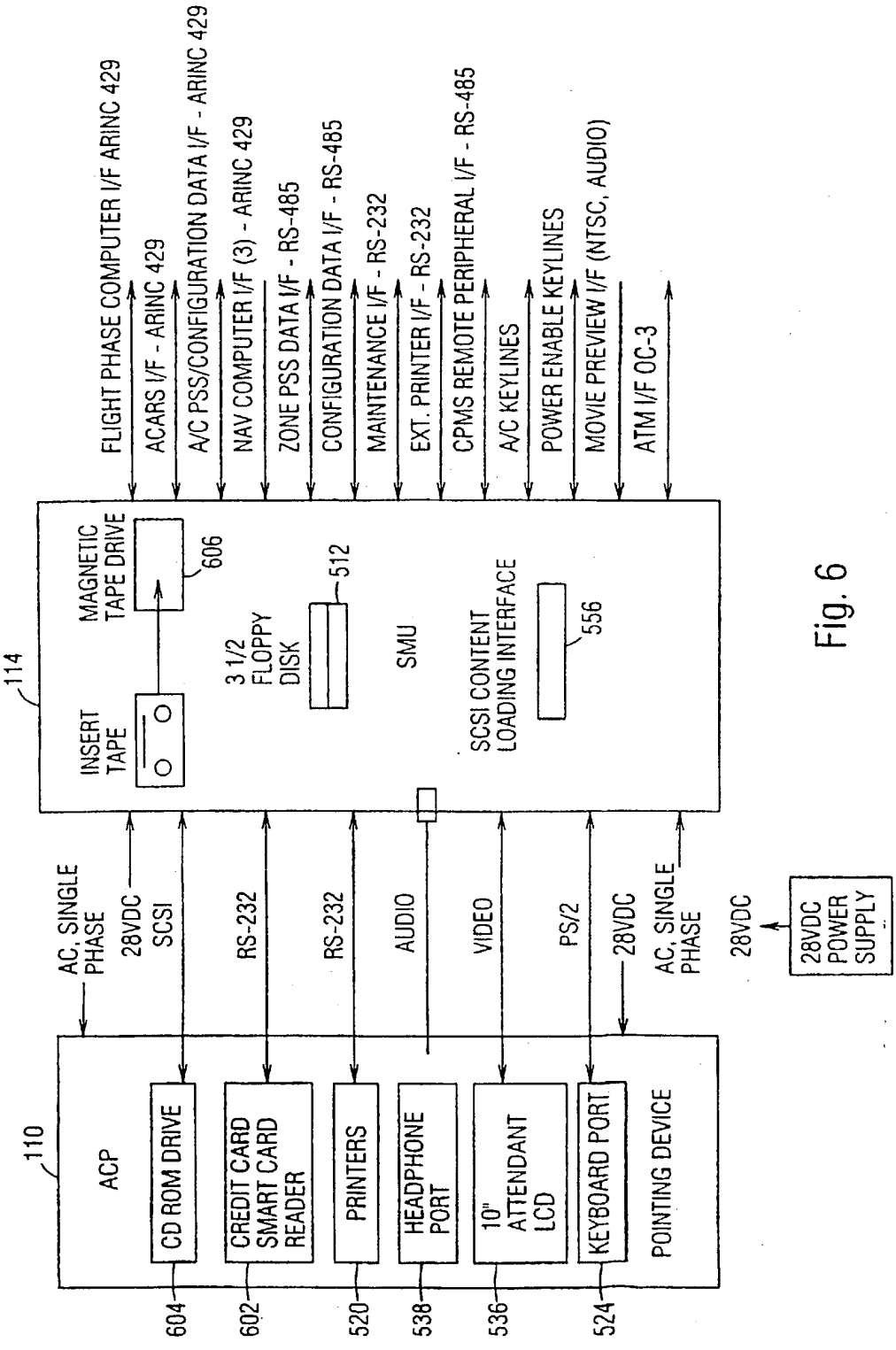

FLIGHT PHASE COMPUTER I/F ARINC 429
ACARS I/F - ARINC 429
A/C PSS/CONFIGURATION DATA I/F - ARINC 429
NAV COMPUTER I/F (3) - ARINC 429
ZONE PSS DATA I/F - RS-485
CONFIGURATION DATA I/F - RS-485
MAINTENANCE I/F - RS-232
EXT. PRINTER I/F - RS-232
CPMS REMOTE PERIPHERAL I/F - RS-485
A/C KEYLINES
POWER ENABLE KEYLINES
MOVIE PREVIEW I/F (NTSC, AUDIO)
ATM I/F OC-3
114
MAGNETIC TAPE DRIVE
606
INSERT TAPE
3 1/2 FLOPPY DISK
512
SMU
SCSI CONTENT LOADING INTERFACE
556
AC, SINGLE PHASE
28VDC
SCSI
RS-232
RS-232
AUDIO
VIDEO
PS/2
28VDC
AC, SINGLE PHASE
28VDC
28VDC POWER SUPPLY
110
ACP
CD ROM DRIVE
CREDIT CARD SMART CARD READER
PRINTERS
HEADPHONE PORT
10" ATTENDANT LCD
KEYBOARD PORT
POINTING DEVICE
604
602
520
538
536
524

Fig. 6

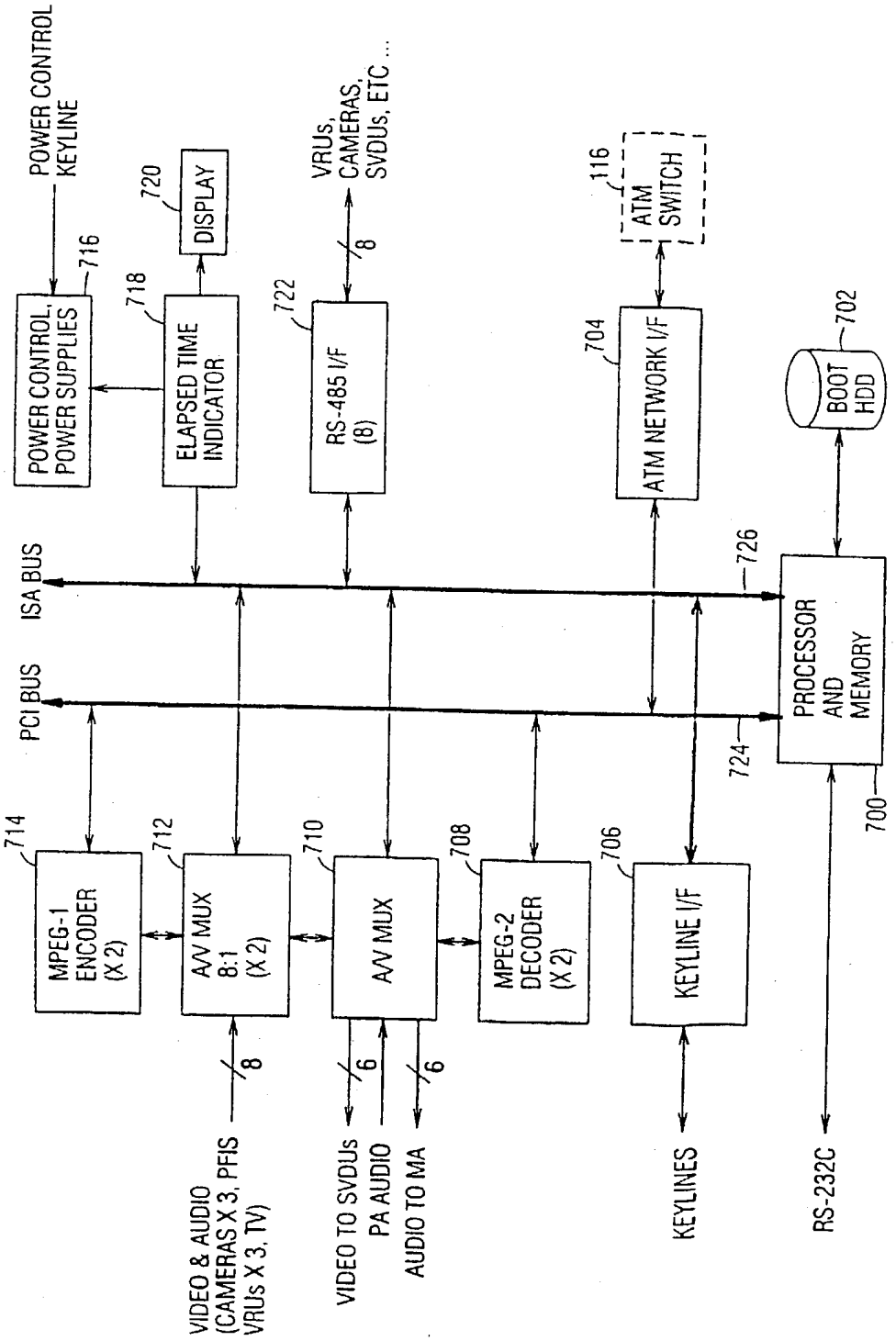

POWER CONTROL
KEYLINE
716
POWER CONTROL,
POWER SUPPLIES
718
ELAPSED TIME
INDICATOR
720
DISPLAY
VRUs,
CAMERAS,
SVDUs, ETC ...
8
722
RS-485 I/F
(8)
116
ATM
SWITCH
704
ATM NETWORK I/F
702
BOOT
HDD
ISA BUS
726
PCI BUS
PROCESSOR
AND
MEMORY
724
700
714
MPEG-1
ENCODER
(X 2)
712
A/V MUX
8:1
(X 2)
710
A/V MUX
708
MPEG-2
DECODER
(X 2)
706
KEYLINE I/F
8
6
6
VIDEO & AUDIO
(CAMERAS X 3, PFIS
VRUs X 3, TV)
VIDEO TO SVDUs
PA AUDIO
AUDIO TO MA
KEYLINES
RS-232C

Fig. 7

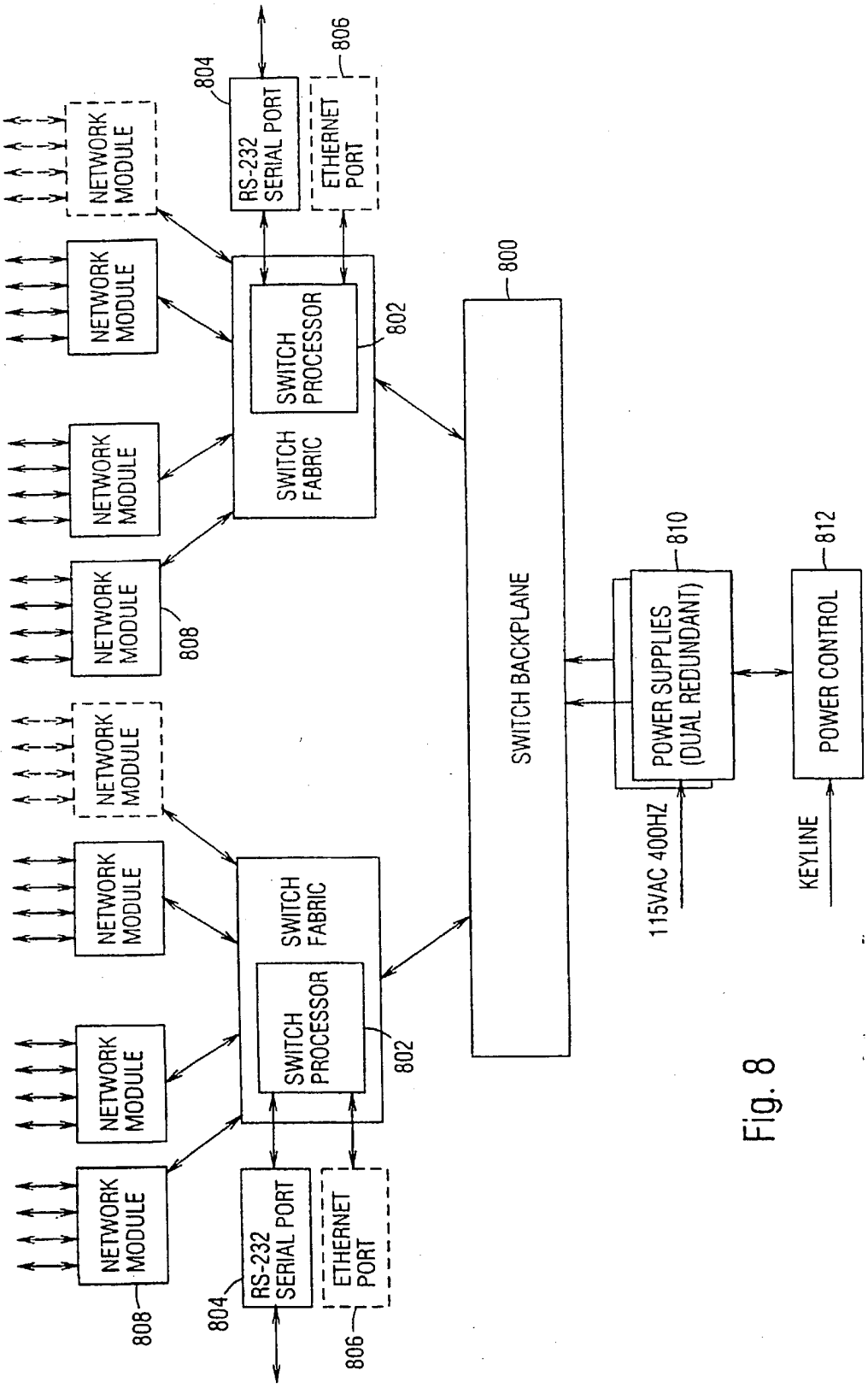

NETWORK MODULE
808
804
RS-232 SERIAL PORT
806
ETHERNET PORT
SWITCH PROCESSOR
802
SWITCH FABRIC
800
SWITCH BACKPLANE
810
POWER SUPPLIES (DUAL REDUNDANT)
812
POWER CONTROL
115VAC 400HZ
KEYLINE

Fig. 8

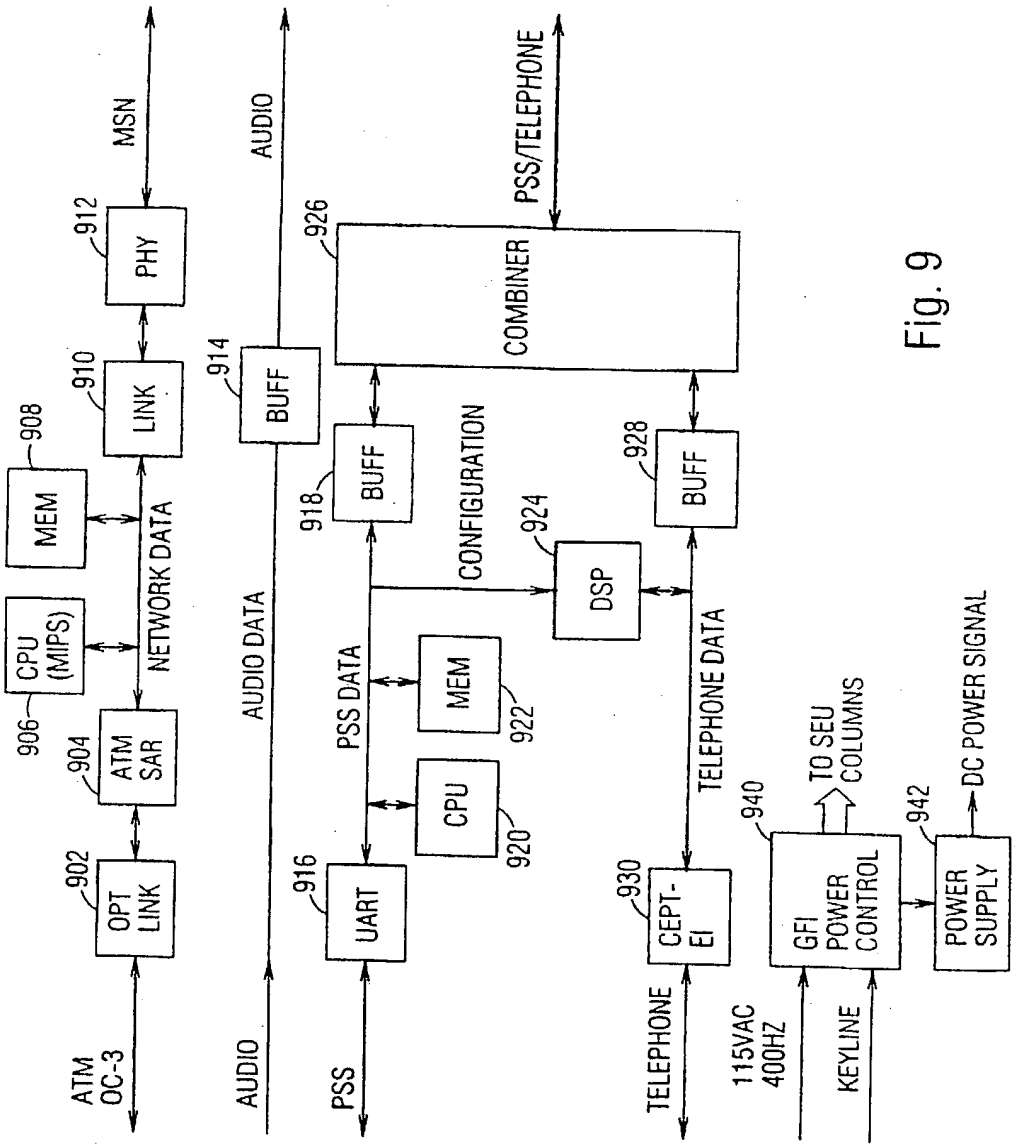

MSN
912
PHY
910
LINK
908
MEM
CPU (MIPS)
906
NETWORK DATA
904
ATM SAR
902
OPT LINK
ATM OC-3
AUDIO
914
BUFF
AUDIO DATA
AUDIO
916
UART
PSS
PSS DATA
MEM
922
CPU
920
CONFIGURATION
924
DSP
926
COMBINER
PSS/TELEPHONE
918
BUFF
928
BUFF
TELEPHONE DATA
930
CEPT-E1
TELEPHONE
940
GFI POWER CONTROL
115VAC 400HZ
KEYLINE
TO SEU COLUMNS
942
POWER SUPPLY
DC POWER SIGNAL

Fig. 9

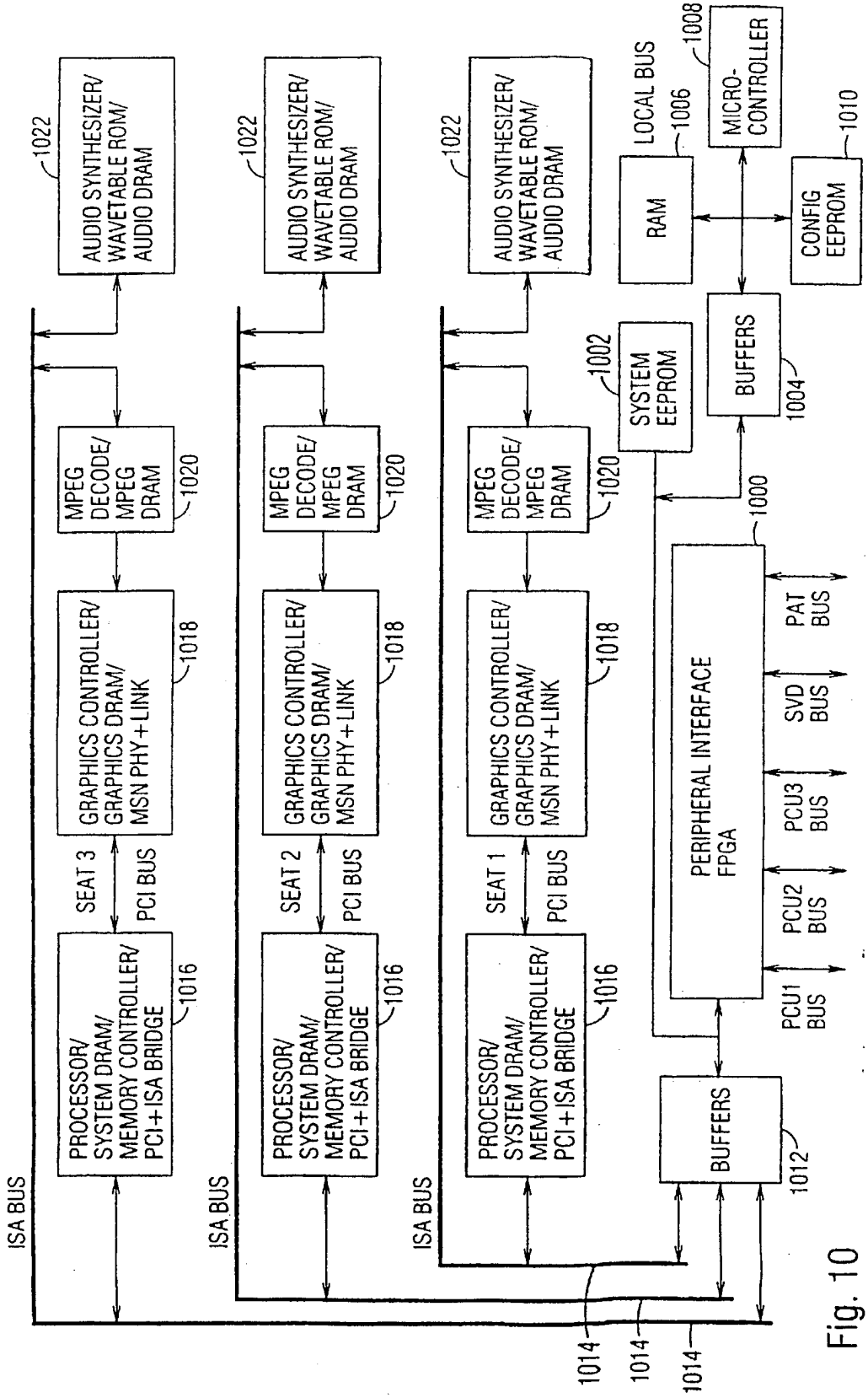

ISA BUS
PROCESSOR/ SYSTEM DRAM/ MEMORY CONTROLLER/ PCI+ISA BRIDGE
1016
SEAT 3
PCI BUS
GRAPHICS CONTROLLER/ GRAPHICS DRAM/ MSN PHY+LINK
1018
MPEG DECODE/ MPEG DRAM
1020
AUDIO SYNTHESIZER/ WAVETABLE ROM/ AUDIO DRAM
1022
SEAT 2
PCI BUS
SEAT 1
PCI BUS
1014
BUFFERS
1012
PERIPHERAL INTERFACE FPGA
1000
PCU1 BUS
PCU2 BUS
PCU3 BUS
SVD BUS
PAT BUS
SYSTEM EEPROM
1002
BUFFERS
1004
RAM
1006
LOCAL BUS
MICRO-CONTROLLER
1008
CONFIG EEPROM
1010

Fig. 10

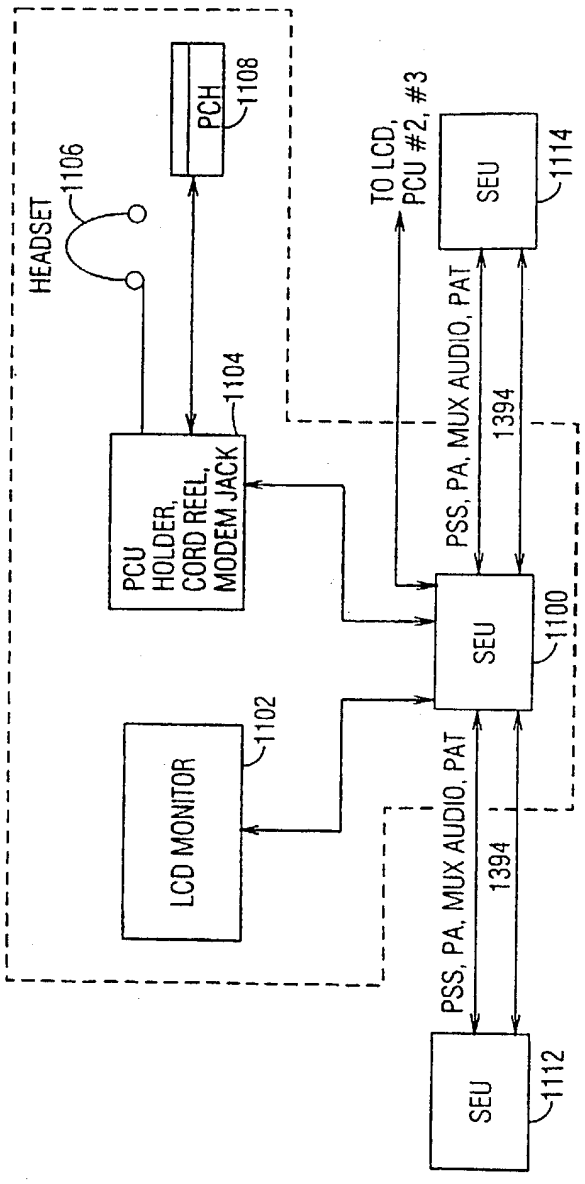

HEADSET
1106
PCH
1108
1104
PCU
HOLDER,
CORD REEL,
MODEM JACK
LCD MONITOR
1102
TO LCD,
PCU #2, #3
SEU
1114
PSS, PA, MUX AUDIO, PAT
1394
SEU
1100
PSS, PA, MUX AUDIO, PAT
1394
SEU
1112

Fig. 11

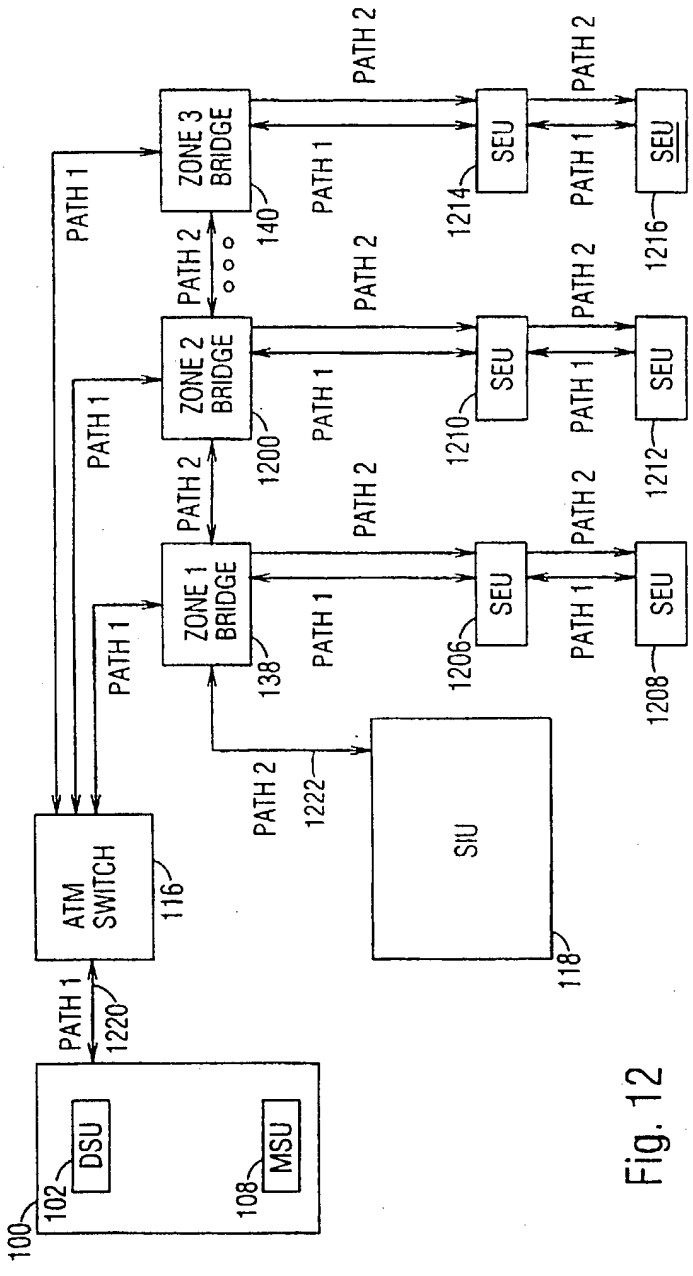

100
102
DSU
108
MSU
PATH 1
1220
ATM SWITCH
116
PATH 1
PATH 2
1222
SIU
118
PATH 1
PATH 2
ZONE 1 BRIDGE
138
PATH 1
PATH 2
1206
SEU
PATH 1
PATH 2
1208
SEU
PATH 1
PATH 2
ZONE 2 BRIDGE
1200
PATH 1
PATH 2
1210
SEU
PATH 1
PATH 2
1212
SEU
PATH 1
PATH 2
ZONE 3 BRIDGE
140
PATH 1
PATH 2
1214
SEU
PATH 1
PATH 2
1216
SEU

Fig. 12

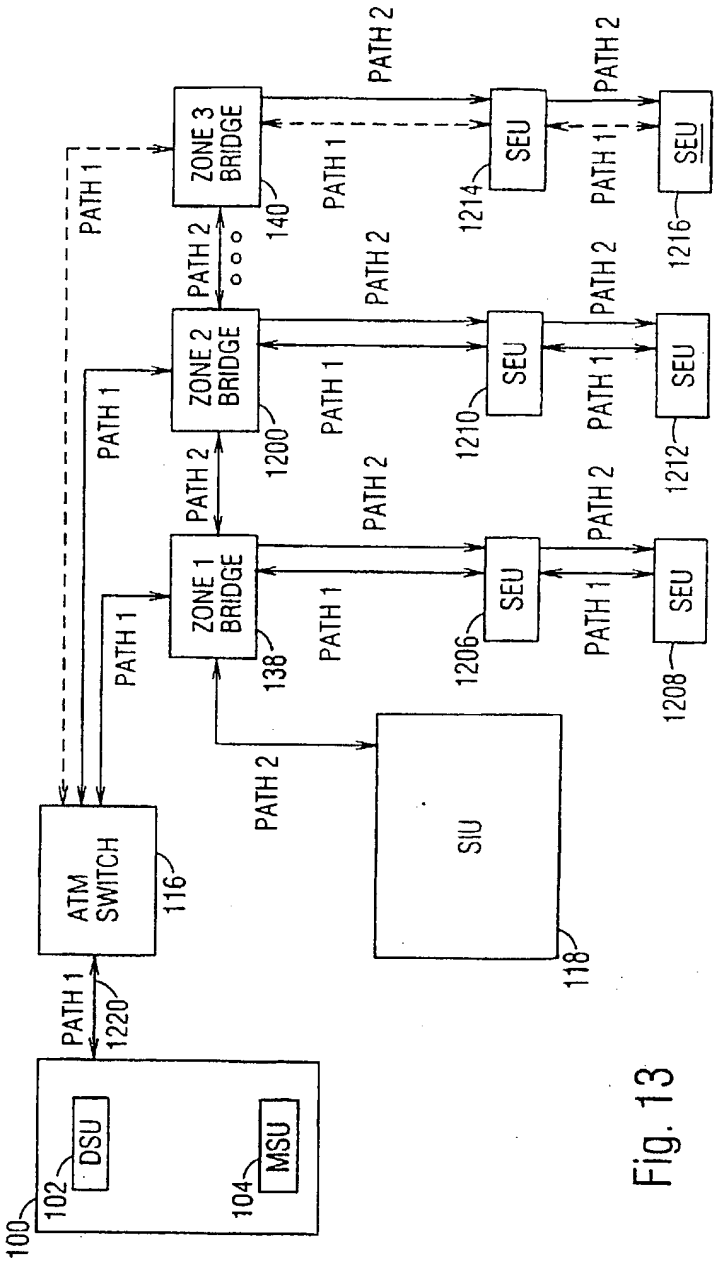

100
102
DSU
104
MSU
PATH 1
1220
ATM SWITCH
116
PATH 1
PATH 2
SIU
118
ZONE 1 BRIDGE
138
ZONE 2 BRIDGE
1200
ZONE 3 BRIDGE
140
SEU
1206
1208
1210
1212
1214
1216

Fig. 13

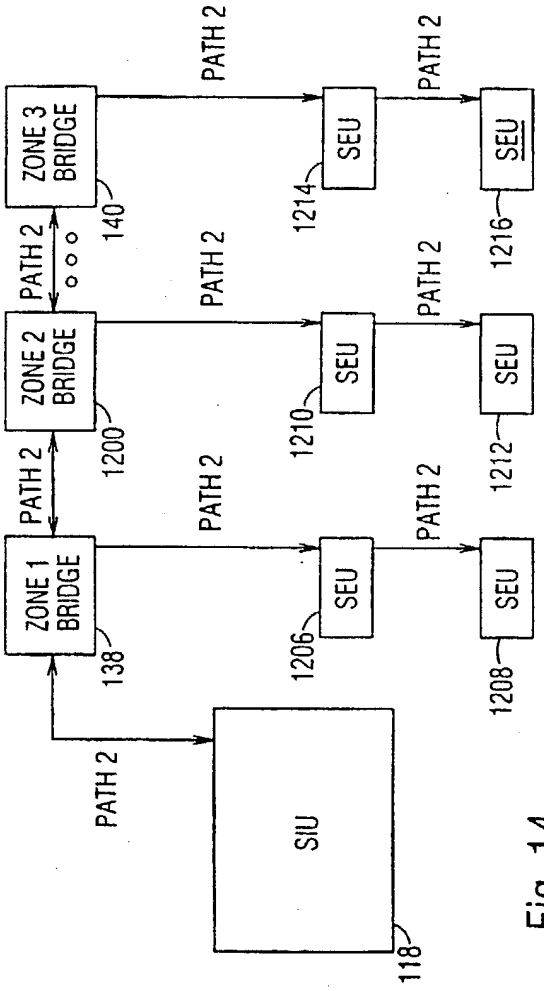

ZONE 3 BRIDGE
ZONE 2 BRIDGE
ZONE 1 BRIDGE
SIU
SEU
PATH 2
140
1200
138
118
1214
1216
1210
1212
1206
1208

Fig. 14

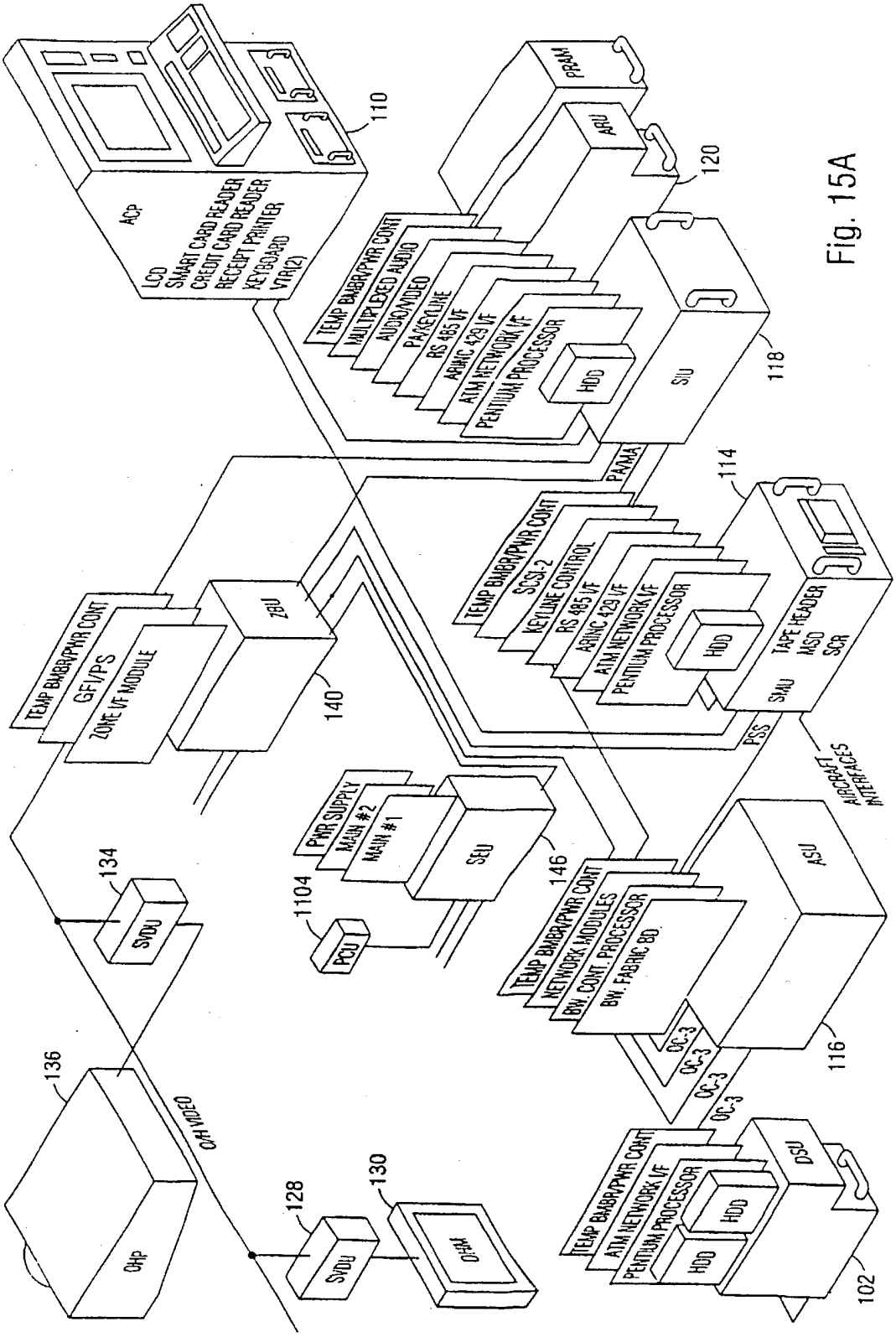

ACP
LCD
SMART CARD READER
CREDIT CARD READER
RECEIPT PRINTER
KEYBOARD
VTR(2)
110
PRAM
ABU
120
TEMP BMBR/PWR CONT
MULTIPLEXED AUDIO
AUDIO/VIDEO
PA/KEYLINE
RS 485 I/F
ARINC 429 I/F
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
SIU
118
PA/MA
114
TEMP BMBR/PWR CONT
SCSI-2
KEYLINE CONTROL
RS 485 I/F
ARINC 429 I/F
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
TAPE HEADER
MSD
MCR
SMU
PSS
AIRCRAFT INTERFACES
ZBU
TEMP BMBR/PWR CONT
GFI/PS
ZONE I/F MODULE
140
PWR SUPPLY
MAIN #2
MAIN #1
SEU
146
1104
PCU
134
SVDU
ASU
TEMP BMBR/PWR CONT
NETWORK MODULES
BW. CONT. PROCESSOR
BW. FABRIC BD.
OC-3
OC-3
OC-3
OC-3
116
136
OHP
OHP VIDEO
128
SVDU
130
OHP
TEMP BMBR/PWR CONT
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
HDD
DSU
102

Fig. 15A

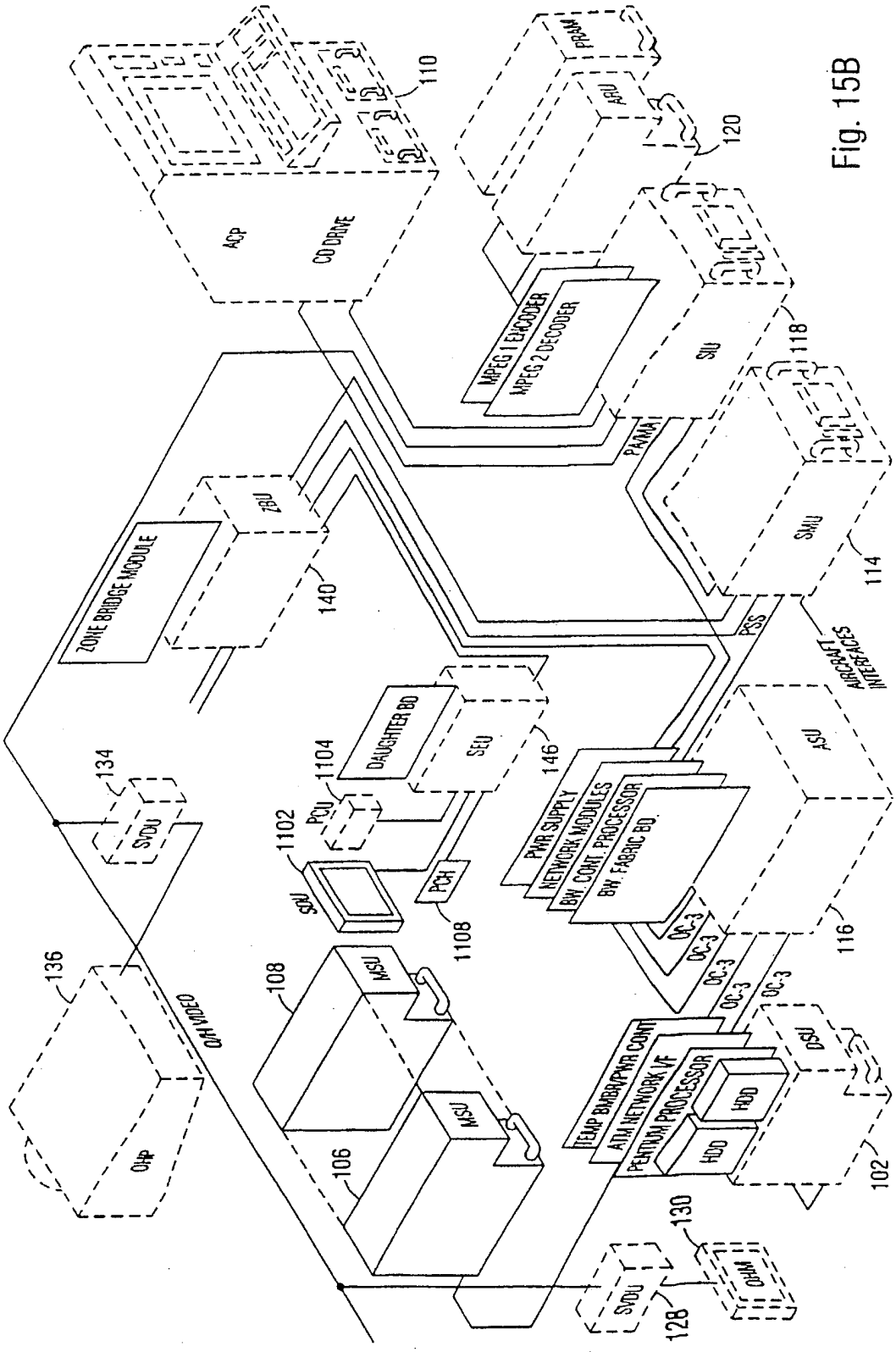

ACP
CD DRIVE
110
FRAM
APU
120
MPEG 1 ENCODER
MPEG 2 DECODER
SIU
118
PRAM
ZBU
ZONE BRIDGE MODULE
140
SIMU
114
PSS
AIRCRAFT INTERFACES
DAUGHTER BD
SEU
1104
146
ASU
134
SYDU
PCU
1102
PCH
1108
PWR SUPPLY
NETWORK MODULES
BW CONT. PROCESSOR
BW. FABRIC BD.
OC-3
OC-3
OC-3
OC-3
OC-3
116
136
OHP
OH VIDEO
108
MSU
MSU
106
TEMP BMDR/PWR CONT
ATM NETWORK I/F
PENTIUM PROCESSOR
HDD
HDD
DSU
102
130
OHM
SYDU
128

Fig. 15B

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(74) Agents: HAVERSTOCK, Thomas, B. et al.; Haverstock & Associates, Suite 420, 260 Sheridan Avenue, Palo Alto, CA 94306 (US).

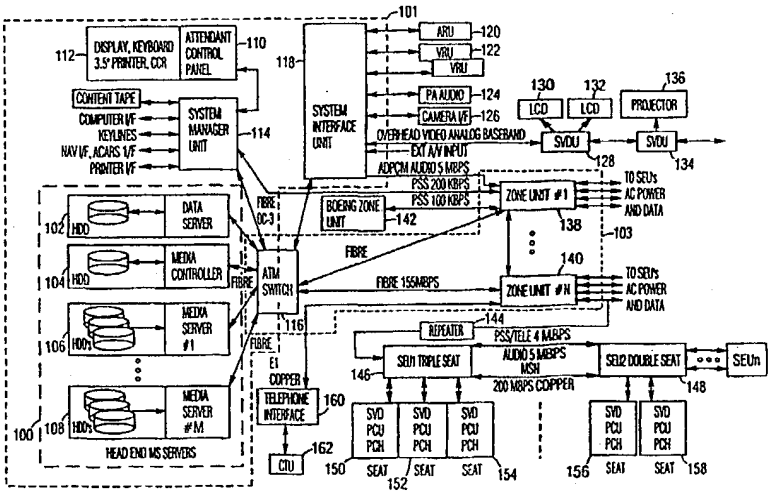
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(88) Date of publication of the international search report:
9 July 1998 (09.07.98)

(54) Title: COMBINED DIGITAL AUDIO/VIDEO ON DEMAND AND BROADCAST DISTRIBUTION SYSTEM

(57) Abstract



An in-flight passenger entertainment system has a first digital network for communication among components of a headend system including a data server, media controller, one or more media servers, system interface unit, system manager unit and attendant control panel. The in-flight entertainment system is coupled to an aircraft's existing systems through the system interface unit and the system manager unit. The components of the headend system are all coupled to a network switch for routing data within the first network. The network switch is also coupled to one or more zone bridge units, each of which is coupled to multiple seat electronics units. The zone bridge units and the seat electronics units together form a second digital network. The first digital network is preferably an ATM network with fibre optic cables used to carry the data. The second digital network is preferably an IEEE 1394 serial bus network. The zone bridge units control all communications between the networks, converting all communications into the format required by the respective network. All communications across the networks are transmitted as digital data and when necessary are converted to analog signals at the seat electronics units. Through passenger control sets coupled to the seat electronics units, a passenger has access to audio and video on demand, video games, gambling, telephone service and information services. A passenger also has the ability to fast forward, rewind and pause a video feature. An overhead audio and video distribution system is used to provide audio and video content as a backup to the video on demand system or as an alternative subsystem in zones of the aircraft in which there are passenger control sets with less than full capability. A first audio path for transmitting audio content from the headend system is routed to predetermined seat entertainment units through the network switch and the zone bridge units. A second audio path for transmitting audio from the system interface unit is routed to the seat entertainment units through the zone bridge units.

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INTERNATIONAL SEARCH REPORT

Interi nal Application No
PCT/US 97/15759

A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04H H04N H04L G06F H04R

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 887 152 A (MATSUZAKI ET AL.) 12 December 1989	1-8, 11-20, 39-43
A	see column 1, line 8-33 see column 1, line 42 - column 2, line 3 see column 2, line 31 - column 12, line 15 --- -/--	22,23, 27,30, 34,36

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

[X] Patent family members are listed in annex.

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1

Date of the actual completion of the international search	Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

Intern nal Application No
PCT/US 97/15759

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	EP 0 631 247 A (NINTENDO OF AMERICA) 28 December 1994	1,7, 11-14, 39-41
A	see column 1, line 3-8 see column 1, line 28 - column 2, line 31 see column 3, line 30 - column 6, line 25 see column 8, line 15 - column 18, line 47	2-4,6,8, 16-19, 24,26, 27, 30-35, 38,42,43
P,Y	EP 0 789 502 A (GEC MARCONI) 13 August 1997	1-5,7,8, 11-20, 39-43
P,A	see column 1, line 3-5 see column 1, line 33 - column 2, line 43 see column 3, line 4 - column 7, line 57	6,10,21, 24,25, 27,28, 30,31, 33-37,45
A	R.H.J.BLOKS: "THE IEEE-1394 HIGH SPEED SERIAL BUS." PHILIPS JOURNAL OF RESEARCH, vol. 50, no. 1/2, February 1996 - July 1996, THE NEDERLANDS, pages 209-216, XP000627671 see paragraph 1-4	1,7-9, 12, 20-23, 27,29, 30,36, 39,44
Y	EP 0 577 054 A (HUGHES-AVICOM INTERNATIONAL) 5 January 1994	1,5-7, 11-15, 39-41
A	see column 1, line 5-10 see column 2, line 20-48 see column 3, line 1-3 see column 3, line 36 - column 5, line 47 see column 7, line 1-12 see column 8, line 13 - column 9, line 56	2-4, 16-18, 24-27, 30,31, 33,37, 38,42,43

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Interr. ...al Application No
PCT/US 97/15759

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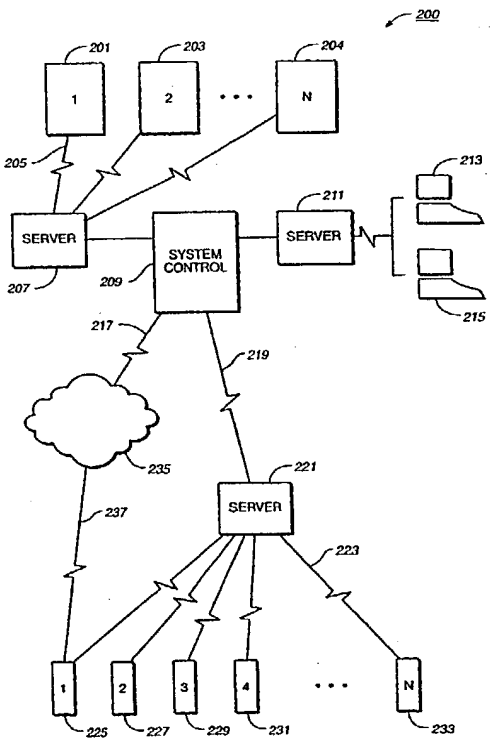
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(54) Title: A METHOD AND SYSTEM FOR AUDIENCE PARTICIPATION AND SELECTIVE VIEWING OF VARIOUS ASPECTS OF A THEATRICAL PERFORMANCE, WHETHER OPERA, SYMPHONIC, DRAMA OR DANCE OR COMBINATIONS AND VARIATIONS THEREOF



(57) Abstract: The present invention provides a solution to the problem of providing a cost effective means of enhancing the pleasure of an attendee at a musical or dramatic or other type of public performance, or at a large classroom or other teaching venue, through a system and method for collecting video images and text at a performance, transmitting these data to authorized individual viewing devices in an attendee's possession at the performance venue, the attendee being able to select the video image desired or text or a combination of both for viewing at the attendee's location.

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A METHOD AND SYSTEM FOR AUDIENCE PARTICIPATION AND SELECTIVE VIEWING OF VARIOUS ASPECTS OF A THEATRICAL PERFORMANCE, WHETHER OPERA, SYMPHONIC, DRAMA OR DANCE OR COMBINATIONS AND VARIATIONS THEREOF

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of U.S. Provisional Application No. 60/ 163,893 filed November 5, 1999, which is incorporated fully herein by reference.

TECHNICAL FIELD

This invention relates to the field of communications systems. More particularly, the present invention relates to a method and system for controllably viewing video images of a performance and/or text related thereto.

BACKGROUND ART

It has been observed by symphony and opera conductors, directors and general managers, that audiences are shrinking for classical music and opera partly because younger people are not joining the audiences in as large numbers as they previously did. College professors teaching very large classes have similarly worried about helping younger students to be more attentive in such large venues.

Various methods have been implemented in the past to improve attendance at such functions. In opera houses, supertitles are generally now used, wherein the language of the opera (such as German for example) is translated into the language of the audience; that is, into English in the US or the United Kingdom; into French in France; into Spanish in Spain; etc. This has improved the experience for those not fluent in the language of the performance. Similarly, Opera houses and Symphony Orchestras have invited the public to selected rehearsals and to pre-performance background discussions of the works to be performed, or of the authors of the works, or discussions of the mechanical aspects of the production itself.

Another method of addressing the general problem of improving the personal involvement of attendees at large venues, such as symphonies, operas or even large college classrooms, has involved the use of large video screens, either hanging large TV screens from the ceiling so that a thousand students, huddled in groups under the screens, can see

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the distant professor and blackboard; a very dismal way to be educated, or by having large TV screens strategically placed around the symphony or opera venue so that attendees a distance away from the stage can have a feeling of participation in the event.

However, none of these devices has addressed the interests per se of younger people. In an attempt to address this problem, it is thought that younger people might enjoy classical music more if they understood it better and if the performance had some elements of a 'participation sport'. Similarly, it is thought that being able to provide supertitles in several languages, selectable by the attendee, would enhance attendance by many more in our multi-ethnic societies. This participative effort would require a screen for each attendee, since economics appears to dictate having very large classes and large symphony halls and Opera auditoria.

A technical problem presently exists in the attempt to provide such an individual viewing device for each attendee in that the cost of such a device must be minimal, the means for transmitting must be flexible and cost effective, and the media transmitted and displayed must be adaptive to the concerns and desires of the individual attendee without impinging on the rights of and enjoyment of the neighboring attendees.

The use of a standard personal computer laptop, such as the Apple™ iBook™ is overkill and too costly as a viewing device for the solution to this problem. In a preferred solution, a system would be needed having a low power TV transmitter, effective only within the concert/performance hall, together with a simplified flat panel TV receiver device, of size somewhere between a cell phone display and a laptop computer display, having some ability to get audience feedback without wiring. Each channel of information could use a different pretuned carrier frequency.

These is a need in the art for a system and method for cost effectively capturing the video images of performers and lecturers in a performance venue, for transmitting such video images and related textual data to attendees at the performance, whereby the attendees can selectively view at their seat, different video images , text (musical scores, supertitles in several languages, and other related text) or a combination of both, in order to enhance the experience of attending the performance.

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SUMMARY OF THE INVENTION

The present invention provides a solution to the needs described above through a system and method for collecting video images and text at a performance, transmitting these data to authorized individual viewing devices in an attendees possession at the performance venue, the attendee being able to select the video image desired or text or a combination of both for viewing at the attendees location.

A system is disclosed for permitting attendees at a public performance to selectively view video, text or a combination of both by use of a viewing device. The system contains one or more video cameras for inputting video images of performers such as musicians, conductors, singers, dancers and lecturers/speakers; contains one or more input devices for inputting text data into the system; contains a central control device for receiving the video and text data, for storing these data and for transmitting these data via a short range transmission system, whereby one or more attendees through the use of individual viewing devices can selectively view a video image of a performer, related text of a combination of both at the attendees seat

Also disclosed is an apparatus for viewing video, text or a combination of both by an attendee at a symphony, opera, classroom lecture or other public performance, the apparatus having a display, memory, processing unit, control panel, and a control program in the processing unit memory adaptable to receive short range wireless transmissions of video data, text data or both, and to display selective images as chosen by the attendee.

A method is disclosed for enhancing the enjoyment of attendees at a public performance which includes: obtaining an attendee viewing device; turning on the viewing device to have it registered with a viewing system located in the venue of the performance; and selecting on the viewing device a video image of a performer or text or a combination of both, the video images and text being transmitted in a wireless mode by the viewing system and received by the attendee viewing device.

Still other embodiments of the present invention will become apparent to those skilled in the art from the following detailed description, wherein is shown and described only the embodiments of the invention by way of illustration of the best modes contemplated for carrying out the invention. As will be realized, the invention is capable of

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modification in various obvious aspects, all without departing from the spirit and scope of the present invention. Accordingly, the drawings and detailed description are to be regarded as illustrative in nature and not restrictive.

BRIEF DESCRIPTION OF THE DRAWINGS

The features and advantages of the system and method of the present invention will be apparent from the following description in which:

Figure 1 illustrates an exemplary symphony stage configuration.

Figure 2 illustrates a representative system containing elements of a preferred embodiment of the invention.

Figure 3 illustrates an exemplary attendee viewing device.

Figure 4 illustrates a block diagram of the preferred embodiment of the process of using the attendee viewing device in the preferred embodiment.

Figure 5 illustrates a block diagram of the operation of the system in the preferred embodiment.

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides a solution to the problem of providing a cost effective means of enhancing the pleasure of an attendee at a musical or dramatic or other type of public performance, through a system and method for collecting video images and text at a performance, transmitting these data to authorized individual viewing devices in an attendee's possession at the performance venue, the attendee being able to select the video image desired or text or a combination of both for viewing at the attendee's location.

OPERATING ENVIRONMENT

The environment in which the present invention is used is now described with reference to Figure 1

In **Figure 1**, a typical performance stage is shown depicting for example, an orchestral stage setting. Similar settings in other performances would include an opera production wherein the performers on the stage are singers and dramatists, while the

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musicians are located in the orchestra pit (not shown); or a drama wherein the performers onstage are actors and no musicians are involved; or the performance could be a ballet or other dance performance wherein the performers on stage would be dancers and again the musicians would be in the pit; and finally the performer could be a lecturer or speaker in a classroom setting or on a similar performance stage. In each of these performance settings the basic aspects and concepts of the invention are the same.

In **Figure 1**, a stage **101** is shown containing various performers; a conductor **103**, a first violin **105**, a cellist **111**, a bass **109** and a brass (trombone) player **107**. One or more inexpensive video cameras are either mounted in a fixed position as shown **113, 115** or could he hand held devices. These cameras would generally focus on the conductor **103** or on one of the principal players **105, 111,** etc. These performers could be singers in an opera, dancers, etc. In this type of setting the video images would generally be carried or transmitted to a control video receiver/processor/controller for retransmission to selected receivers and/or to video recorders. The retransmission would generally be by wireless means.

THE INVENTION

In the preferred embodiment of the invention each attendee in an auditorium could be provided with an inexpensive wireless viewing device which could be used unobtrusively without interfering with the person sitting in an adjacent seat. Without the expense of wiring each seat, the viewer would have a touchpad with a few buttons that allow him/her to choose to view the musical score as the piece is played, or see opera supertitles in one of several languages, or a close-up view of the French horn section whenever it has the solo part, or the trumpets, or the cellos etc. The viewer could also choose to watch the conductor's sweating face. This strategy is one commonly used during TV shows of symphony music. Television cameramen trained to focus the telephoto lens on the currently important part of the orchestra are very skillful at this. Thus the audience can have a sense of sitting in the midst of the orchestra or opera stage, of following the score and/or libretto, and of seeing in detail what is happening 'where the action is'.

Referring now to **Figure 2**, an exemplary system describing a preferred embodiment is described. In the system, a number of video cameras **201, 203, 204** are

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shown connected to a server device **207** which itself is connected to or a part of a system control device **209**. Also connected to the system control device **209** could be another server **211** (which itself may or may not be a part of server **207**) to which are connected one or more text input terminals or scanners **213, 215**. The text input terminals or scanners would be used for inputting musical scores, opera text in various languages, diagrams, etc. Also connected to the system control device **209** would be another server **221** which would receive "log-on" messages from attendee viewing devices **225, 227,229, 231, 233** As will be explained in more detail below, the attendee viewing device would transmit a "log-on" message whenever the attendee turned the device on. The log-on message to the server **221** provides the information for the particular device such as id number, information on how another part of the system can talk to the attendee device (perhaps device driver information), which frequencies it operates with, etc., basic characteristics of the viewing device. The server **221** provides the information required to communicate with the viewing devices to the system control unit **209** so that after log-on by a viewing device, the system control **209** con transmit video and text directly **217, 235, 237** to a viewing device **225**. It is contemplated that the system control device **209** would transmit all video and text data in a broadcast mode **217, 235** using different frequencies for each video camera and text channel, and an individual attendee viewing device **225** would receive **237** only the video or text data on the channel/frequency he selects by use of the selector buttons on the viewing device.

In an alternative embodiment, a simpler system would consist of a TV transmitter broadcasting all channels simultaneously, the channel selection to be done by the viewer as in a conventional TV receiver. More complex server technology is needed if it is desired to keep track of how attendees are using the system.

In a preferred embodiment of the invention it is expected that the attendee viewing devices would be devices having a Sun Microsystems Inc.™ Java™ operating system and a JINI™ capable system therein, with the server **221** being a JINI server. The entire system could be a Java/JINI based system with the video cameras **201, 203, 204** and the text input devices **213 215** and their related servers **207, 211** also being JINI compatible devices. Java and JINI are program systems provided by Sun Microsystems, Inc. and are well known to those skilled in these arts. JINI is described in more detail in the document titled

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"Jini(TM) Device Architecture Specification" which can be found at the Sun Microsystems web site www.sun.com/jini/whitepapers/ and which is incorporated fully herein by reference.

Alternative embodiments can include other plug-and-participate devices such as those provided by other network technologies complimentary to JINI, such as Bluetooth™, JetSend™ and HAVI™.

Bluetooth is a technology specification for low-cost, short range radio links among PDAs, laptops, mobile phones, and other portable devices. When two Bluetooth devices come close to each other, they automatically detect each other and establish a network connection. This is a network transport protocol that could be used to allow attendee viewing devices to be connected to a JINI compatible system without being physically connected. Bluetooth is being developed by IBM Corporation™, Intel Corporation™, Nokia Corporation™, Telephon AB™, L. M. Ericsson™ and Toshiba Corporation™.

Other technologies like Motorola's™ Piano, which can be built on top of Bluetooth, specifies what sort of information they exchange and how they communicate. It and other operating systems, like Symbian Ltd.s™ Epoc32 for cell phones, can support JINI technology.

Hewlett Packard's™ JetSend technology is another example of a service protocol that allows devices to intelligently negotiate information exchange. Similarly HAVI (Home Audio-Video interoperability) is a specification for home networks of consumer electronic devices such as CD players, televisions, VCRs, digital cameras etc. HAVI is an example of where a bridge protocol would be needed to share information between HAVI compatible devices and a JINI compatible system. HAVI is being developed by Grundig A. G.™, Hitachi Ltd.™, Matsushita Electric Industrial Co. Ltd.™, Phillips Electronics N.V.™, Sharp Corporation™, Sony Corporation™, Thompson Multimedia S. A.™, and Toshiba Corporation™.

Still another embodiment can make use of newly announced "Zipper-VDSL" technology from STMicroelectronics™ and Swedish Telecom operator Telia™, which is based on a new generation of silicon chips that are inexpensive to produce and capable of delivering full-motion video over ordinary phone lines at speeds 10 times faster than ADSL (asynchronous digital subscriber line) technology.

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An exemplary attendee viewing device **300** is illustrated in **Figure 3** As indicated above, in the preferred embodiment the attendee viewing device would be a Java/JINI compatible device with a processor, memory, battery for power with a preferable life of 6 hours, wireless capable input/output device. The attendee viewing device **300** has a flat panel display and a control panel **303**. The control panel has a wireless antenna **315** which can be folded into a holding slot **317** or alternatively could have a wireless antenna built into the case **303**. The control panel contains a plurality of buttons **305, 307, 309, 311, 313**. The buttons would perform the functions of turning the unit on and off; providing a method of intensity control of the screen; selecting a video image/camera; selecting among various text options; and selecting split screen viewing for viewing both a video image and text at the same time. It is contemplated that the buttons would be silent buttons so as not to perform any offensive clicking noises. Similarly the screen intensity would be controlled so as not to intrude on neighboring attendees. Only a few of the buttons would be used at any one time, but it would be useful for the central computer to know which buttons are in use so as to gather statistics on what the audience likes to see. The system could be tailored to fit different kinds of occasions, even lectures, classrooms, operas, sporting events, etc.

In the theatrical/musical performance setting, an alternative viewing device would include a pair of virtual glasses for viewing in a less obtrusive way for neighboring attendees with the glasses connected by wire to a small control box having the buttons, memory, processor, wireless receiver and JINI/Java or other plug-and-participate technology.

In the classroom setting, an alternative viewing device will have a connection to plug in a student's laptop computer, whereby text received by the viewing device (or laptop directly) can be stored for later viewing by the student attendee. Such text materials would be class notes, agenda, and other handouts from the instructor which could be received and viewed later so as not to interfere with the student's attention to the lecture itself.

In **Figure 4** a flow chart of the process of using the attendee viewer is shown. The attendee initially presses the on/off button to turn the device on **401**. This act initiates a JINI based transmission to the nearest JINI server (**221** in **Fig.2**) telling the server that the viewing device is actively in the system and can be accessed by the provided protocol. **403** The server informs the system control device (**209** in **Fig. 2**) which sends a "welcome"

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message to the viewing device so that the attendee knows he is in the system.**405** The user selects a video image/camera or text option **407** by depressing the appropriate button. When the attendee is finished using the viewing device he depresses the Off button to terminate the connection.

In **Figure 5** a flow chart is shown which indicates the operation of the system during the course of a performance/lecture.**500** When a viewing device (or any other JINI compatible device or other plug-and-participate type device such as a camera, scanner, etc.) plugs into the system, the JINI server receives the log-on, device ID data and device access driver/protocol data **501** which it records and makes available to other system users (i.e. the system control unit) **503**. The system control unit sets up mechanisms to receive data from the video cameras, for example) and to broadcast these data over a wireless output system **505, 507.** The attendee viewing devices can then tune to receive the video image or text data using their selection buttons.**509**.

In an alternative embodiment, the viewer can have a mechanism for the attendee to provide a response or question to the performer/lecturer if requested to do so by them. These features are not available from a video tape and would be a reason for the attendee to want to come to a live performance enhanced by the availability of the present invention.

Having described the invention in terms of a preferred embodiment, it will be recognized by those skilled in the art that various types of general purpose computer hardware may be substituted for the configuration described above to achieve an equivalent result. Similarly, it will be appreciated that arithmetic logic circuits are configured to perform each required means in the claims for performing the various features of video image processing, text processing, wireless receipt and transmission to short range viewing devices. It will be apparent to those skilled in the art that modifications and variations of the preferred embodiment are possible, such as different types or makes or configurations of viewing devices, different makes and types of video cameras and text input devices, different wireless communications systems, all of which fall within the true spirit and scope of the invention as measured by the following claims.

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CLAIMS

I claim:

1. An apparatus for viewing video, text or a combination of both in a symphonic, operatic, classroom, or other performance setting, the apparatus comprising:

a viewing device having a display, a memory, a processing unit and a control panel, the viewing device for use by an attendee; and

a control program in the memory adaptable to receive and display video images, or text data or both, the data and/or images being received from a transmission system, the transmission system operating in a performance venue to receive video and text data and retransmit the video and text data to the viewing device.

2. The apparatus of claim 1 wherein the video and text data is transmitted on different frequencies in a wireless transmission.

3. The apparatus of claim 1 wherein the processing unit in the viewing device contains an operating system and code allowing the viewing device to be a JINI compatible device.

4. A system for permitting attendees at a performance to selectively view video data or text data or both by use of a viewing device, the system comprising:

one or more video cameras for inputting video data images of performers, wherein the performers may be musicians, conductors, singers, actors, dancers, teachers or other speakers;

one or more input terminals for inputting text into the system;

a central control unit for receiving the video data and the text data, the central control unit having input/output units, memory, a processing unit and a short range transmission capability; and

one or more attendee viewing devices capable of receiving video and text transmissions from the central control unit.

BNSDOCID: <WO_____0133859A1_I_>

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5. The system of claim 4 wherein the attendee viewing devices are JINI compatible devices and the system is JINI compatible, wherein being JINI compatible means having code in the device or system conforming to the JINI protocol.

6. The system of claim 4 wherein the performance is a symphony or an opera or a ballet or a play or a classroom lecture.

7. A method for enhancing the enjoyment of attendees at a performance, the method comprising the steps of:

obtaining an attendee viewing device;

turning the attendee viewing device on to cause it to log-on to a viewing system located in a venue of the performance; and

selecting on the attendee viewing device a video image from a camera in the viewing system or selecting text provided by the viewing system, or selecting a combination of video and text for display on a split screen.

8. The method of claim 7 wherein the attendee viewing device is a JINI compatible device.

9. The method of claim 7 wherein the video and text data are transmitted from the viewing system in a wireless transmission.

10. The method of claim 8 wherein the viewing system is a JINI compatible system.

11 A system for permitting attendees at a performance to selectively view video or text or both, the system comprising:

means for viewing video or text or both for the performance in a seat location in a venue of the performance;

means for collecting video and or text relating to the performance and for retransmitting the video or text data to nearby qualified viewing devices.

BNSDOCID: <WO_____0133859A1_I_>

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12. The system of claim 11 wherein the performance is a training or classroom lecture in one of a college, a business location, and a third venue location separate from the college or business location.

BNSDOCID: <WO_____0133859A1_I_>

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APPLE EX1008 Page 399

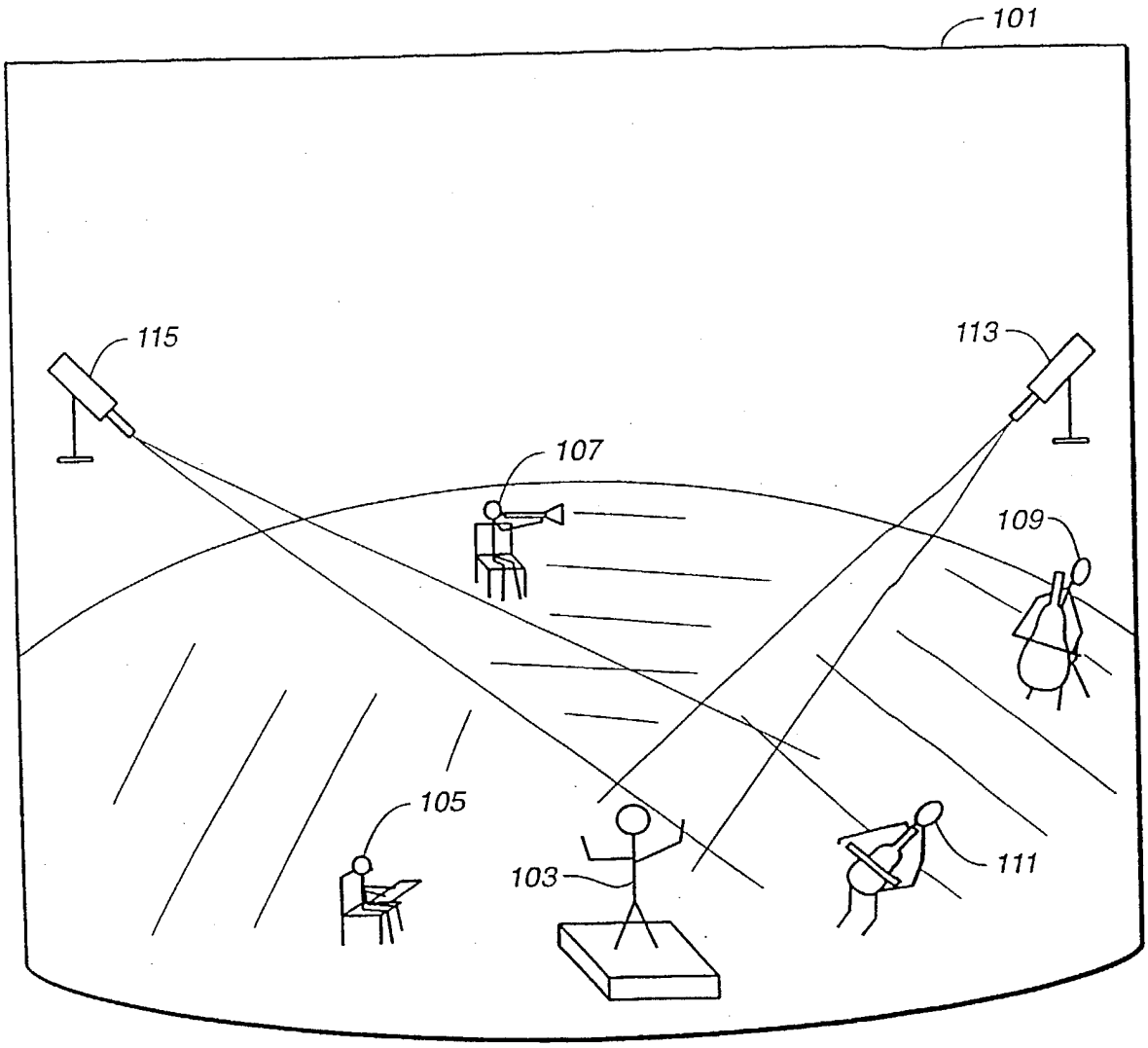


FIG._1

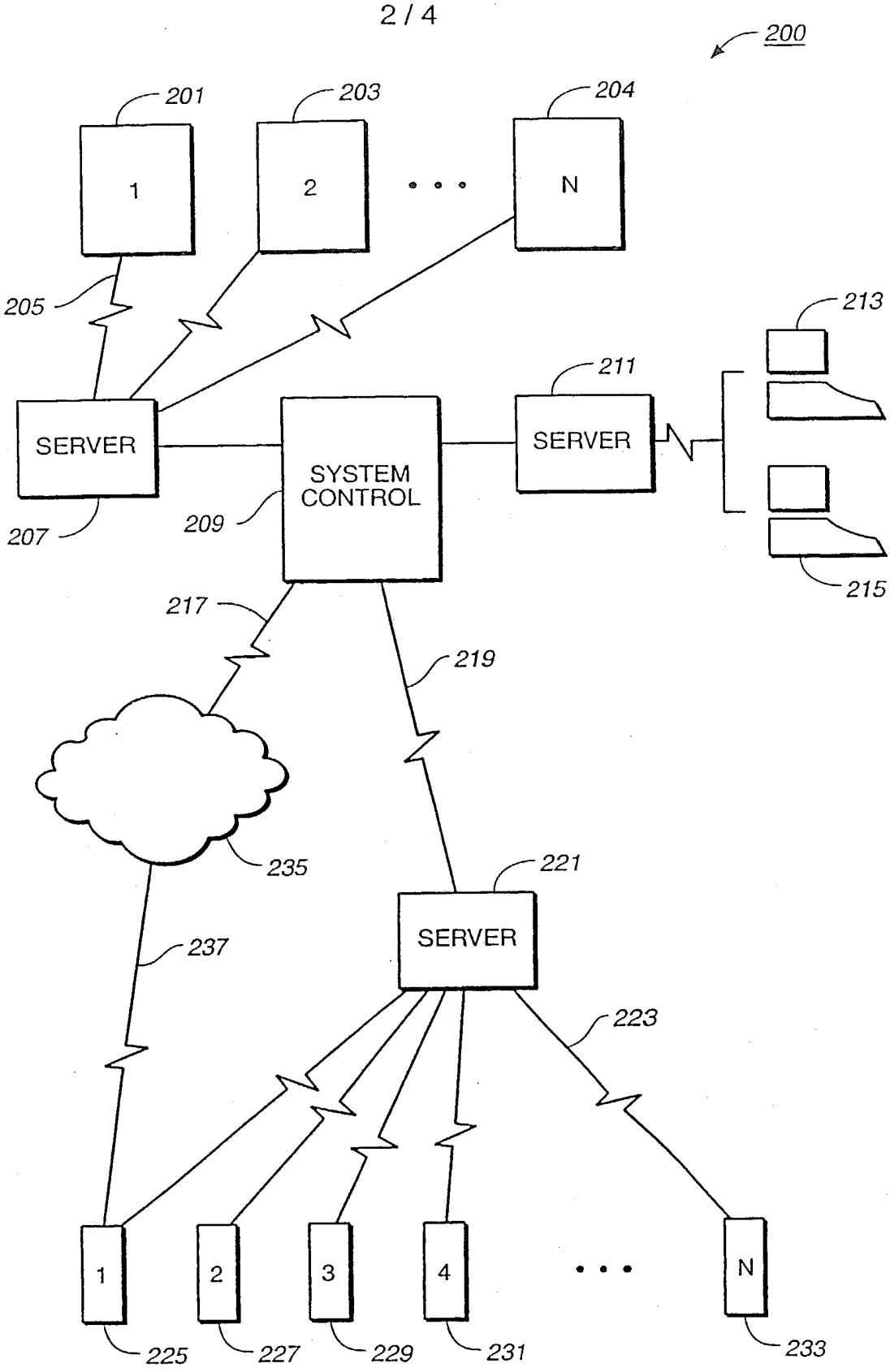

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FIG._2

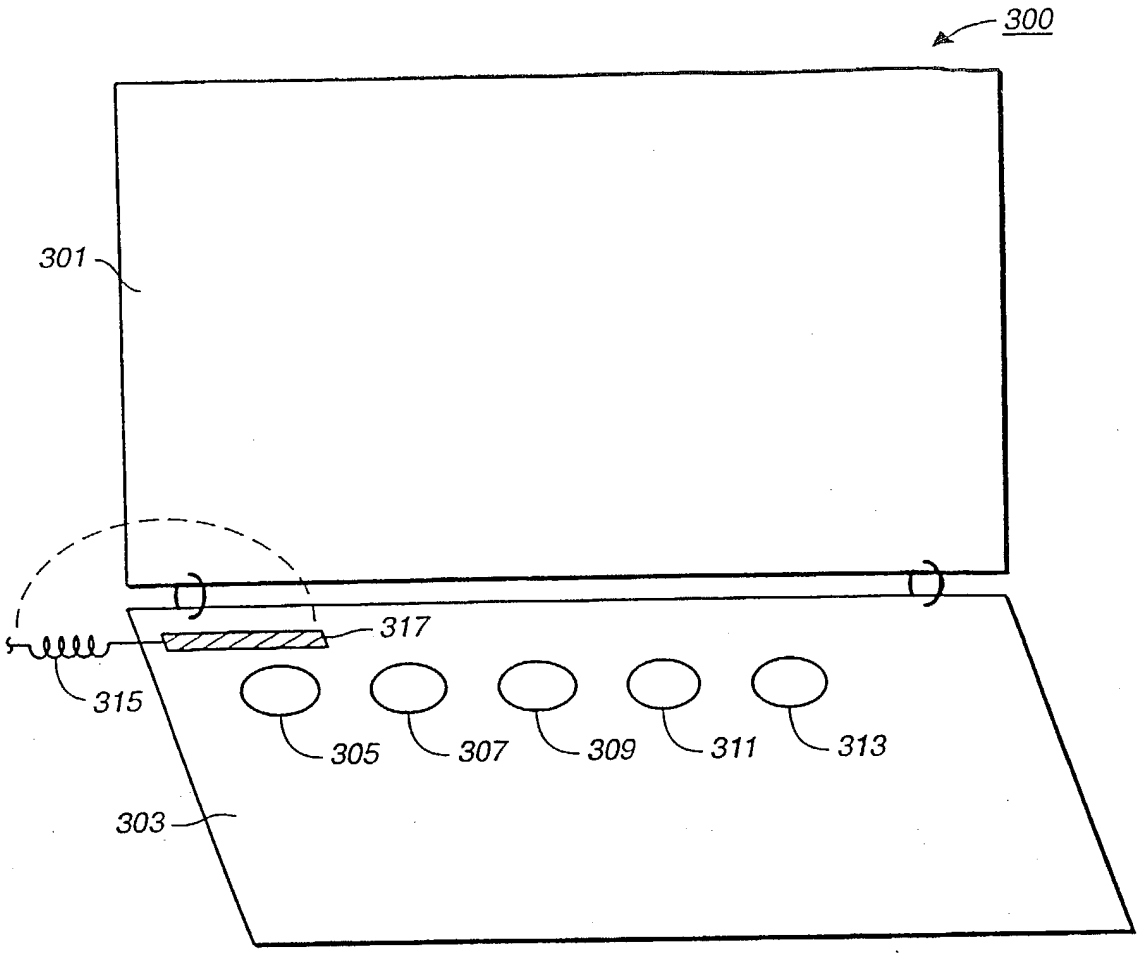


FIG._3

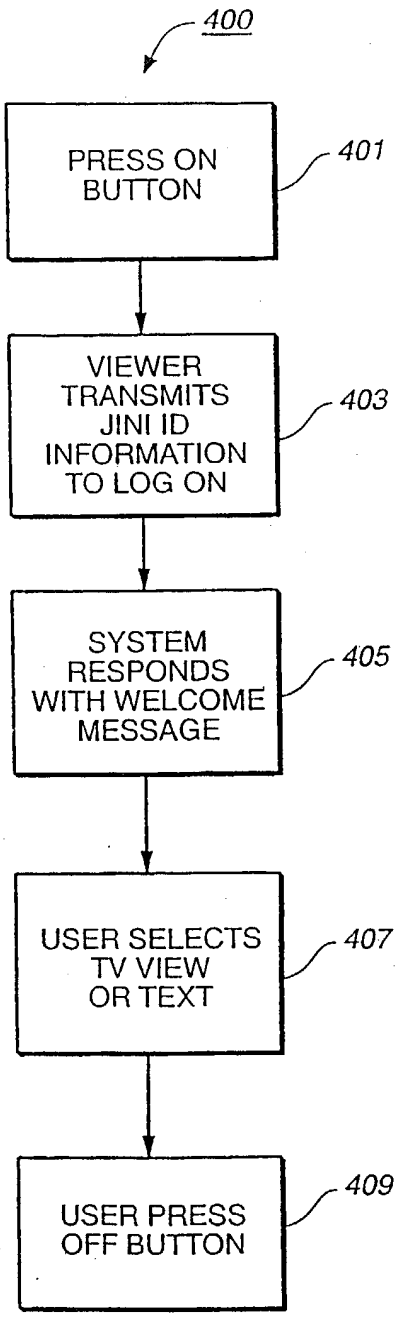

400
PRESS ON BUTTON
401
VIEWER TRANSMITS JINI ID INFORMATION TO LOG ON
403
SYSTEM RESPONDS WITH WELCOME MESSAGE
405
USER SELECTS TV VIEW OR TEXT
407
USER PRESS OFF BUTTON
409

FIG._4

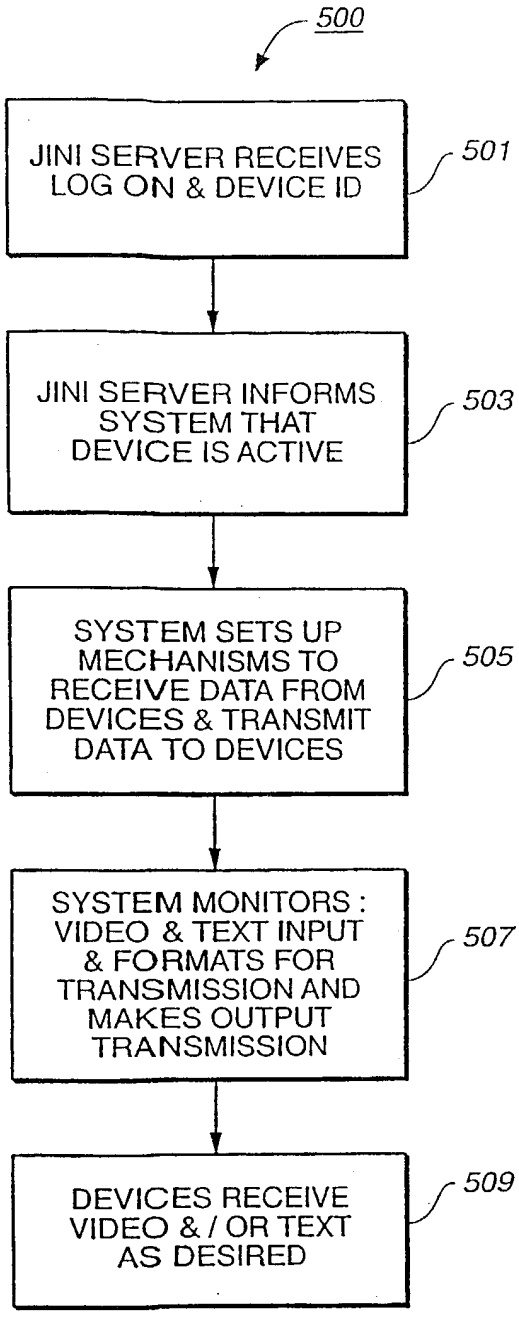

500
JINI SERVER RECEIVES LOG ON & DEVICE ID
501
JINI SERVER INFORMS SYSTEM THAT DEVICE IS ACTIVE
503
SYSTEM SETS UP MECHANISMS TO RECEIVE DATA FROM DEVICES & TRANSMIT DATA TO DEVICES
505
SYSTEM MONITORS : VIDEO & TEXT INPUT & FORMATS FOR TRANSMISSION AND MAKES OUTPUT TRANSMISSION
507
DEVICES RECEIVE VIDEO & / OR TEXT AS DESIRED
509

FIG._5

INTERNATIONAL SEARCH REPORT

.ernational Application No
PCT/US 00/41629

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N7/173

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

B. FIELDS SEARCHED

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

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 459 419 A (SONY CORP) 4 December 1991 (1991-12-04) the whole document ---	1,2,4,6, 7,9,11, 12
Y	EP 0 277 015 A (SONY CORP) 3 August 1988 (1988-08-03) the whole document ---	1,2,4,6, 7,9,11, 12
A	US 5 833 468 A (GUY FREDERICK R ET AL) 10 November 1998 (1998-11-10) the whole document ---	1-12
A	US 5 537 141 A (FREEMAN MICHAEL J ET AL) 16 July 1996 (1996-07-16) column 3, line 51 -column 4, line 39 column 9, line 17 -column 26, line 18 --- -/--	1-12

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

[X] Patent family members are listed in annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 April 2001	25/04/2001

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

2

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BNSDOCID: <WO_____0133859A1_I_>

IPR2024-00731
APPLE EX1008 Page 404

INTERNATIONAL SEARCH REPORT

.ernational Application No
PCT/US 00/41629

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 600 368 A (MATTHEWS III JOSEPH H) 4 February 1997 (1997-02-04) column 2, line 1 -column 2, line 39	1-12

Form PCT/ISA/210 (continuation of second sheet) (July 1992)

BNSDOCID: <WO_____0133859A1_I_>

IPR2024-00731
APPLE EX1008 Page 405

INTERNATIONAL SEARCH REPORT

Information on patent family members

ernational Application No
PCT/US 00/41629

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 5600368 A	04-02-1997	NONE	

BNSDOCID: <WO_____0133859A1_I_>

IPR2024-00731
APPLE EX1008 Page 406

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(25) Filing Language: English

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(30) Priority Data:
60/163,893 5 November 1999 (05.11.1999) US

(71) Applicant and
(72) Inventor: GLASER, Donald, A. [US/US]; 41 Hill Road, Berkeley, CA 94078 (US).

(74) Agents: BASINSKI, Erwin, J. et al.; Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, CA 94304-1018 (US).

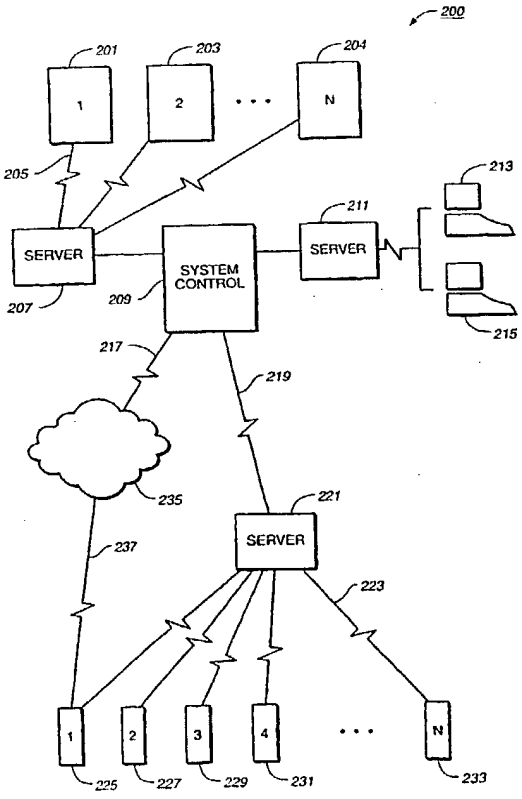
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*

[Continued on next page]

(54) Title: A METHOD AND SYSTEM FOR AUDIENCE PARTICIPATION AND SELECTIVE VIEWING OF VARIOUS ASPECTS OF A PUBLIC PERFORMANCE OR A TEACHING VENUE



(57) Abstract: The present invention provides a solution to the problem of providing a cost effective means of enhancing the pleasure of an attendee at a musical or dramatic or other type of public performance, or at a large classroom or other teaching venue, through a system and method for collecting video images and text at a performance, transmitting these data to authorized individual viewing devices in an attendee's possession at the performance venue, the attendee being able to select the video image desired or text or a combination of both for viewing at the attendee's location.

WO 01/33859 A1



— *Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.*

(48) Date of publication of this corrected version:
7 June 2001

(15) Information about Correction:
see PCT Gazette No. 23/2001 of 7 June 2001, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

OIPE JC136
JUL 10 2003
PATENT & TRADEMARK OFFICE

File No. 42037-0001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.	:	10/407,222
Filing Date	:	04/07/2003
Group Art Unit:		2171
Examiner	:	Not yet known
Title	:	AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
Applicant	:	Paul Poniatowski
Our File	:	42092-0001

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INFORMATION DISCLOSURE STATEMENT (37 C.F.R. §1,97(b))

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

With regard to the above-identified application, the items of information listed on the enclosed Form 1449 are brought to the attention of the Examiner.

This statement should be considered because it is submitted before the mailing date of a first Office Action on-the-merits. Accordingly, no fee is due for consideration of the items listed on the enclosed Form 1449.

In accordance with 37 C.F.R. §1.98 (a)(2), a copy of each document or other information listed on the enclosed Form 1449 is provided.

No representation is made that a reference is "prior art" within the meaning of 35 U.S.C. §§ 102 and 103 and Applicants reserve the right, pursuant to 37 C.F.R. § 1.131 or otherwise, to establish that the reference(s) are not "prior art".

...2

Moreover, Applicants do not represent that a reference has been thoroughly reviewed or that any relevance of any portion of a reference is intended.

Consideration of the items listed is respectfully requested. Pursuant to the provisions of M.P.E.P. 609, it is requested that the Examiner return a copy of the attached Form 1449, marked as being considered and initialed by the Examiner, to the undersigned with the next official communication.

Our self-addressed stamped return post card is enclosed herewith. Please date stamp this and return the same to us.

Respectfully submitted,

July 9, 2003
AB:aey

By:_____
Arturo Brion Reg. No. 51,374

CASSAN MACLEAN
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Tel: (613) 238-6404

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Sheet | | of | |

Complete if Known	
Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	Paul Poniatowski
Art Unit	2171
Examiner Name	unknown
Attorney Docket Number	42092-0001

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	A1	US- 5,774,534	06-30-1998	MAYER	
	A2	US- 2001/0032131 A1	10-18-2001	MOWRY	
	A3	US- 2002/0022476 A1	02-21-2002	GO	
	A4	US- 2002/0094787 A1	07-18-2002	AVNET ET AL	
	A5	US- 2002/0130967 A1	09-19-2002	SWEETSER	
	A6	US- 2002/0162113 A1	10-31-2002	HUNTER	
	A7	US- 2002/0194622 A1	12-19-2002	LORD	
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	B1	GB 2 344 009 A	05-24-2000	Roke Manor...		
	B2	WO 01/27899 A1	04-19-2001	Adapt Media Inc		
	B3	WO 02/093544 A1	11-21-2002	Monarch Adver		

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Application Number	10/407,222
Filing Date	04/07/2003
First Named Inventor	Paul Poniatwoski
Art Unit	2171
Examiner Name	
Attorney Docket Number	42092-0001

Total Number of Pages in This Submission: 227

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- ☐ Affidavits/declaration(s)
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- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
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- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
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B1

(12) UK Patent Application (19) GB (11) 2 344 009 (13) A

(43) Date of A Publication 24.05.2000

(21) Application No 9923779.4

(22) Date of Filing 08.10.1999

(30) Priority Data
(31) 9822022 (32) 09.10.1998 (33) GB

(71) Applicant(s)
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Geoffrey Alan Halls

(74) Agent and/or Address for Service
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Siemens Group Services Limited, Intellectual Property Department, Siemens House, Oldbury, BRACKNELL, Berkshire, RG12 8FZ, United Kingdom

(51) INT CL[7]
H04N 7/08

(52) UK CL (Edition R)
H3Q QCD Q200
H4F FBB

(56) Documents Cited
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US 5774170 A US 4390901 A

(58) Field of Search
UK CL (Edition R) H3Q QCD , H4F FBB
INT CL[7] H04N 7/088
Online: EPODOC,WPI,PAJ

(54) Abstract Title

A TV or radio receiver that enables targetted advertising and programme display

(57) A TV, radio, DBS decoder or mobile phone enables advertising and programme broadcasts to be selectively displayed on the basis of receiver location or a user profile. The receiver determines its location by means of GPS, LORAN or by use of a cellular telephone. The receiver determines the user profile by interrogation. The receiver filters the received broadcast programmes and adverts for selective display according to the receiver location or user profile. The apparatus may be used in conjunction with a UMTS subscriber unit.

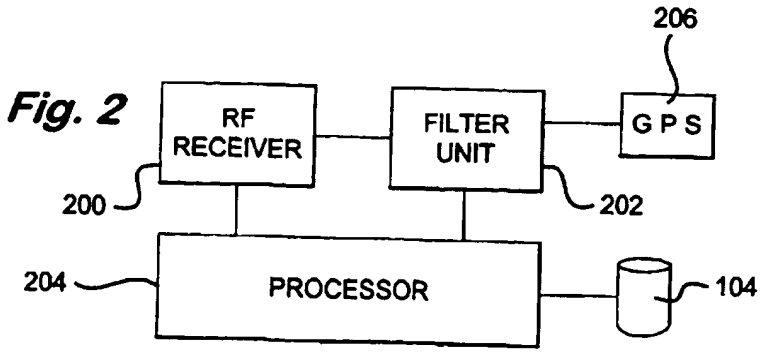


Fig. 2

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GB 2 344 009 A

Fig. 1

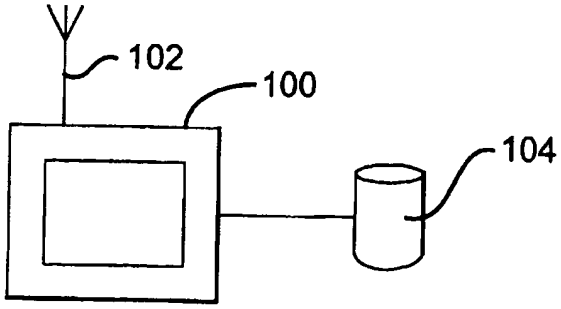


Fig. 2

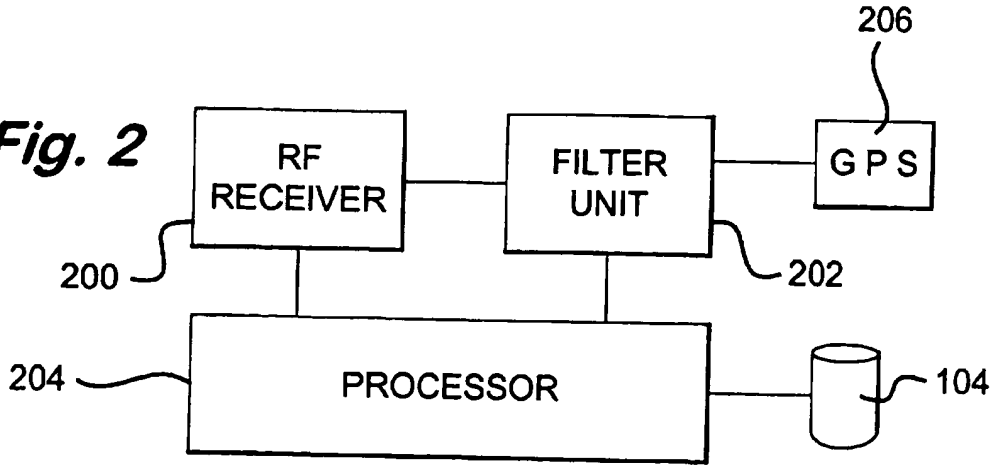
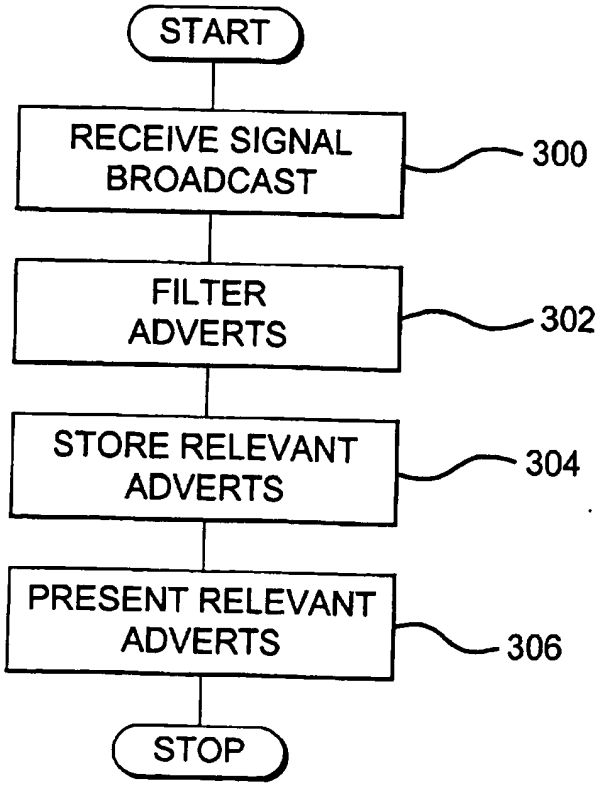


Fig. 3



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METHOD AND APPRATUS FOR RECEIVING A MEDIA BROADCAST

The present invention relates to a method and apparatus for receiving a media broadcast, for example a television programme containing advertisements.

It is known, when broadcasting television programmes, to separate the broadcast into parts between which advertisements are broadcast to viewers; this is sometimes known as a "commercial break". Typically, a television network is divided into regions and different advertisements are broadcast in different regions, for example, when an advertiser does not have a business interest in certain regions. Thus, viewers in different regions are exposed to different advertisements.

However, it has been recognised that it would be desirable to transmit advertisements to specific localities within a given region, for example, to a specific town. Alternatively or additionally, it has also been recognised that it is desirable to broadcast specific advertisements to viewers having specific interests or profiles.

It is therefore an object of the present invention to provide a method and apparatus to achieve the above mentioned objectives.

According to the present invention, there is provided an apparatus for receiving a media broadcast, comprising a receiver for receiving broadcast media information, the receiver being coupled to means for presenting the media information to a member of an audience of the media broadcast, and an information filter unit arranged to selectively permit the means for presenting the media information to present a predetermined portion of the media information in accordance with a predetermined criterion.

Preferably, the media information is in the form of a television or radio broadcast.

Preferably, the predetermined criterion is the location of the means for receiving the media broadcast.

Preferably, the predetermined portion of the media information is information relating to at least one advertisement. More preferably, the information relating to the at least one advertisement is broadcast on a side channel. Very preferably, at least the information relating to the at least one advertisement comprises data relating to an intended audience of the at least one advertisement.

Preferably, the apparatus further comprises a location determining unit arranged to determine the location of the means for presenting the media information, the location of the means for presenting the media information being used by the filter unit. More preferably, the location determining unit is arranged to receive Global Positioning Satellite (GPS) information. Very preferably, the location determining unit is a GPS receiver. Alternatively, the location determining unit is arranged to receive low-frequency radio navigation information. Preferably, the location determining unit is a Long Range radio Navigation (LORAN) receiver. Alternatively, the location determining unit is arranged to receive radio signal from a wireless telecommunications network. Preferably, the location determining unit is a cellular telephone.

Alternatively, the location determining unit is arranged to receive a predetermined list of locations broadcast via the receiver, a location from the list of locations being selectable by a member of the audience of the media broadcast. Alternatively, the location of the apparatus is entered by the viewer, for example, a post or zip code, and in the case of error, a default location is selected. The apparatus may be further arranged to obtain socio-economic information relating to the member of the audience of the media broadcast corresponding to the

determined location of the apparatus, the socio-economic information being used by the filter unit to determine the predetermined portion of the media information.

Alternatively or additionally, the criteria is at least one interest of the member of the audience of the media broadcast, for example, a hobby, such as stamp collecting or model building, or the criterion is a profile of the member of the audience of the media broadcast, for example, a type of holiday preferred by the audience member, an income, credit rating, marital status and/or number of dependants of the audience member. The criterion may also be used to select relevant programmes of interest to the audience member.

It should be appreciated that the above examples relating to the at least one interest or profile are merely for exemplary purposes only and others are envisaged. Also, where reference is made to a member of the audience of the media broadcast, it is intended that the above criterion may apply to more than one member of the audience of the media broadcast.

Preferably, the apparatus further comprises interrogation means for obtaining information relating to the criterion. The interrogation means may be arranged to ask the audience member a predetermined set of questions in order to determine the criterion. The interrogation means may be arranged to interrogate the audience member before, during, or after the apparatus is arranged to set itself up, for example, by scanning for channels. The interrogation means may be arranged to interrogate the audience member further at a future point in time in order to derive more information about the audience member.

The apparatus may be a television, radio or multimedia unit, or a decoder unit, for example, of the type used to decode satellite broadcasts.

Where the apparatus is used in conjunction with a telecommunications network, additional information relating to the audience member may be derived from information stored on a remote computer accessible either directly via the

telecommunications network or via the Internet. The telecommunications network may be a fixed or mobile telecommunications network,

Where the apparatus is used in conjunction with a Universal Mobile Telecommunications System (UMTS) subscriber unit, additional information relating to the audience member may be derived from a network operator or directly by a UMTS handset, for example, call frequency or duration (this could be an indication of likelihood of impulse buying).

The information relating to the profile of the audience member may be supplemented by recording information relating to audience trends, for example, types of programmes watched or listened to by the audience member.

It should be noted that although reference has been made to the member of the audience of the media broadcast, this term is intended to include viewers where the means for presenting the media information is a television, a listener where the means for presenting the media information is a radio, and other forms of consumption of broadcast or on-demand multimedia information.

According to the present invention, there is also provided a method of receiving a media broadcast, comprising the steps of: receiving broadcast media information; filtering the media broadcast according to a predetermined criterion in order to identify a predetermined portion of the media broadcast relevant to a member of an audience of the media broadcast, and presenting the filtered predetermined portion of the media broadcast.

It is thus possible to provide a method and apparatus for receiving a broadcast which is capable of presenting highly relevant and targeted advertisements or other information to a viewer in a predetermined location.

At least one embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of apparatus constituting an embodiment of the invention;

Figure 2 is a schematic diagram of a portion of the apparatus of Figure 1 in more detail, and

Figure 3 is a flow diagram of a method for use with the apparatus of Figure 1.

Throughout the description, like reference numerals will be used in order to identify like parts.

A television 100 (Figure 1) is coupled to an antenna 102 and a data storage device, for example, a cache memory unit 104. Although the cache memory unit 104 has been shown as a separate device, it should be appreciated that the cache memory unit 104 can be integral with the television 100.

Referring to Figure 2, the television 100 comprises a Radio Frequency (RF) receiver 200 which is capable of being coupled to the antenna 102, the RF receiver 200 is coupled to a filter unit 202 and a processor 204. It is conceivable that the filter unit 202 and the processor 204 can be implemented as a single digital signal processor unit. The filter unit 202 is also coupled to a GPS receiver 206 and the processor 204, the processor being coupled to the cache memory unit 104. It should be appreciated that the present invention is not limited to the use of a cache memory unit, and the use of other data storage devices is envisaged. Also, the use of other location determining equipment is envisaged, for example, a low-frequency radio navigation information receiver, such as a LORAN receiver, or a cellular telephone based localisation system.

Although a television has been described above, it should be appreciated that the present invention is not limited to a television and can be applied to other media equipment, for example, a radio or a decoder unit or a cellular telephone handset, which may support voice and/or multimedia calls .

During normal operation (Figure 3), a media broadcast, for example, a television or radio broadcast is received (step 300) by the RF receiver 200 via the antenna 102. The media broadcast, can be a digital television signal or, in the case of a radio broadcast, a Digital Audio Broadcast (DAB). Simultaneously with a television programme, data corresponding to at least one advertisement is broadcast on a side-channel and received by the RF receiver 200 during a television programme so that a large number, for example, several hundred, advertisements can be broadcast. As is well known in the art, side-channels are secondary channels used for broadcasting auxiliary information, separate from the primary information being broadcast.

The side-channel can be detected when the television is powered-up by performing a scan for channels. The data corresponding to at least one advertisement contained in the media broadcast includes a header comprising location, profile and/or interest data relating to a viewer or group of viewers. The information carried by the header is filtered (step 302) by the filtering unit 202 using location information provided by the GPS receiver 206 in order to determine which advertisements are relevant for a location of the television 100.

In addition to the location information, the processor 204 can be programmed to obtain socio-economic information relating to the viewer, for example: income, credit rating or marital status information, and pass the socio-economic information to the filtering unit 202 to improve identification of advertisements most relevant to the viewer. The socio-economic information can be obtained by means of a predetermined set of questions presented to the viewer by the processor 204. Furthermore, the questions can be asked before, during or after the above apparatus is set up. Alternatively, the socio-economic information can be obtained by via other means, for example, a telecommunications network.

The information can be stored within the processor 204 or the cache memory unit 104.

The advertisements determined as relating to the location of the television, are stored (step 304) in the cache memory unit 104. Alternatively or additionally, the header can include data identifying a particular advertisement as relevant to viewers having a particular profile or interests. Also, the memory unit 104 can store information relating to programmes viewed by the viewer to improve the stored profile of the viewer, i.e. viewing interests and trends.

At an appropriate time, for example during a commercial break, the processor 204 retrieves the relevant advertisements stored by the cache memory unit 104 and initiates presentation (step 306) of the relevant advertisements to the viewer in accordance with any known method in the art.

With conventional television advertising a single series of advertisements are broadcast and displayed during the commercial break. In the example described above, many hundreds or thousands of advertisements can be broadcast as side channels during the programme broadcast period prior to the commercial break, the television 100 storing and subsequently displaying only those advertisements of high relevance to the local viewer, thereby enabling the broadcaster to provide a highly geographically localised, personally targeted and thus relevant advertising service.

Alternatively, relevant advertisements can be displayed using picture-in-picture overlays during related programming, rather than during separate commercial breaks.

Prior to normal operation, the above-described apparatus is set-up. In one example of a set up procedure, the receiver 200 receives a list of geographic locations and the processor 204 displays the list to the viewer. The viewer is prompted by the processor 204 to select a geographic location from the list of

geographic locations presented, the geographic location selected corresponding to the location of the viewer or a closest geographic location to the viewer. The set-up procedure obviates the need for the GPS receiver 206, or the like.

In another example of the set-up procedure, the processor 204 asks the viewer to provide details of the viewer's location by entering a postal (or zip) code via a remote control or keypad. In the case of an inaccurate postal code being provided, the processor 204 selects a default location.

In an alternative example, the set-up procedure occurs during a scan for channels procedure which occurs when a television is switched on for the first time. The scan for channels procedure is a well known in the art and comprises scanning the known broadcast frequencies to determined which channels can be received in that location and storing these as preset options. Alternatively, the viewer can initiate a scan for channels procedure. By combining interrogation of the viewer with the scan for channels procedure it encourages the viewer to respond to the questions and ensures that the required personal data is gathered from the viewer.

In another embodiment of the invention, the television comprises a Universal Mobile Telecommunications System (UMTS) subscriber unit/module. This allows the viewer to receive programmes while away from home. It also enables additional information relating to the viewer to be obtained directly from a UMTS network operator.

It is not intended that the present invention be limited to the above example and other modifications and variations are envisaged within the scope of the claims.

CLAIMS

1. An apparatus for receiving a media broadcast, comprising a receiver for receiving broadcast media information, the receiver being coupled to means for presenting the media information to a member of an audience of the media broadcast, and an information filter unit arranged to selectively permit the means for presenting the media information to present a predetermined portion of the media information in accordance with a predetermined criterion.

2. An apparatus as claimed in Claim 1, wherein the media information is in the form of a television or radio broadcast.

3. An apparatus as claimed in Claim 1, wherein the predetermined criterion is the location of the means for presenting the media broadcast.

4. An apparatus as claimed in Claim 1, wherein the predetermined portion of the media information is information relating to at least one advertisement.

5. An apparatus as claimed in Claim 4, wherein the information relating to the at least one advertisement is broadcast on a side channel.

6. An apparatus as claimed in Claim 4, wherein at least the information relating to the at least one advertisement comprises data relating to an intended audience of the at least one advertisement.

7. An apparatus as claimed in Claim 1, further comprises a location determining unit arranged to determine the location of the means for presenting

the media information, the location of the means for presenting the media information being used by the filter unit.

8. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive Global Positioning Satellite (GPS) information.

9. An apparatus as claimed in Claim 7, wherein the location determining unit is a GPS receiver.

10. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive low-frequency radio navigation information.

11. An apparatus as claimed in Claim 10, wherein the location determining unit is a Long Range radio Navigation (LORAN) receiver.

12. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive radio signals from a wireless telecommunications system.

13. An apparatus as claimed in Claim 12, wherein the location determining unit is a cellular telephone.

14. An apparatus as claimed in Claim 7, wherein the location determining unit is arranged to receive a predetermined list of locations broadcast via the receiver, a location from the list of locations being selectable by a member of the audience of the media broadcast.

15. An apparatus as claimed in Claim 3, wherein the location of the means for presenting the media broadcast is entered by the member of the audience of the media broadcast.

16. An apparatus as claimed in Claim 1, wherein the apparatus is further arranged to obtain socio-economic information relating to the member of the audience of the media broadcast corresponding to the determined location of the apparatus, the socio-economic information being used by the filter unit to determine the predetermined portion of the media information.

17. An apparatus as claimed in Claim 1, wherein the criterion is at least one interest of the member of the audience of the media broadcast.

18. An apparatus as claimed in Claim 1, wherein the criterion is a profile of the member of the audience of the media broadcast.

19. An apparatus as claimed in Claim 1, wherein the criterion is used to select relevant programmes of interest to the member of the audience of the media broadcast.

20. An apparatus as claimed in Claim 1, further comprising interrogation means for obtaining information relating to the criterion.

21. An apparatus as claimed in Claim 20, wherein the interrogation means is arranged to ask the member of the audience of the media broadcast a predetermined set of questions in order to determine the criterion.

22. An apparatus as claimed in Claim 20, wherein the apparatus has a self set-up facility and the interrogation means is arranged to interrogate the member of the audience of the media broadcast before, during, or after self set-up.

23. An apparatus as claimed in Claim 22, wherein the self set-up facility comprises a scan for channels.

24. An apparatus as claimed in Claim 20, wherein the interrogation means is arranged to interrogate the member of the audience of the media broadcast further at a future point in time in order to derive more information about the member of the audience of the media broadcast.

25. An apparatus as claimed in Claim 1, further comprising a Universal Mobile Telecommunications System (UMTS) subscriber unit.

26. An apparatus as claimed in Claim 25, wherein additional information relating to the member of the audience of the media broadcast is derived from a network operator or directly by a UMTS handset.

27. An apparatus as claimed in Claim 1, wherein the information relating to the profile of the member of the audience of the media broadcast is supplemented by recording information relating to trends in media information presented to the member of the audience of the media broadcast.

28. A television comprising the apparatus as claimed in any one of the preceding claims.

29. A radio comprising the apparatus as claimed in any one of Claims 1 to 27.

30. A decoder unit comprising the apparatus as claimed in any one of Claims 1 to 27.

31. A cellular telephone comprising the apparatus as claimed in any one of Claims 1 to 27.

32. A method of receiving a media broadcast, comprising the steps of: receiving broadcast media information; filtering the media broadcast according to a predetermined criterion in order to identify a predetermined portion of the media broadcast relevant to a member of an audience of the media broadcast, and presenting the filtered predetermined portion of the media broadcast.

33. An apparatus for receiving a media broadcast substantially as hereinbefore described with reference to Figures 1 and 2.

34. A method of receiving a media broadcast substantially as hereinbefore described with reference to Figure 3.

The Patent Office

INVESTOR IN PEOPLE

Application No: GB 9923779.4 **Examiner:** Keith Sylvan
Claims searched: 1-34 **Date of search:** 14 March 2000

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): H4F (FBB) H3Q (QCD)

Int Cl (Ed.7): H04N (7/088)

Other: Online: EPODOC,WPI,PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB2311442 A	Maling. See the abstract and page 8 lines 25-29.	1,2,3,15, 28,29,32
X	EP0424648 A2	General Instrument. See the abstract and column1 line 51 to column 2 line 15.	1,4, 6, 18,28,30, 32
X,P	WO99/45702 A1	Prevue International. See the abstract.	1,2,4,17, 18,27,28, 32
X,P	WO99/30493 A1	Cogent Technology. See the abstract.	1-5,17, 18,27,28, 30,32
X	WO97/17774 A1	Seiko Communications. See the abstract.	1,2,4,5,6, 17,18,29, 32
Y	US5798785	Discovery Communications. See column 29 lines 49-54.	20,21
X	US5774170	Hite. See abstract.	1,4,16, 17,27-32

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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The Patent Office

INVESTOR IN PEOPLE

Application No: GB 9923779.4 **Examiner:** Keith Sylvan
Claims searched: 1-34 **Date of search:** 14 March 2000

Category	Identity of document and relevant passage		Relevant to claims
X,Y	US4390901	Keiser. See abstract and column 4 lines 14-16.	X:1,2,16,18,19,28,32 Y: 20,21

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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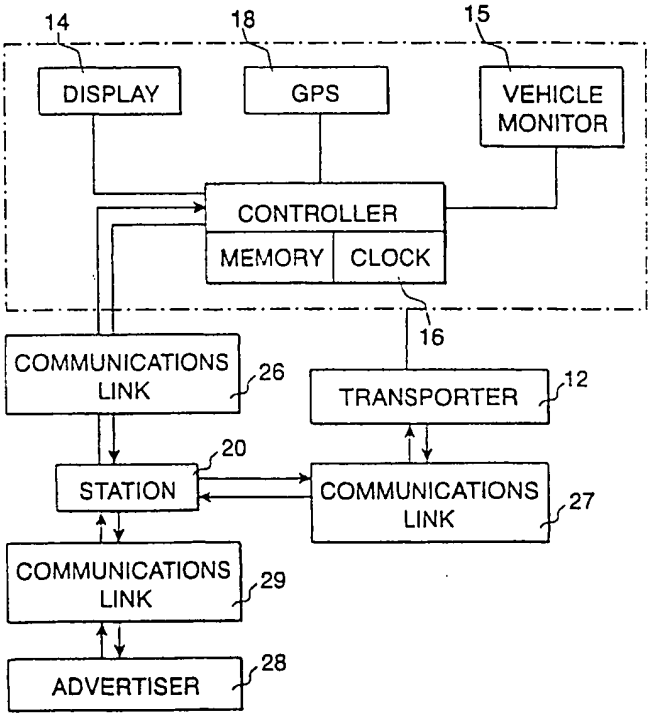
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(54) Title: MOBILE ADVERTISING SYSTEM



(57) Abstract: A mobile display system (10) comprises one or more movable billboard displays (14) equipped with externally viewable display panels and a controller (16). The display is moved from location zone to location zone by a transporter (12) which may comprise a person or a vehicle. The controller ascertains the display location and drives the display to generate a publicly viewable message selected for viewing within such location zone. The message is displayed pursuant to a schedule. A tiered system control network includes a plurality of fixed stations (20) which transmit message content and scheduling data to the controller and which generate billing and other accounting records. An advertiser (28) may communicate with the network for creating and changing message content and scheduling data.

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Fig. 1

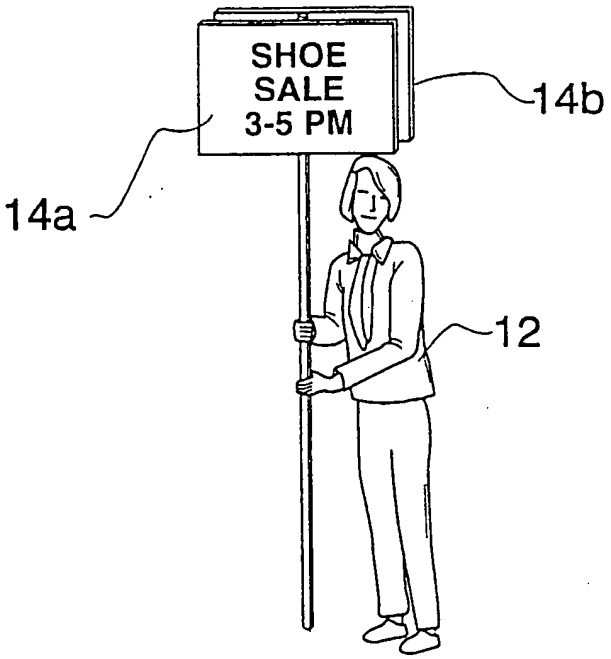
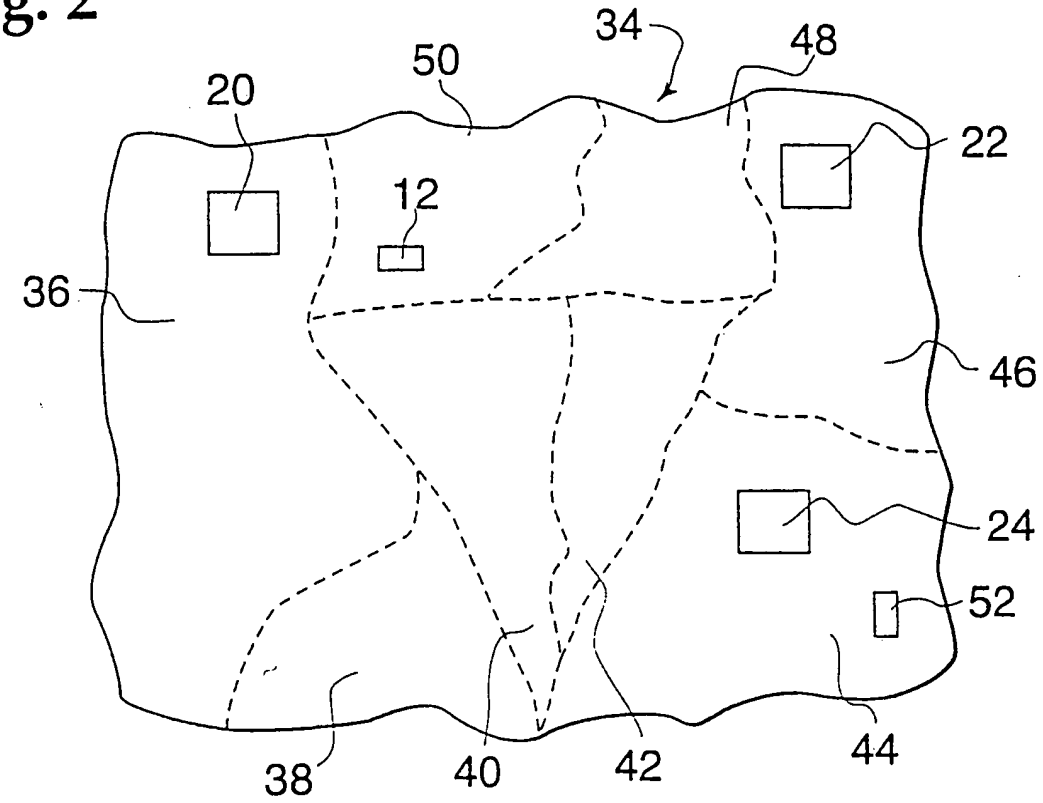
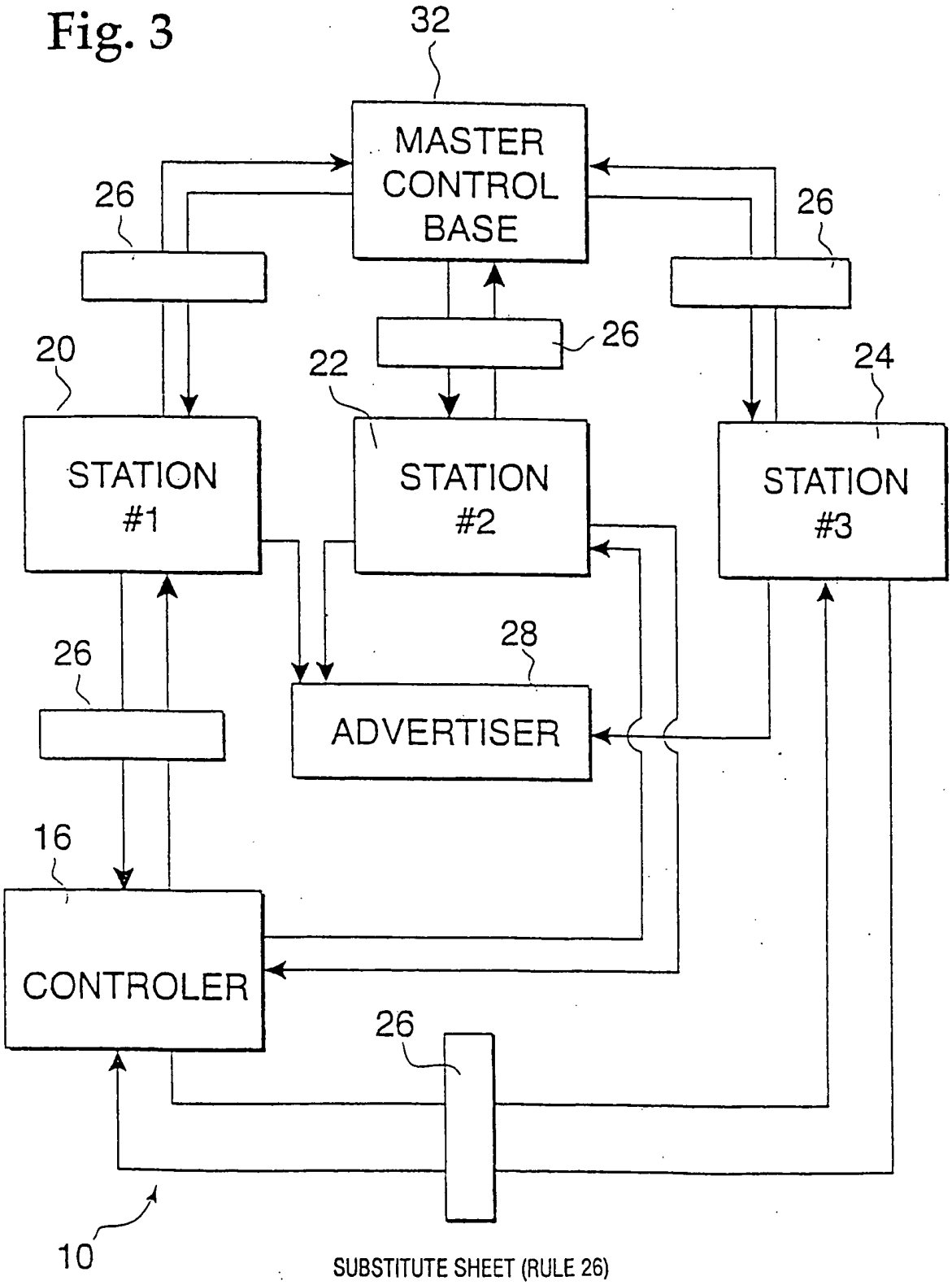


Fig. 2



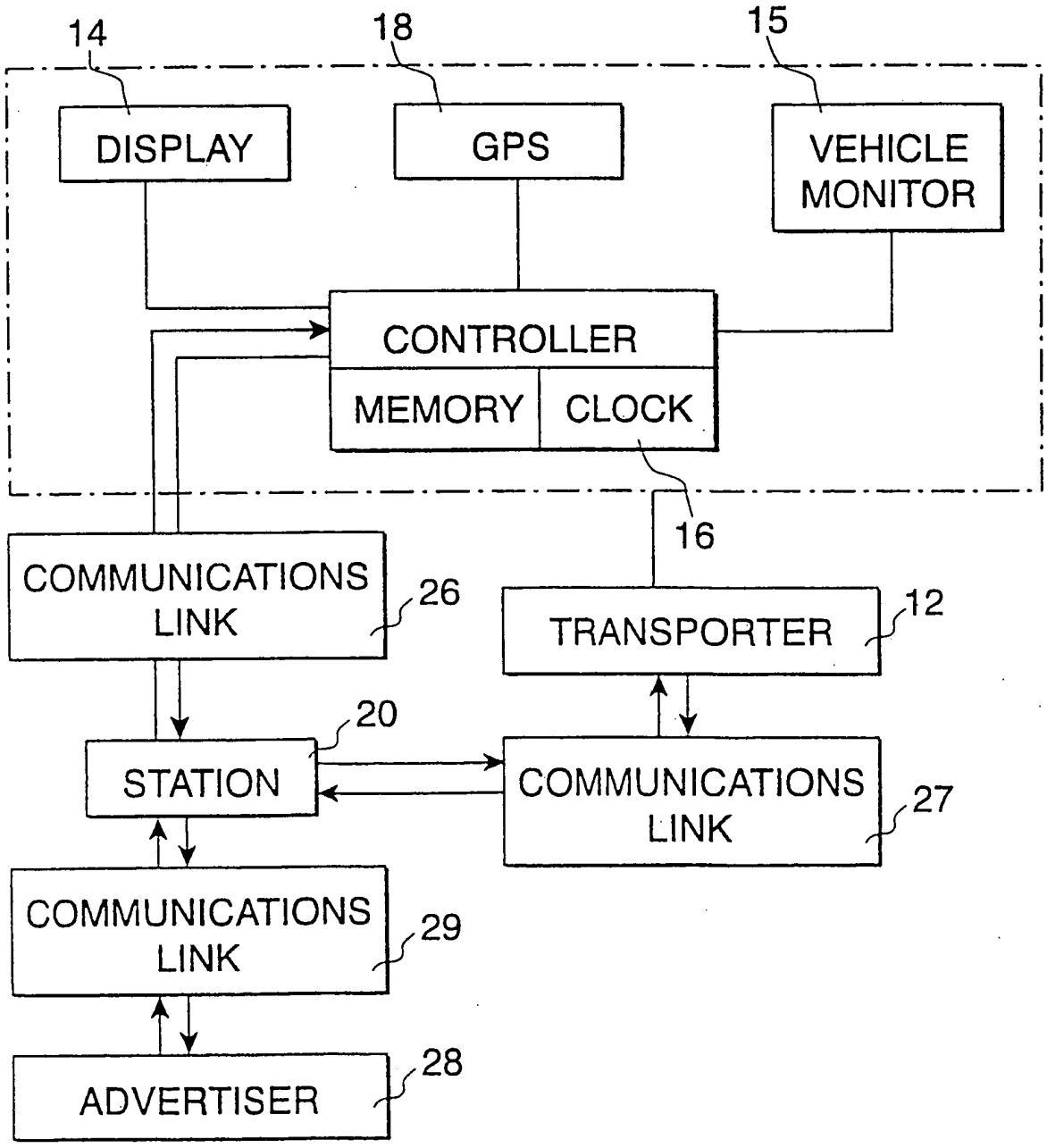
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Fig. 3



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Fig. 4



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MOBILE ADVERTISING SYSTEM

Technical Field

This invention relates generally to systems for presenting a visual display of information for advertising or other purposes and more specifically to a system which includes movable visual displays with associated controllers for geographic and time sensitive display message content.

Background Art

Mobile displays have proven to be as an effective advertising medium and has remained intact from inception in virtually all formats, from the person wearing a sandwich board to the ice cream vendor's truck with an illustration of an ice cream popcicle, trucks indicating

the source of their contents, taxi, bus, railroad and subway car billboards and more recent innovations, such as, buses entirely wrapped in electrostatic marking film carrying advertising graphics as well as cargoless vehicles carrying billboards traversing streets of metropolitan areas.

Advertising was known to be time and location sensitive. Among the disadvantages heretofore encountered with visual displays has been the inability to efficiently deliver the intended message to a target audience in desired geographic zones and specified time slots so that advertising revenues could be maximized in accordance with the value delivered.

For example, a local dry cleaning establishment on the upper west side of a city might wish to target only upper west side customers while a movie theatre in the same locale may wish to target potential customers from a larger geographic base.

The dry cleaning establishment with a limited advertising budget desired to pay for mobile billboard advertising only when the billboard was in the upper west side while, the movie theatre perceived value in displaying its billboard message throughout the city.

Similarly, business which desired to attract children, e.g. amusement parks, did not wish to bear costs associates with mobile billboard displays when their target customers were not available, e.g. during the times of day when children were in school or in the late evening.

There was a further need to target precise visual messages directed to a particular location and time of day at minimal expense.

The advertiser's needs with respect to receiving advertising billing which reflected specific desired dates, times of day, duration of display, specific locale wherein the advertiser's message was displayed were also unfulfilled.

Mobile billboards heretofore known were deficient in providing versatility in these and several other aspects.

DISCLOSURE OF THE INVENTION

A mobile visual display system comprises one or more billboard display panels capable of delivering changeable messages e.g., LED, liquid crystal, etc., and an associated programmable controller which drives the display panels to provide a viewable message. The controller ascertains that the billboard is within a predefined geographic zone which can be customized for each message and drives the display to generate a message selected for targeted public viewing. The message is displayed pursuant to a schedule which includes date, time of day and display duration while the billboard is within the zone or until the billboard is located in another zone which is not within the message schedule.

The controller maintains a transaction record of times, dates, zone locations, monitored parameters and duration of each message displayed. Each controller may be in communication with a network of fixed location stations from which it receives programming data, message content and scheduling data and to which it transmits the transaction records. The stations process the

transaction records to generate advertiser billing and other accounting records. The stations may also be in communication with a master control unit which oversees the stations, performs analysis of the transaction records and billing records and generates advertiser fee schedules as well as revised zone definitions.

It will be appreciated that it is an aspect of the present invention to provide a mobile display system of the general character described which is not subject to the disadvantages of the background history aforementioned.

A feature of the present invention is to provide a mobile display system of the general character described which includes a billboard display panel readily adapted for changing message content.

A consideration of the present invention is to provide a mobile display system of the general character described including a mobile billboard display panel, the panel being driven by an on-board controller which is in communication with a network of fixed stations for programming as well as loading display content and schedules.

Another aspect of the present invention is to provide a mobile display system of the general character described which includes a mobile billboard display panel, the panel being driven by an on-board controller which is in communication with a fixed station for downloading a transaction record of times, dates, geographic locations and duration of each message displayed.

Another consideration of the present invention is to provide a mobile display system of the general character described wherein message content on a mobile billboard display is changeable as a function of a the physical location of the billboard.

A feature of the present invention is to provide a mobile display system with the general character described which includes a mobile billboard display panel having an associated controller which receives signals indicative of the geographic location of the billboard for verification that the message being displayed is in accordance with a prescribed schedule of message content as a function of both time and location.

To provide a mobile display system of the general character described which is relatively low in cost and well suited for implementation by unskilled personnel is a further aspect of the present invention.

A still further aspect of the present invention is to provide a mobile display system of the general character described wherein specific advertisements are displayed when and where the advertisers chooses.

Another feature of the present invention is to provide a mobile display system of the general character described which optimizes exposure of advertising to a target audience at a relatively low cost.

A further consideration of the present invention is to provide a mobile display system of the general character described which is equally suited for use with a variety of message content from general public advertisements to personal messages.

Other aspects, features and considerations of the present invention in part will be obvious and in part will be pointed hereinafter.

With these ends in view, the invention finds embodiment and certain combinations of elements arrangements of parts and series of steps by which the aforesaid aspects, features and considerations and certain other aspects, features and considerations will be attained, all with reference to the accompanying drawings and the scope of which will be more particularly pointed out and indicated in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings in which is shown one of the various possible exemplary embodiments of the invention,

FIG. 1 is a perspective view of a typical mobile billboard display in accordance with and embodying the present invention;

FIG. 2 is a fragmentary plan view of a typical geographic area within which the billboard may move with the geographic area being divided into zones defined by broken lines and with a plurality of fixed stations positioned within certain of the zones and being in selective communication with a display associated controller;

FIG. 3 is a schematized block diagram illustrating data communication flow paths between the display controller and the plurality of fixed stations as well as between the fixed stations and a master control base; and

FIG. 4 is a schematized block diagram of the controller including a memory and a clock and in communication with the visual display and a global positioning system receiver, all carried operative associated with the display and a wireless communication link between the controller and the fixed stations.

MODES FOR CARRYING OUT THE INVENTION

Referring now in detail to the drawings, the reference numeral 10 (FIG. 3) denotes generally a mobile display system constructed in accordance with and embodying the invention. The system 10 includes an operator (hereinafter referred to as a transporter 12) employed to display and transport a mobile viewable changeable display 14. The transporter 12 may also

comprise a self-propelled vehicle, cart, trailer or other device upon which the display is carried from place to place and to which the display may be mounted for viewing.

The display 14 may comprise any of a variety of known electronically driven changeable displays including, for example, LED and liquid crystal displays which may be driven in a constantly changeable word string format, such as a "zipper" and may present movable or still picture quality images, lettering or other graphic formats on a generally planar screen. Further, the display 14 may be of any available size and may be supported by a single pole or may be free standing as an easel or tripod or may be carried as a sandwich board; it need not be transported by a human transporter; it may be secured to the roof of an automobile or mounted across the front, sides or rear of a truck, bus or trailer.

With reference now to FIG. 4 it will be appreciated that the display is driven by a programmable controller 16 having an associated memory for both program control and task implementation and a clock integrated therewith.

The display 14 can be driven to simultaneously display one or more messages on a single split screen, a single message on one screen or different messages on separate back to back screens 14a, 14b.

The controller 16 is operatively connected to the display 14 or may be carried separately by the transporter 12 and connected to the display 14 through a cable. The controller 16 is programmed to repeatedly ascertain the specific geographic location of the display 14, utilizing a conventional location determining system such as a GPS receiver 18. The present invention encompasses the utilization of any of various known location determining systems such as any of those disclosed in U.S. Patent 5,552,772, incorporated herein by reference.

A status monitor 15 of parameters, e.g. outside temperature, weather, pedestrian and/or vehicle traffic density etc. may be carried by the transporter 12 or mounted to the display 14, e.g. on an interior face together with the controller 16, and receives status data signals indicative of the monitored parameters.

Pursuant to the invention, the controller 16 is in communication with any one or more of a plurality of fixed location stations 20, 22, 24, with the station 20 being depicted in FIG. 4 of the drawings. A communications link 26 interconnecting the controller 16 and the station may comprise a conventional cellular link, radio signal broadcast communication or other known wireless communication system. Alternately, a communication link may be established with the stations through a cabled telephone central station network.

Through the communications link 26, the controller 16 receives programming data, display message content data as well as associated scheduling data for one or a plurality of different display messages. The data downloaded by the controller from the station is stored in the controller memory. The controller 16 thereafter drives the display 14 with the appropriate display message content coordinated for the display location as monitored by the GPS receiver 18 and the date and time of day, as ascertained from an internal system clock, as well as the monitored parameters.

The controller 16 also functions to generate a transaction record comprising data reflecting the dates, times of day and duration of each message displayed as well as the physical location where each message was displayed and the monitored parameters. The transaction records are stored in the controller memory.

In the event the controller detects that the display 14 has been moved into a location zone for which the particular message being displayed is not designated, the controller is programmed to communicate with a fixed station for the purpose of advising the fixed station of its present location and receiving a new message appropriate for the present display location.

Alternately, the controller will select a message stored in the memory which is appropriate for the new physical location.

Similarly, if a monitored parameter is not in accordance with that specified for the message, e.g. display is in a zone where it is raining and advertiser does not wish to display sunscreen message, etc., the controller selects an alternate message from the memory or receives a new message from the station.

Additionally, a voice or data communications link 27 between a station 20 and the transporter 12 is employed to give the transporter specific instructions as to the presently desired location of the display and/or a schedule of times and locations. Such instructions may also include instructions for programming the controller 16 for message content.

Further the advertiser 28 may access a station via a communications link 29, e.g. on-line through a modem to a web site, via E-mail etc., for message content and scheduling. The station communicates such information directly to the controller 16 via the link 26 or to the transporter 12 via the link 27 with the transporter programming the controller 16. The communications link 27 may be a cellular, voice, wireless, non voice, e.g. pager message, or wired telephone.

In accordance with the invention, the transaction records stored in the controller memory as well as current status data, e.g. exact location, monitored parameter status etc. are periodically downloaded to one of the stations 20, 22, 24. Preferably, the station in

the closest proximity to the transporter 12 will be selected for communication with the controller 16.

The stations 20, 22, 24 process the current status data to monitor display density, i.e. number of displays each zone, and will communicate with the controllers to display alternate messages if the transporter density displaying a selected message is greater than specified. The stations also process the transaction records to generate periodic advertiser billing which identifies the displayed message, the physical locations wherein such message was displayed, the dates and times, and monitored parameters and the charges due based upon the appropriate billing rates (which can vary based upon location, time of day, monitored parameters, and density). The advertiser billing is transmitted to an advertiser 28 via conventional mail, E-mail, facsimile or other means.

Pursuant to the invention, the individual fixed location stations 20, 22 and 24 store advertiser profiles, message content and coordinated scheduling data. The stations transmit data to the controller 16 in the form of programming data, message content and scheduling information.

The fixed location stations 20, 22 and 24 may also be in communication with a master control base 32 which receives the transaction data and billing data, accesses memory stored customer profiles and serves an overseeing function which includes analysis of the transaction and billing records, revision of fee schedules, revision of physical zone definitions and disaster recovery functions for the stations.

Turning now to FIG. 2 wherein a typical geographic region 34 is depicted, the geographic region is divided into various zones 36, 38, 40, 42, 44, 46, 48 and 50 by a plurality of dashed boundary lines. The geographic zones have been defined by the base 32 or the fixed stations and can be customized for a specific message.

It will be noted that the transporter 12 is shown, in an exemplary mode, as being presently located in the zone 50 and that a further transporter 52, is located in the zone 44. The station 20 is shown as being located in the zone 36, the station 22 in the zone 46 and the station 24 in the zone 44.

The fixed location stations 20, 22 and 24 may also be in communication with a master control base 32 which receives the transaction data and billing data, accesses memory stored customer profiles and serves an overseeing function which includes analysis of the transaction and billing records, revision of fee schedules, revision of physical zone definitions and disaster recovery functions for the stations.

Turning now to FIG. 2 wherein a typical geographic region 34 is depicted, the geographic region is divided into various zones 36, 38, 40, 42, 44, 46, 48 and 50 by a plurality of dashed boundary lines. The geographic zones have been defined by the base 32 or the fixed stations and can be customized for a specific message.

It will be noted that the transporter 12 is shown, in an exemplary mode, as being presently located in the zone 50 and that a further transporter 52, is located in the zone 44. The station 20 is shown as being located in the zone 36, the station 22 in the zone 46 and the station 24 in the zone 44.

The controller 16 will, under usual conditions, be in communication with the most proximate station, station 20 while the controller associated with the display of the transporter 52 will be in communication with the station 24. If the transporter 12 traverses into the zone 48 and the message carried in the display is not scheduled for display in the zone 48, upon detection that the display 14 is in the zone 48, the controller 16 will either communicate with the most proximate station 22, for example, to receive a message designated for display in the zone 48 or will select a message designated for display in the zone 48 from its memory. Alternately, the communications link 27 will be utilized to advise the transporter to move into a different zone.

Thus it will be seen that there is provided a mobile display system which achieves the various aspects, features and considerations of the present invention and which is well suited to meet the conditions of practical usage.

As various possible embodiments might be made of the present invention and as various changes might be made in the embodiment above said forth, it is to be understood that all matter herein described or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, there is claimed as new and desired to be secured by Letters Patent:

1. A mobile system for conveying messages, the system including a display, a transporter associated with the display for moving the display from one location to another, a controller associated with the display for driving the display to generate a visual message, a fixed station located remote from the display, an advertiser located remote from the display, a communications link between the advertiser and the station for transmitting visual message content and scheduling data from the advertiser to the station, a communications link between the station and the display location for transmitting visual message content and scheduling data, the controller driving the display to generate the visual message content pursuant to the scheduling data.

2. A mobile system for conveying visual messages as constructed in accordance with claim 1 wherein the communications link between the station and the display location comprises a communications link to the transporter.

3. A mobile system for conveying visual messages as constructed in accordance with claim 2 wherein the communications link to the transporter carries location scheduling data.

4. A mobile system for conveying visual messages as constructed in accordance with claim 1 wherein the communications link between the station and the display location comprises a communications link to the controller.

5. A mobile system for conveying visual messages as constructed in accordance with claim 1 wherein the communications link between the advertiser and the station comprises an on-line link.

6. A mobile system for conveying messages over a region segregated into zones, the system comprising a movable display, the display carried by a transporter, a controller associated with the display, the controller being operably connected to the display, the controller driving the display to generate a publicly viewable message selected for a first zone within which the display is located, means operably connected to the controller for generating signals indicative of the

geographic location of the display, the controller receiving the signals indicative of the geographic location of the display and determining when the display has entered a different zone for which the message has not been selected for display and driving the display to generate a different message selected for display in the different zone.

7. A mobile system for conveying messages as constructed in accordance with claim 6 further including at least one fixed location station, a communications link between the controller and the station, the controller being programmed to communicate with the station when the display enters the different zone, the station being programmed to transmit the different message selected for display in the different zone to the controller.

8. A mobile system for conveying messages as constructed in accordance with claim 6 wherein the controller includes an associated memory, the memory storing the different message, the controller retrieving the different message from the memory.

9. A mobile system for conveying messages as constructed in accordance with claim 6 wherein the controller includes an associated memory, the selected message including an associated schedule of zone(s), time and date for display of the selected message, the controller being programmed to drive the display to generate the selected message in accordance with the schedule.

10. A mobile system for conveying messages as constructed in accordance with claim 6 further including a fixed location station, a communications link between the controller and the station, the controller being programmed to generate a transaction record of each message displayed, the controller being programmed to transmit the transaction record to the station, the station receiving such record and in response thereto generating accounting records for billing associated with each message displayed.

11. A mobile system for conveying messages as constructed in accordance with claim 10 wherein the transaction record includes a record of times and dates of each message displayed.

12. A mobile system for conveying messages as constructed in accordance with claim 11 wherein the transaction record further includes a record of zones.

13. A mobile system for conveying messages as constructed in accordance with claim 10 further including a status monitor operatively connected to the controller, the status monitor monitoring parameters associated with the display environment and generating signals representative of the monitored parameters, the controller receiving the signals representative of the monitored parameters, the transaction record including a record of the monitored parameters and the accounting records including information processed from the monitored parameters.

14. A mobile system for conveying messages as constructed in accordance with claim 6 further including a fixed location station, a communications link between the controller and the station, the station being programmed to transmit the publicly viewable message and the different message to the controller.

15. A mobile system for conveying messages as constructed in accordance with claim 10 a communications link between the controller and the station, the station being programmed to transmit the publicly viewable message and the different messages to the controller.

16. A mobile system for conveying messages as constructed in accordance with claim 6 further including a plurality of fixed location stations and a selective communications link between each station and the controller, the stations being programmed to generate the data comprising message content for the messages and data comprising scheduling associated with the messages, the stations transmitting the message content and scheduling data to the controller, the controller being programmed to transmit a transaction record of the messages displayed to the stations, the system further including a master control base and a communications link between the stations and the base.

17. A mobile system for conveying visual messages to the public, the system including at least one transporter, an external display carried by the transporter, a controller associated with the display,

the controller being operably connected to the display for driving the display to generate messages viewable by the public, the controller including a memory, the memory storing at least one message and scheduling information for display of the one message, the scheduling information including information relating to the desired physical location for display of the one message, the scheduling information further including the time of day within which the one message is to be displayed, the system further including means for generating a signal indicative of display location, the controller including clock means for determining the time of day, the controller accessing the signal indicative of display location and the clock means and driving the display to generate the message in accordance with the schedule.

18. A mobile system for conveying visual messages to the public as constructed in accordance with claim 16 wherein the system further includes at least one fixed station, a communications link between the controller and the station, the controller being programmed to generate a transaction record of messages displayed and for

transmitting such transaction record to the station, the station being programmed to transmit data comprising messages and associated schedules to the controller, the station receiving the transaction record and in response thereto creating an accounting record of charges associated with the messages displayed.

19. A mobile system for conveying visual messages as constructed in accordance with claim 17 wherein the transporter comprises a vehicle.

20. A mobile system for conveying visual messages as constructed in accordance with claim 17 wherein the transporter comprises a person.

INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G08G 1/123; G06F 17/60; G09F 3/18; G06K 15/00
US CL : 340/988, 825.49; 705/1,14, 26; 40/661.03; 705/26; 235/383

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 340/988, 825.49; 705/1,14, 26; 40/661.03; 705/26; 235/383

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- A	US 5,295,064 A (MALEC et al.) 15 March 1994, Figs. 1, 4, 9A, 9B & 10 and corresponding disclosure; col. 4, line 55 to col. 5, line 22.	1-2 and 4-5 ---------- 3 and 6-20NON
X --- A	US 5,287,266 A (MALEC et al.) 15 February 1994, Figs. 1, 4, 9A, 9B & 10 and corresponding disclosure.	1-2 and 4-5 --------- 3 and 6-20
A	US 5,708,782 A (LARSON et al.) 13 January 1998, Figs. 1-2 and corresponding disclosure.	1-201-
A	4,888,709 A (REVESZ et al.) 19 December 1989, Figs. 1, 2A & 5 and corresponding disclosure.	1-20

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/28093

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,250,789 A (JOHNSEN) 05 October 1993, Figs. 1 & 3-4 and corresponding disclosure.	1-20
A	US 5,646,616 A (KOMATSU) 08 July 1997, Figs. 2-3 and corresponding disclosure.	1-20
A	US 5,933,813 A (TEICHER et al.) 03 August 1999, Figs. 2B-2C & 7-9 and corresponding disclosure.	1-20
A	US 5,880,449 A (TEICHER et al.) 09 March 1999, 1, 5 & 6A-6B and corresponding disclosure.	1-20
A	US 5,821,513 A (O'HAGAN et al.) 13 October 1998, Fig. 1 and corresponding disclosure.	1-20

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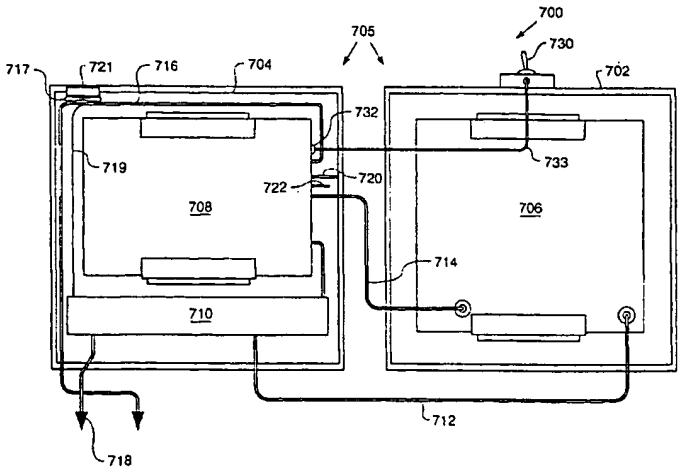
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[Continued on next page]

(54) Title: METHOD AND SYSTEM FOR DISPLAYING ADVERTISING ON AN ELECTRONIC DISPLAY SCREEN



(57) Abstract: A method and system (700) for displaying advertisements on an electronic display is disclosed. This includes using an electronic display (706) that is attached to a processor (708) that receives advertising files and information via a data storage or data transfer device such as a global computer network, e.g. Internet. The appropriate advertising is then downloaded by a particular machine and is displayed within a particular panel on an electronic display. These panels shown on the electronic display can be numerous and vary tremendously. Each advertisement will be looped and reshown for a predetermined duration for a predetermined time interval that can flexibly altered from a remote location. Each system machine can receive new downloaded information at a predetermined time interval to delete existing advertisements from the system and download new advertisements. Advertisements can be used across the system or can be specific to a particular region or machine.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Method and System for Displaying Advertising on an Electronic Display Screen

Cross Reference to Related Application

This application claims priority of U.S. Provisional Patent Application No. 60/291,065 filed May 15, 2001.

Background of Invention

Traditionally, advertising for local area merchants have been found in newspapers, radio, television, billboards and mailings. Consumers are overwhelmed with much of this advertising. With today's TV remote control devices, many consumers will "flip" TV stations rather than watching commercials. The same is true with radio...simply change the station. Billboards can be effective but can be very expensive and most local merchants may not have the advertising budget to spend on billboard advertising. In addition, many consumers don't even bother opening "junk" mail and simply toss it in the wastebasket.

On the other hand, classified advertisements are found in select portions of newspapers or magazines. In some cases, there are magazines devoted exclusively to classified advertisements. The description of the products or services being sold is typically very terse with only a type or model for the goods, the respective age and selling price. This is usually not enough information to allow a reasonably prudent purchaser to make an informed decision. Usually, a follow-up phone call is required not to mention a personal visit to ascertain the value of the specific property in question. This type of advertising only attracts people who are in the market for a

particular item and go out of their way to read the classified portion of a newspaper or magazine or are so eager to purchase a desired product that they are willing to invest in a specialized classified advertising magazine. There is typically not enough information present in these classified advertisements to attract anyone other than someone who is completely dedicated to purchasing a particular item and willing to follow-up with personal visits and phone calls. These classified advertisements are completely deficient with regard to generating consumer demand and interest and only appeals to people already committed and dedicated to purchasing a particular product and are willing to invest a considerable amount of time and effort in the process.

Another problem plaguing society is that there are numerous places where people are forced to stand in line. This is a tedious and boring process since there is very little, if any visual stimulation. These lines or queues can be found at retail establishments including grocery stores, department stores, hardware stores, banks, amusement parks, hair salons, restaurants, and so forth.

The present invention is directed to overcoming one or more of the problems set forth above.

Summary of Invention

A method and system for displaying advertisements on an electronic display is disclosed. This includes using an electronic display that is attached to a processor that receives advertising files and information via a data storage or a data transfer device such as utilizing a global computer network, e.g. Internet. All contact, payment and

advertising information can be inputted to the system. The appropriate adverting is then downloaded by a particular machine and is displayed within a particular panel on an electronic display. These panels shown on the electronic display can be numerous and vary tremendously. Each advertisement will be looped and reshown for a predetermined duration for a predetermined time interval that can flexibly altered from a remote location. Each system machine can receive new downloaded information at a predetermined time interval to delete existing advertisements from the system and download new advertisements. A switch or push buttons can allow the person viewing the display to go toggle back and forth between advertisements and replay those advertisements of particular interest. Advertisements can be used across the system or can be specific to a particular region or machine. A global computer system can provide additional information with searching capability for customers desiring more details about a particular product or service.

These are merely some of the innumerable illustrative aspects of this present invention and should not be deemed an all-inclusive listing.

Brief Description of Drawings

For a better understanding of the present invention, reference may be made to the accompanying drawings in which:

FIG. 1 illustrates an electrical schematic associated with the system of displaying advertisements on an electronic display associated with the present invention;

FIG. 2 illustrates a front view of a display unit cabinet of the present invention;

FIG. 3 illustrates a cut-away side view of a display unit cabinet of the present invention;

FIG. 4 illustrates a top view of a display unit cabinet of the present invention;

FIG. 5 illustrates a flowchart of the basic business functions associated with the system of displaying advertisements on an electronic display associated with the present invention including obtaining contact information, payment information and advertisement information;

FIG. 6 illustrates a flowchart of the basic database functions associated with the software system of displaying advertisements on an electronic display associated with the present invention;

FIG. 7 illustrates a flowchart of the basic user interface functions associated with the software system of displaying advertisements on an electronic display associated with the present invention;

FIG. 8 is a flowchart illustrating the basic software system of displaying advertisements on an electronic display associated with the present invention;

FIG. 9 illustrates a preferred exemplary panel display layout of the present invention;

FIG. 10 illustrates an alternative embodiment of a panel display layout of the present invention;

FIG. 11 illustrates the preferred three (3) push button input associated with the present invention for a person viewing the advertising program to be able to scan back and forth and go to advertisements of interest and obtain additional information regarding a specific advertisement; and

FIG. 12 is a flowchart illustrating the software subroutine or subprogram for displaying additional information regarding a particular advertisement.

Detailed Description

In the following detailed description numerous specific details are set forth in order to provide a thorough understanding of the invention. However, it will be understood by those skilled in the art that the present invention may be practiced without these specific details. In other instances, well-known methods, procedures, and components have not been described in detail so as not to obscure the present invention.

Referring now to FIG. 1, the hardware associated with the electronic display system of the present invention will now be described and is generally indicated by numeral 700. This includes a top panel 702 and a bottom panel 704 for the cabinet generally indicated by numeral 705. Located within the top panel 702 is an electronic display 706, which is a liquid crystal diode display (SGVA) with a display size of 1024 x 768 pixels that will be described in additional detail below. Although a liquid crystal diode display is preferred, cathode ray tube, plasma screen and other types of

electronic displays will suffice. Located within the bottom panel 704 is a processor 708. A processor referred to in this Application can be a single processor or a whole series of processors. Preferably processor 708 is a personal computer, however, a wide variety of electronic computers or electronic controllers will suffice.

There is an electrical surge suppressor outlet strip 710 located in the bottom panel 704 and an electrical connector 712 is located between the electronic display 706 and the electrical surge suppressor outlet strip 710. A VGA connector 714 is located between the electronic display 706 and the processor 708 to provide video information. There is a phone cable 716 connected to an external telephone outlet for connection to a global computer network, e.g., Internet from the processor 708. The preferred method of communication for this invention is through a global computer network, e.g., Internet, however there are numerous mechanisms for electronic communication that might suffice for this present invention and virtually any type of data transfer or data storage device will suffice. Examples of data transfer devices include modems, network cards, such as Ethernet network cards and so forth. Examples of storage devices could include compact disks, computer diskettes, and so forth. In further alternative embodiments, wireless network interfaces are employed using protocols such as Bluetooth, IEEE 802.11b or various conventional wireless telephone standards such as AMPS, NAMPS, TDMA, CDMA, or GSM in connection with a modem.

Also, a particular processor 708 may be networked locally to a high speed internet connection. There is an electrical connector 718 connected to an external power source and an electrical ground 720 attached to the bottom panel 704 for the cabinet 705. In the preferred embodiment, there is a fan 717 that runs on twelve volts

(d.c.) and provides airflow of at least 30 cubic feet per minute. This fan 717 is powered by a step-down transformer 721 matching the voltage of the fan 717. The fan 717 is connected to the electrical surge suppressor outlet strip 710 via electrical connector 719. Two fans 717 are preferred for optimal cooling of the processor 708.

As an additional, optional feature, there is a switch 730, which is preferably but not necessarily a self-centering toggle switch, to allow a person viewing the electronic display 706 to toggle back and forth through advertisements. The flexible and remotely activated advertising program will be resumed in the specific sequence in the previously contracted for advertising program prior to when the self-centering toggle switch 730 was activated. For example, if advertisement number thirty-nine (39) is currently being viewed, the user can go back and view advertisement number fifteen (15). When advertisement number fifteen (15) completes its cycle and the user is no longer using the self-centering toggle switch 730, the program returns to advertisement number thirty-nine (39). This self-centering toggle switch 730 is electrically connected to an input port 732 of the processor 708 by connector 733. However, in the preferred embodiment, as shown in FIG. 11, the person viewing the electronic display 706 is able to move forward through the advertising program with a first push button 902 and backward through the advertising program with a second push button 906. This replicates the same features found when moving the self-centering toggle switch 730 left and right from the center position as described above. For example, the flexible and remotely activated advertising program will be resumed in the specific sequence in the previously contracted for advertising program prior to when either the first push button 902 or the second push button 906 has been pushed. Another feature is a third push button 904, which when activated can provide

additional information related to a particular advertisement. Preferably, this third push button 904 will "light-up" when this additional information is available in association with the advertisement that is currently being shown on the electronic display 706. Push buttons 902, 904 and 906 are all connected to an output for the processor 708 such as that provided by connector 733 in FIG. 1.

Advertisement instructions in the corresponding electronic panel instruction files (ACTs) can include a program instruction, e.g., tag, that triggers an output port 722 (See FIG. 1) of the processor 708 that preferably turns on the light in the third push button 904 or merely displays the fact that additional information is available on the electronic display 706. The person viewing the electronic display 706 will preferably notice the light glowing on the third push button 904 or notice the electronic display 706 and activate this third push button 904. This provides an input to the processor 708, which interrupts the advertising program cycle and directs the software program to a subprogram or subroutine that displays pixel information containing additional information about that specific advertisement. This can include, but is not limited to, specific information regarding an advertising sponsor, video advertisements, and so forth. The nature of this additional information is virtually unlimited and would appeal to the person viewing the electronic display 706 that has a strong interest in the products or services shown in that one particular advertisement. When the person viewing the electronic display 706 releases the third push button 904, the flexible and remotely activated advertising program will be resumed in the specific sequence in the previously contracted for advertising program prior to when the third push button 904 was activated.

This function is illustrated on the flowchart that is generally indicated in FIG. 12 by numeral 910. In the description of the flowcharts, the functional explanation marked with numerals in angle brackets, <nnn>, will refer to the flowchart blocks bearing that number.

The first program step <911> is to determine if there is a program instruction, e.g., tag in the electronic panel instruction file (ACT) associated with a particular advertisement. If the answer is negative, the normal advertising program will continue <914>.

The second program step <912> is to determine whether an input has been received from the third push button 904. If no input has been received from the third push button 904, the normal advertising program will again continue <914>. If an input from the third push button 904 has been received, the software program in the processor 708 is directed to a subroutine or subprogram that displays pixel information, which may include videos, on the electronic display 706 <916>. After displaying this additional information or showing the video, the software program then resumes the normal advertising program <914>.

Referring now to FIG. 2, the upper panel 702 of the cabinet 705 for the display system 700 is shown in assembled condition. The upper panel 702 includes a frame 730 that can have descriptive material, trademarks and advertising associated with the system of the present invention. Located within the frame 730 is the electronic display 706.

Referring now to FIG. 3, the upper panel 702 of the cabinet 705 includes a 15 first adjustable bracket 802, second adjustable bracket 804, third adjustable bracket 806 and fourth adjustable bracket 808 for securing the electronic display 706 within the upper panel 702. The first adjustable bracket 802 is "L"-shaped and includes an oval groove 810 for adjustment. A wing nut 812 is used to secure this first adjustable bracket 802 to the upper panel 702 of the cabinet 705. The second adjustable bracket 804 is "L"-shaped and includes an oval groove 814 for adjustment. A wing nut 816 is used to secure this second adjustable bracket 804 to the upper panel 702 of the cabinet 705. The third adjustable bracket 806 is "L"shaped" and includes an oval groove 818 for adjustment. A wing nut 820 is used to secure this third adjustable bracket 806 to the upper panel 702 of the cabinet 705. The fourth adjustable bracket 808 is "L"-shaped and includes an oval groove 822 for adjustment. A wing nut 824 is used to secure this fourth adjustable bracket 808 to the upper panel 702 of the cabinet 705.

The bottom panel 704 of the cabinet 705 includes a fifth adjustable bracket 830 and a sixth adjustable bracket 832 for securing the processor 708 within the bottom panel 704. The fifth bracket 830 is "L"-shaped and includes a pair of bolts 834 and 836 to secure the fifth bracket 830 to the bottom panel 704 of the cabinet 705. This fifth bracket 830 does not require adjustment. The sixth adjustable bracket 832 is "L"-shaped and includes a pair of oval grooves 840 and 842 with associated wing nuts 844 and 846 for adjustment to adjustably secure this sixth 5 adjustable bracket 832 to the bottom panel 704 of the cabinet 705. These adjustable brackets 802, 804, 806, 808, 830 and 832 allow the use of components, such as but not limited to processors 708 and electronic displays 706, having varying physical sizes. This will allow easy replacement of components by a field service technician. It also allows

use of a wide variety of comparable components from numerous OEM component manufacturers.

There is a hinge 850 for rotatably connecting the upper panel 702 to the lower panel 704 of the cabinet. Both the upper panel 702 has four surrounding sidewalls and the lower panel 704 has four surrounding sidewalls with illustrative examples indicated by numerals 860 and 862, respectively. Venting 864 can also be added to dissipate heat from the processor 708.

Although a single processor 708 associated with a single electronic display 706 is described above, in some applications, multiple electronic displays 706 attached to a single processor 708 may actually be preferred to provide a cost effective mechanism for providing the same desired advertising to intended recipients. In some cases, this occurs within the same physical location.

Referring now to the drawings, and initially to FIG. 5, which depicts a flowchart representative of the business system of displaying advertisements on an electronic display associated with the present invention as generally indicated by numeral 10. The invention of the present invention can be utilized for generally advertising as well as classified advertising. For classified advertising, there are additional process steps since, typically, each advertisement has a unique advertiser and requires a separate transaction to place the advertisement on this system.

The following process is preferably for managing a large number of individual advertisers such as that found with classified advertisements, but is not necessary when dealing with a limited number of commercial advertisers. As shown in FIG. 5,

the first step in the process is where an advertiser places a telephone call to system personnel associated with the present invention <12>. The telephone is then answered by customer sales representative (system personnel) associated with the present invention <14>. A query is then made as to whether this advertiser on the telephone is a new or current advertiser with the system <16>. If the response to this query is negative and he or she is not a new advertiser, then a query is then made as to whether the advertisement desired for publication by the advertiser is a new or previously displayed advertisement on the system <18>. If the response to this query is negative and the telephone call does not involve a new or previous displayed advertisement, then a query is made as to whether or not it is a corporate client <20>. Process steps <16>, <18> and <20> are preferably performed simultaneously as indicated by numeral 9. If the response to this query in process step <20> is positive and it is a corporate client, then the phone call is transferred to a sales representative associated with the system to address any issues or concerns that corporate representative may have <26>. If the response to this query is negative and it is not a corporate client, then query is made as to whether or not this telephone call is a complaint <22>. If the response to this query is positive and it is a complaint, then the system personnel will obtain the complaint information and take action if appropriate <28>. The phone call can also be transferred to a sales representative associated with the system to address any issues or concerns of that customer <26>. If the response to this query is negative and it is not a complaint, the telephone call will then be ended if there is no further system business to transact <24>.

If the response to the query as to whether this advertiser on the telephone is a new or current advertiser with the system <16> is positive or if the response to the

query as to whether the advertisement desired for publication by the advertiser is a new or previously displayed advertisement <18> is positive, then the next step in the process will be to obtain the appropriate contact information from the advertiser, the steps of which are generally indicated by numeral 30.

The first step in obtaining contact information is to determine if there is a 20 pre-existing customer number <40>. If the answer to this query is negative and there is no pre-existing customer number then the business name is requested by the system personnel if it is an entity <42>. The next step is to obtain a contact name <44>, advertiser's daytime phone number <46>, advertiser's nighttime phone number <48>, advertiser's facsimile number (if available) <50> and then the name of the specific display unit machine number that directed the advertiser to this medium <52>.

If the response to the query as to whether there is a pre-existing customer number <40> is positive or after the step of determining the name of the specific display unit machine number that directed the advertiser to this medium <52>, then the next step in the process will be to obtain the appropriate advertising information from the advertiser, the steps of which are generally indicated by numeral 34.

The first step in obtaining advertisement information is to determine the appropriate category or categories for the advertisement <64>. Examples can include, but are not limited to, cars, real estate, rentals, bicycles, sporting goods, events, professional services, retail merchants and so forth. The title of the advertisement is then ascertained <66>. The method of image delivery is determined <68>. Examples can include, but are not limited to, e-mail, drop-off and so forth. The coverage area of the advertisement is defined by the advertiser in conjunction with system personnel

<70>. The start date for the advertisement is then determined <74> as well as the duration of the advertisement on the system <74>. The type of pictorial template surrounding the advertisement is then selected by the advertiser working with system personnel <76>. Descriptive text is either provided by the advertiser or developed with the assistance of system personnel <78>.

After the step of developing descriptive text for the advertisement <78>, then the next step in the process will be to obtain the appropriate payment information from the advertiser, the steps of which are generally indicated by numeral 32.

The first step in obtaining payment information is to determine the appropriate method of payment <54>. Examples can include, but are not limited to, credit card, check, and cash among other methods. If payment is by means of a credit card then the system personnel inquires as to the credit card number <56> and the expiration date of the credit card <58>. If payment is by means of a check then the system personnel inquires as to the check number <60> and the check routing number <62>.

After the step of determining the check routing code <62> or credit card expiration date <58>, then the next step in the process will be to place the advertisement so that it is displayed by the selected electronic display units during the appropriate time period, the steps of which are generally indicated by numeral 36.

The first step in placing an advertisement is to verify the method of payment <80>. The second step is to verify the specific schedule of the advertisement <82>. The third step will be to process the payment <84> and the fourth step will be to process the advertisement so that it can be electronically displayed on the appropriate

<70>. The start date for the advertisement is then determined <74> as well as the duration of the advertisement on the system <74>. The type of pictorial template surrounding the advertisement is then selected by the advertiser working with system personnel <76>. Descriptive text is either provided by the advertiser or developed with the assistance of system personnel <78>.

After the step of developing descriptive text for the advertisement <78>, then the next step in the process will be to obtain the appropriate payment information from the advertiser, the steps of which are generally indicated by numeral 32.

The first step in obtaining payment information is to determine the appropriate method of payment <54>. Examples can include, but are not limited to, credit card, check, and cash among other methods. If payment is by means of a credit card then the system personnel inquires as to the credit card number <56> and the expiration date of the credit card <58>. If payment is by means of a check then the system personnel inquires as to the check number <60> and the check routing number <62>.

After the step of determining the check routing code <62> or credit card expiration date <58>, then the next step in the process will be to place the advertisement so that it is displayed by the selected electronic display units during the appropriate time period, the steps of which are generally indicated by numeral 36.

The first step in placing an advertisement is to verify the method of payment <80>. The second step is to verify the specific schedule of the advertisement <82>. The third step will be to process the payment <84> and the fourth step will be to process the advertisement so that it can be electronically displayed on the appropriate

electronic display unit(s) <86>. The electronic display system 700 is then controlled by the administrative software program <88>, which includes the database functions generally indicated by numeral 100 in FIG. 6 and the user interface functions generally indicated by numeral 200 in FIG. 7.

Referring now to the database administration functions in FIG. 6, which can be applied when utilizing a few large commercial advertisers or a multitude of classified advertisers, the first function is to place a new advertisement 102. The first step in this first function 102 is to add the advertisement to the database <104>. The next step in this first function 102 is to verify the start date of the advertisement <108>. The final step in this first function 102 is to update the display unit processors with this new information <110>, which will be described later as process 128 under the database functions.

The second function of the database administration functions is to change 20 to an advertisement 112. The first step in this second function 112 is to update the information regarding the advertisement <114>. The next step in this second function 112 is to verify the new information regarding the advertisement <116>. The final step in this second function 112 is to update the display unit processors 708 with this new information <120>, which will be described later as process 128 under the database functions. The first function 102 and second function 112 are functions that are primarily directed to handling larger numbers of advertisers, e.g., classified advertising.

The third function of the database administration functions is to remove an advertisement 122. The first step in this third function 122 is to verify the removal of

this advertisement <124>. The next step in this third function 122 is to actually remove the associated advertising information <125>. The final step in this third function 122 is to update the display unit processors 708 with this new information <126>, which will be described later as process 128 under the database functions.

The fourth function of the database administration functions is the previously referenced process of updating the display unit processors 128. The first step in this fourth function 128 is to recompile the data tables having information regarding specific display unit processors <130>. The next step in this fourth function 128 is to recompile the data tables having information regarding regional information <132>. The third step in this fourth function 128 is to reconfigure the size of the modifiable panels that appear on an electronic display 706 and the corresponding electronic panel instruction files (ACTs), which has the digital information that will be displayed within a panel of an electronic display 706 <134>. An example of a portion of an ACT file is shown below in Table 1:

Table 1 – Sample ACTs File
'transition type = 1-8 compass direction 45 degree clockwise 9 = zoom 99=random
'scroll = 1-4 clockwise 90 degrees scroll direction 1-4 < not used -20 to 20 left and right
'show = 0 if shown, 1 if not shown
'tagfile = filename of picture to show when middle button is pressed
'panel pictures, [seconds to display], [transition type], [order], [file size], [fileID], [scroll direction 1-4],
'[speed of scroll],[doNotShow] true<>0 , tag file,[FullScreen] true<>0
'----------

AC1:All:StartTime=00:00
AC1:All:EndTime=23:59
AC1:All:DefaultAct=1
AC1:PN1:Left=0
AC1:PN1:Top=0
AC1:PN1:Width=100
AC1:PN1:Height=85
AC1:PN1:FILE=trivia_21.swf,25,99,11,250064,,,,0,,0
AC1:PN1:FILE=trivia_22.swf,25,99,21,250278,,,,0,,0
AC1:PN1:FILE=trivia_23.swf,25,99,31,257001,,,,0,,0
AC1:PN1:FILE=trivia_24.swf,25,99,41,250218,,,,0,,0
AC1:PN1:FILE=trivia_25.swf,25,99,51,262359,,,,0,,0
AC1:PN1:FILE=trivia_26.swf,25,99,61,249500,,,,0,,0
AC1:PN1:FILE=trivia_27.swf,25,99,71,273818,,,,0,,0
AC1:PN1:FILE=trivia_28.swf,25,99,81,250019,,,,0,,0
AC1:PN1:FILE=trivia_29.swf,25,99,91,251638,,,,0,,0
AC1:PN1:FILE=trivia_30.swf,25,99,101,265804,,,,0,,0
AC1:PN1:FILE=community_players_singin_1.jpg,15,99,100,62808,,,,0,,0
AC1:PN2:Left=0
AC1:PN2:Top=85
AC1:PN2:Width=100
AC1:PN2:Height=15
AC1:PN2:FILE=monarch_marquee_1.jpg,999,,1,81908,,1,10
'transition type = 1-8 compass direction 45 degree clockwise 9 = zoom 99=random
'scroll = 1-4 clockwise 90 degrees scroll direction 1-4 < not used -20 to 20 left and

right
'show = 0 if shown, 1 if not shown
'tagfile = filename of picture to show when middle button is pressed
'panel pictures, [seconds to display], [transition type], [order], [file size], [fileID], [scroll direction 1-4],
'[speed of scroll],[doNotShow] true<>0 , tag file,[FullScreen] true<>0

The final step in this fourth function 128 is to update the global computer network, e.g., Internet, website with this newly recompiled data <136> which will be described later as user interface function 300. Communication takes place utilizing file transfer protocols (FTP) or any other type of file transfer protocols. The FTP commands specify the parameters for data connection (data port, transfer mode, representation type and structure) and the nature of the file system operation (store, retrieve, append, delete, etc.). Advertising files only have to be posted once and can be accessed by folders grouped on an international, national, state, district or regional basis. There is flexibility so that files grouped on a regional basis can be modified for a particular machine and that machine determines what advertising files are to be utilized regardless of the folder location on the server. There is not a redundant posting of files with only one uploading per advertisement file to save on global computer network, e.g., Internet, costs and time.

The fifth function of the database administration functions is to process the logs, or in other word, printout predetermined status and operating information 140. These logs can include when the pushbuttons 902, 904 and 906, shown in FIG. 11, are activated by a user of the electronic display system 700. These logs can be for any

predetermined time period, e.g., hourly, daily and monthly. There is a log that provides information when the advertisements are shown. An example of a machine log showing the advertisement order and the time of showing in seconds is shown below in Table 2:

Table 2 – Log of Picture Order and Actual Show Seconds
MACHINE NUMBER 0152 FILE CREATED 3/6/02 8:46:31 AM
_____INDEX OF FILES_____
0001 = cookie.jpg
0002 = game.swf
003 = balloon.swf
_____SHOW TIME IN SECONDS_____
3/6/02 11:55:01 AM --- 3/6/02 12:25:13 PM
0001 90
0002 90
0003 90
3/6/02 12:56:10 PM --- 3/6/02 1:27:07 PM

0001 90
0002 90
0003 90

Also available is a log for recording when buttons 902, 904, 906 are pressed. An illustrative, but nonlimiting, example of a button log file is shown below in Table 3:

Table 3 – Button Push Log
MACHINE NUMBER 0120 FILE CREATED 3/29/02 2:45:49 PM
:3/6/02 3:54:28 PM to 02:45 PM >0
:3/29/02 2:45:49 PM to 02:55 PM >0
:3/29/02 2:55:42 PM to 04:15 PM >0
:3/29/02 4:15:15 PM to 09:57 PM >0
:3/29/02 9:57:39 PM to 12:32 AM >0
:3/30/02 12:32:10 AM to 06:00 AM >0
:3/30/02 6:00:48 AM to 01:57 PM >0
:3/30/02 1:57:38 PM to 09:57 PM >0

:3/30/02 9:57:38 PM to 12:32 AM >0
:3/31/02 12:32:11 AM to 06:00 AM >0
:3/31/02 6:00:48 AM to 01:57 PM >0
:3/31/02 1:57:33 PM to 09:57 PM >0
:3/31/02 9:57:33 PM to 12:32 AM >0
:4/1/02 12:32:08 AM to 06:00 AM >0
:4/1/02 6:00:45 AM to 01:57 PM >0
:4/1/02 1:57:35 PM to 09:57 PM >0
:4/1/02 9:57:32 PM to 12:32 AM >0
:4/2/02 12:32:08 AM to 06:00 AM >0
:4/2/02 6:00:46 AM to 01:57 PM >0
:4/2/02 1:57:30 PM to 09:57 PM >0
:4/2/02 9:57:29 PM to 12:32 AM >0
:4/3/02 12:32:12 AM to 06:00 AM >0
:4/3/02 6:00:39 AM to 01:57 PM >0
:4/3/02 1:57:28 PM to 09:57 PM >0

:4/3/02 9:57:28 PM to 12:32 AM >0
:4/4/02 12:32:08 AM to 06:08 AM >0
:4/4/02 6:08:43 AM to 12:50 PM >0
:4/4/02 12:50:08 PM to 12:59 PM >0
:4/4/02 12:59:34 PM to 01:57 PM >0
:4/4/02 1:57:28 PM to 09:57 PM >0
:4/4/02 9:57:24 PM to 12:32 AM >0
:4/5/02 12:32:14 AM to 06:00 AM >0
:4/5/02 6:00:32 AM to 01:57 PM >0
:4/5/02 1:57:26 PM to 04:25 PM >1
:4/5/02 4:25:43 PM to 05:24 PM >16
:4/5/02 5:24:36 PM to 05:35 PM >3
:4/5/02 5:35:25 PM to 05:52 PM >22
:4/5/02 5:52:42 PM to 06:04 PM >1
:4/5/02 6:04:31 PM to 06:25 PM >56
:4/5/02 6:25:20 PM to 06:55 PM >9

:4/5/02 6:55:41 PM to 08:27 PM >6
:4/5/02 8:27:27 PM to 09:57 PM >0
:********DAY*Friday TOTAL Pressed >113

The first step in this fifth function 140 is to update the status of the specific display unit processors 708 <142>. The next step in this fifth function 140 is to update the table that has all of the data relating to the status of the specific display unit processors 708 <144>. The third step in this fifth function 140 is to update a table with system tracking information <146>. As described, the system tracks and documents any and all information about any particular advertisement. The next step in this fifth function 140 is to process this system alert information <148>, which is a separate database function described herein below as step <162>. The fifth step in this fifth function 140 is to modify the configurations of the display unit processors 708 <150>. The final step in this fifth function is to update the system website with this new information <152>, which is a user interface function, described herein below as process step 300.

The sixth function of the database administration functions is to update the system website with new data 154. The first step in this sixth function 154 is to connect to the system database on the system website <156>. The next step in this sixth function 154 is to update the data tables associated with the system <158>. The last step in this sixth function 154 is to update the data tables of tracking information

<160>. This sixth function154 is primarily directed to handling larger numbers of advertisers, e.g., classified advertising.

The seventh and final function of the database administration functions is 20 to provide process alert function to rectify problems with the system 162. The first step in this seventh function 162 is to repair bad configuration files <164>. The next step in this seventh function 162 is to repair bad files containing advertising information/data <166>. The next step in this seventh function 162 is to report all of the corrections of errors that have been made to either advertising or configuration files <168> and the last step in this seventh function 162 is to update the table of tracking information <170>.

Referring now to the user interface functions shown on FIG. 7 and generally indicated by numeral 200, the first function is to place a new advertisement 202. The first step in this first user interface function 202 is to select the "new advertisement" function from a graphical interface menu <204>. The second step 202 in this first user interface function is for the user to select their advertising entity's name or select the "new advertiser" function from a graphical interface menu <206>. The third step in this first user interface function 202 is for the user to verify the type of payment for the advertisement <208>. The fourth step in this first user interface function 202 is to select the category associated with the advertisement <210>. The fifth step in this first user interface function 202 is to select a template for the type of advertisement that will be utilized or to have a random template to frame the advertisement on the display monitor 706 to be selected <212>. The sixth step in this first user interface function 202 is for the user to input the description and title associated with the

advertisement <214>. The seventh step in this first user interface function 202 is for the user to select the geographical regions where he or she desires the advertising to appear <216>. The eighth step in this first user interface function 202 is for the user to verify the advertisement that he or she would like to display <218>. The ninth step in this first user interface function 202 is to process payment based on the designated payment method <220>. The tenth step in this first user interface function 202 is place the advertisement on the system <222> by entering the "place advertisement" on the graphical user interface screen. A supervisor associated with the software system will then review the proposed advertisement <224> and the advertisement will then be placed in the system database <226> as the final step in this first user interface function 202. The third step <208>, the fifth step <212>, and the sixth step <214> of this first user interface function 202 are primarily directed to handling larger numbers of advertisers, e.g., classified advertising, and not necessary when dealing with fewer numbers of commercial advertisers.

The second function of the user interface functions is to change an advertisement 230. The first step in this second user interface function 230 is to select the "change advertisement" function from a graphical interface menu <232>. The second step in this second user interface function 230 is for the user to select their advertising entity's name from a graphical interface menu <234>. The third step in this second user interface function 230 is for the user to verify the type of payment for the advertisement if extending the duration of the advertisement <236>. The fourth step in this second user interface function 230 is to change the category associated with the advertisement <238>. The fifth step in this second user interface function 230 is to select a template for the type of advertisement that will be utilized or to have

a random template to frame the advertisement on the display monitor to be selected <240>. The sixth step in this second user interface function 230 is for the user to change the description and/or title associated with the advertisement <242>. The seventh step in this second user interface function 230 is for the user to change the geographical regions where he or she desires the advertising to appear <244>. The eighth step in this second user interface function 230 is for the user to verify the specific advertisement that he or she would like to display <246>. The ninth step in this second user interface function 230 is to process payments based on the designated payment method <248>. The tenth step in this second user interface function 230 is to update the advertisement on the system <250> by entering the "update advertisement" on the graphical user interface screen. A supervisor associated with the software system will then review the proposed advertisement <252> and the advertisement will then be placed in the system database <254> as the final step in this second user interface function 230.

The third step <236>, the fourth step <238>, the fifth step <240>, the sixth step <242> and the ninth step <248> of this second user interface function 230 are primarily directed to handling larger numbers of advertisers, e.g., classified advertising, and not necessary when dealing with fewer numbers of commercial advertisers.

The third function of the user interface functions is to remove an advertisement from the system 256. The first step in this third user interface function 256 is to select the "remove advertisement" function from a graphical interface menu <258>. The second step in this third user interface function 256 is for the user to

select their advertising entity's name or select the "new advertiser" function from a graphical interface menu <260>. The third step in this third user interface function 256 is for the user to select the advertisement that he or she desires to remove <262>. The fourth step in this third user interface function 256 is for the user to verify the type of payment mechanism for receiving a credit or make any additional payment <264>. The fifth step in this third user interface function 256 is for the user to verify the advertisement that he or she would like to remove <266>. The sixth step in this third user interface function 256 is to enter the "remove advertisement" input function on the graphical user interface screen. A supervisor associated with the software system will then review the advertisement that will be removed <270> and then the advertisement will then be removed from the database on the system <272> as the final step in this third user interface function 256.

The fourth step <264> of this third user interface function 256 is primarily directed to handling larger numbers of advertisers, e.g., classified advertising, and not necessary when dealing with fewer numbers of commercial advertisers.

The fourth function of the user interface functions is to update the electronic displays 274. The first step in this fourth user interface function 274 is for a supervisor associated with the software system to select the "update machines" function from a graphical interface menu <276>. The second step in this fourth user interface function 274 is for the supervisor to select either "all", "regions" or specific "machines" from a graphical interface menu to isolate what machines will be updated <278>. The third step in this fourth user interface function 274 is for the supervisor to select the specific subset of displays to update <280>. The fourth step in this fourth

user interface function 274 is for the supervisor to click-on the "update now" input to update the selected electronic displays <282>. The fifth step and final step in this fourth user interface function 274 is the actual running of the update software database routine <284>. The fifth function of the user interface functions is to process output logs 286. The first step in this fifth user interface function 284 is for a supervisor associated with the software system to select the "process logs" function from a graphical interface menu <288>. The second step in this fifth user interface function 284 is for the supervisor to select either "all", "regions" or specific "machines" from a graphical interface menu to isolate what machines will be updated <290>. The third step in this fifth user interface function 284 is for the supervisor to select the specific subset of displays to update <292>. The fourth step in this fifth user interface function 284 is for the supervisor to click-on the "process now" input to generate the output logs <294>. The fifth step in this fifth user interface function 284 is the actual running of the database software routine for outputting logs <296> and the sixth step and final step in this fifth user interface function 284 is the actual outputting of the report logs <398>.

The sixth function of the user interface functions is to update the system 30 global computer network, e.g., Internet website 300. The first step in this sixth user interface function 300 is for a supervisor associated with the software system to select the "update web" input function from a graphical interface menu <302>. The second step in this sixth user interface function 300 is for the supervisor to run the database software routine <304>. The third step in this sixth user interface function 300 is verification that the database software routine has been run <306>. The fourth step

and final step in this sixth user interface function 300 is for the system to display a report regarding this website update for optional printout <308>.

The seventh and final function of the user interface functions is a process alerts function 310. The first step in this seventh user interface function 310 is for a supervisor associated with the software system to select the "view alerts" input function from a graphical interface menu <312>. The second step in this seventh user interface function 310 is for the supervisor view the system notifications and the potential resolutions associated therewith <316>. The third step in this seventh user interface function 310 is to update the machines if that is necessary <316>. The fourth step in this seventh user interface function 310 is to request that programming fix a problem in the system <318>. The fifth and final step in this seventh user interface function 310 is to clear the alert status when the problem is resolved. This system is able to resolve scheduling conflicts and facilitate scheduling functions.

Referring now to FIG. 8, which depicts a flowchart representative of the software system of displaying advertisements on an electronic display associated with the present invention as generally indicated by numeral 400.

The first step in the process is to boot-up the software system of the present invention <402>. The second step is to start the operating system <404> and initiate a starter program <406>. A determination is made if the operating system is in a safe mode <408>. If the response to this query is positive, there is an attempted reboot of the system <408> and the program returns to program step <404> to restart the operating system. If the response to this query is negative and the operating system is not in a safe mode, then the software sets the resolution of the display screen <412>.

The preferred resolution is a pixel display of 1024 x 768 pixels. The preferred electronic display is a liquid crystal display, however, any electronic display will suffice such as a plasma screen, a cathode ray tube and so forth.

A determination is made as to whether the screen resolution can be set. If the response to this query is negative, there is an attempted reboot of the system <410> and the program returns to program step <404> to restart the operating system. If the response to this query is positive, then the "Director" program is initiated, which is a dial-up program to connect to an global computer network, e.g., Internet, service provider (ISP) <416>. The first step in this Director program is to start a dial-up function <418>. The system FTP Internet site will allow uploading and downloading of instructions and logged events. An illustrative, but nonlimiting, example of an uploaded machine log file is shown below in Table 4:

Table 4- Uploaded Log File
MACHINE NUMBER 0102 FILE CREATED 4/11/02 2:05:53 AM
02 8:09:13 AM > Excluded files = pub.jpg , monarch_marquee_1.jpg ,
:DI:4/9/02 8:09:13 AM > Information gathering completed
:DI:4/9/02 8:09:14 AM > Director OK
:DS:4/9/02 8:09:24 AM > Displayer #1 , Act #1 starting...
:DS:4/9/02 8:09:24 AM > Displayer #2 , Act #1 starting...

:DI:4/9/02 10:00:03 AM > Director OK
:DI:4/9/02 12:00:03 PM > Director OK
:DI:4/9/02 2:00:03 PM > Director OK
:DI:4/9/02 4:00:04 PM > Director OK
:DI:4/9/02 6:00:05 PM > Director OK
:DI:4/9/02 8:00:06 PM > Director OK
:DI:4/9/02 10:00:06 PM > Director OK
:ACT1-DS1:4/10/02 12:29:56 AM > Displayer doesn't see Director running!
:ACT1-DS1:4/10/02 12:29:59 AM > Forcing Reboot !
:ACT1-DS2:4/10/02 12:29:59 AM > Displayer doesn't see Director running!
:ACT1-DS2:4/10/02 12:30:02 AM > Forcing Reboot !
:ST:4/10/02 12:31:24 AM > Version Ver. 4.1bcmb 03/22/02 bc 2002
:ST:4/10/02 12:31:30 AM > MACHINE START ok
:ST:4/10/02 12:31:32 AM > Starting Director
:DI:4/10/02 12:31:32 AM > Director Started...
:DI:4/10/02 12:31:36 AM > NO call Time

:ST:4/10/02 12:31:39 AM > CV_Director.exe Started successfully... logging out
:ST:4/10/02 12:31:40 AM > Starting System Monitor
:ST:4/10/02 12:31:40 AM > Could Not find C:\CORE\CV_Monitor.exe
:DI:4/10/02 12:31:47 AM > >>>> Processing Small ACT File
:DI:4/10/02 12:31:47 AM > Excluded files = pub.jpg ,monarch_marquee_1.jpg ,
:DI:4/10/02 12:31:48 AM > Information gathering completed
:DI:4/10/02 12:31:49 AM > Director OK
:DS:4/10/02 12:31:58 AM > Displayer #1 , Act #1 starting...
:DS:4/10/02 12:31:58 AM > Displayer #2 , Act #1 starting...
:DI:4/10/02 2:00:05 AM > Director OK
:DI:4/10/02 2:02:05 AM > Information gathering started
:DI:4/10/02 2:02:37 AM > Starting Dialer
:DL:4/10/02 2:03:38 AM > Connected Successfully...
:DI:4/10/02 2:03:50 AM > FTP site Connected – Server returns Code 200 28
:DI:4/10/02 2:03:58 AM > This Log Uploaded
:DI:4/10/02 2:04:17 AM > No new Spielberg file found

:DI:4/10/02 2:04:27 AM > Small Spielberg file not found
:DI:4/10/02 2:04:30 AM > Processing Files to be returned
:DI:4/10/02 2:04:35 AM > Processing Files to be deleted
:DI:4/10/02 2:04:46 AM > SUCCESSFULLY DELETED FILES , c:\core\pictures\trivia*.*
:DI:4/10/02 2:04:47 AM > Processing Files to be downloaded
:DI:4/10/02 2:04:52 AM > Processing Upgrade Files to be downloaded
:DI:4/10/02 2:04:58 AM > Processing Directory listings to be returned
:DI:4/10/02 2:05:03 AM > Processing Exclude from Act File
:DI:4/10/02 2:05:07 AM > Processing Act File
:DI:4/10/02 2:05:17 AM > Small ACT File downloaded
:DI:4/10/02 2:05:17 AM > ACT File downloaded
:DI:4/10/02 2:05:17 AM > >>>> Processing Small ACT File
:DI:4/10/02 2:05:18 AM > Excluded files = pub.jpg,monarch_marquee_1.jpg ,
:DI:4/10/02 2:05:18 AM > ACTS Parsed successfully
:DI:4/10/02 2:05:19 AM > .....DOWNLOADING ACT DEFINED FILES.....

:DI:4/10/02 2:05:19 AM > .....ACT DEFINITION FILE NUMBER 1
:DI:4/10/02 2:06:10 AM > .....PANEL NUMBER 1
:DI:4/10/02 2:06:10 AM > PIC: Downloaded trivia_21.swf from Server dir advermain\STA1
:DI:4/10/02 2:07:00 AM > PIC: Downloaded trivia_22.swf from Server dir advermain\STA1
:DI:4/10/02 2:07:53 AM > PIC: Downloaded trivia_23.swf from Server dir advermain\STA1
:DI:4/10/02 2:08:45 AM > PIC: Downloaded trivia_24.swf from Server dir advermain\STA1
:DI:4/10/02 2:09:39 AM > PIC: Downloaded trivia_25.swf from Server dir advermain\STA1
:DI:4/10/02 2:10:31 AM > PIC: Downloaded trivia_26.swf from Server dir advermain\STA1
:DI:4/10/02 2:11:29 AM > PIC: Downloaded trivia_27.swf from Server dir advermain\STA1
:DI:4/10/02 2:12:32 AM > PIC: Downloaded trivia_28.swf from Server dir advermain\STA1
:DI:4/10/02 2:13:23 AM > PIC: Downloaded trivia_29.swf from Server dir

advermain\STA1
:DI:4/10/02 2:14:17 AM > PIC: Downloaded trivia_30.swf from Server dir advermain\STA1
:DI:4/10/02 2:14:17 AM > .....Already have > acme.jpg ,:DI:4/10/02 2:14:17 AM > ...DOWNLOAD TIME = 0 hours 9 minutes 58 seconds
:DI:4/10/02 2:14:17 AM > .....DONE DOWNLOADING PICTURE FILES.....
:DI:4/10/02 2:14:18 AM > Requested to download 10 picture files
:DI:4/10/02 2:14:18 AM > Successfully downloaded 10 picture files
:DI:4/10/02 2:14:18 AM > 100% OF PICTURES DOWNLOADED OR FOUND
:DI:4/10/02 2:14:18 AM > Done with FTP
:DI:4/10/02 2:14:19 AM > Ad Show Times Log(s) Uploaded
:DI:4/10/02 2:14:26 AM > Uploaded CVShow_020409_0102_.log
:DI:4/10/02 2:14:29 AM > Uploaded CVShow_020410_0102_.log
:DI:4/10/02 2:14:29 AM > This Log Uploaded
:DI:4/10/02 2:14:33 AM > ...ON LINE TIME = -1 hours 11 minutes 48 seconds
:DI:4/10/02 2:14:42 AM > Information gathering completed

:DS:4/10/02 2:14:52 AM > Displayer #1 , Act #1 starting...
:DS:4/10/02 2:14:53 AM > Displayer #2 , Act #1 starting...
:ST:4/10/02 8:08:50 AM > Version Ver. 4.1bcmb 03/22/02 bc 2002
:ST:4/10/02 8:08:56 AM > MACHINE START ok
:ST:4/10/02 8:08:58 AM > Starting Director
:DI:4/10/02 8:08:58 AM > Director Started...
:DI:4/10/02 8:09:02 AM > NO call Time
:ST:4/10/02 8:09:05 AM > CV_Director.exe Started successfully... logging out
:ST:4/10/02 8:09:05 AM > Starting System Monitor
:ST:4/10/02 8:09:06 AM > Could Not find C:\CORE\CV_Monitor.exe
:DI:4/10/02 8:09:13 AM > >>>> Processing Small ACT File
:DI:4/10/02 8:09:13 AM > Excluded files = pub.jpg ,monarchjpg
:DI:4/10/02 8:09:13 AM > Information gathering completed
:DI:4/10/02 8:09:14 AM > Director OK
:DS:4/10/02 8:09:24 AM > Displayer #1 , Act #1 starting...
:DS:4/10/02 8:09:24 AM > Displayer #2 , Act #1 starting...

:DI:4/10/02 10:00:03 AM > Director OK
:DI:4/10/02 12:00:05 PM > Director OK
:DI:4/10/02 2:00:04 PM > Director OK
:DI:4/10/02 4:00:06 PM > Director OK
:DI:4/10/02 6:00:06 PM > Director OK
:DI:4/10/02 8:00:00 PM > Director OK
:DI:4/10/02 10:00:04 PM > Director OK
:ACT1-DS1:4/11/02 12:29:55 AM > Displayer doesn't see Director running!
:ACT1-DS2:4/11/02 12:29:58 AM > Displayer doesn't see Director running!
:ACT1-DS1:4/11/02 12:29:58 AM > Forcing Reboot !
:ACT1-DS2:4/11/02 12:30:01 AM > Forcing Reboot !
:ST:4/11/02 12:31:23 AM > Version Ver. 4.1bcmb 03/22/02 bc 2002
:ST:4/11/02 12:31:29 AM > MACHINE START ok
:ST:4/11/02 12:31:31 AM > Starting Director
:DI:4/11/02 12:31:31 AM > Director Started...
:DI:4/11/02 12:31:35 AM > NO call Time

:ST:4/11/02 12:31:38 AM > CV_Director.exe Started successfully... logging out
:ST:4/11/02 12:31:39 AM > Starting System Monitor
:ST:4/11/02 12:31:39 AM > Could Not find C:\CORE\CV_Monitor.exe
:DI:4/11/02 12:31:46 AM > >>>> Processing Small ACT File
:DI:4/11/02 12:31:46 AM > Excluded files = pub.jpg , ,monarch_marquee_1.jpg ,
:DI:4/11/02 12:31:47 AM > Information gathering completed
:DI:4/11/02 12:31:48 AM > Director OK
:DS:4/11/02 12:31:57 AM > Displayer #1 , Act #1 starting...
:DS:4/11/02 12:31:57 AM > Displayer #2 , Act #1 starting...
:DI:4/11/02 2:00:05 AM > Director OK
:DI:4/11/02 2:02:05 AM > Information gathering started
:DI:4/11/02 2:02:37 AM > Starting Dialer
:DL:4/11/02 2:03:38 AM > Connected Successfully...
:DI:4/11/02 2:03:51 AM > FTP site Connected - Server returns Code 200 28
:DI:4/11/02 2:03:57 AM > This Log Uploaded
:DI:4/11/02 2:04:19 AM > No new Spielberg file found

:DI:4/11/02 2:04:29 AM > Small Spielberg file not found
:DI:4/11/02 2:04:32 AM > Processing Files to be returned
:DI:4/11/02 2:04:38 AM > Processing Files to be deleted
:DI:4/11/02 2:04:44 AM > Processing Files to be downloaded
:DI:4/11/02 2:04:50 AM > Processing Upgrade Files to be downloaded
:DI:4/11/02 2:04:55 AM > Processing Directory listings to be returned
:DI:4/11/02 2:05:01 AM > Processing Exclude from Act File
:DI:4/11/02 2:05:05 AM > Processing Act File
:DI:4/11/02 2:05:14 AM > Small ACT File downloaded
:DI:4/11/02 2:05:14 AM > ACT File downloaded
:DI:4/11/02 2:05:15 AM > >>>> Processing Small ACT File
:DI:4/11/02 2:05:15 AM > Excluded files = pub.jpg, monarch_marquee_1.jpg :DI:4/11/02 2:05:15 AM > ACTS Parsed successfully
:DI:4/11/02 2:05:16 AM > .....DOWNLOADING ACT DEFINED FILES.....
:DI:4/11/02 2:05:16 AM > .....ACT DEFINITION FILE NUMBER 1
:DI:4/11/02 2:05:16 AM > .....Already have acme.jpg

:DI:4/11/02 2:05:16 AM > ...DOWNLOAD TIME = 0 hours 0 minutes 0 seconds
:DI:4/11/02 2:05:17 AM > .....DONE DOWNLOADING PICTURE FILES.....
:DI:4/11/02 2:05:17 AM > Requested to download 1 picture files
:DI:4/11/02 2:05:17 AM > Successfully downloaded 0 picture files
:DI:4/11/02 2:05:17 AM > 100% OF PICTURES DOWNLOADED OR FOUND
:DI:4/11/02 2:05:17 AM > Done with FTP
:DI:4/11/02 2:05:19 AM > Ad Show Times Log(s) Uploaded
:DI:4/11/02 2:05:25 AM > Uploaded CVShow_020410_0102_.log
:DI:4/11/02 2:05:29 AM > Uploaded CVShow_020411_0102_.log
:DI:4/11/02 2:05:29 AM > This Log Uploaded
:DI:4/11/02 2:05:32 AM > ...ON LINE TIME = -1 hours 2 minutes 44 seconds
:DI:4/11/02 2:05:42 AM > Information gathering completed
FILE PARSED 4/11/02 2:05:53 AM
MACHINE NUMBER 0102 VERSION Ver. 4.1bcmb 03/22/02 bc 2002

As reference above, the Spielberg is a specialized hardware/firmware instruction set. An illustrative, but nonlimiting, example of a Spielberg file is shown below in Table 5.

Table 5 – Spielberg File
' all ' are ignored
'st:=starter
'dl:=dialer
'di:=director
'ds:=displayer
'gn:=general
'CHAMPAIGN DIS3 353-7800
'General constants
'----------
' force a reboot right after download of this file with or without doing dialup
' 0 =dont reboot 1= reboot without dial 2=forceshutdown
gn:forcereboot=0
' how often in minutes picture show time log should write to log

gn:writelogpicmins=30
' name of log that track total picture show time (prefix to> Show + date
gn:logpicfile=CVShow
' text file list of files to download (somewhat redundant to ACTS)
gn:download=download.txt
' local text file of time and size of last download.txt
gn:lastdownload=lastdownload.txt
' text file list of files to exclude from ACTS
gn:exclude=exclude.txt
' local text file of time and size of last exclude.txt
gn:lastexclude=lastexclude.txt
' number of minutes to count button pushes
gn:buttoncountmins=60
' text file list of directory listings to return (puts RT_ on returned file)
gn:returndir=returndir.txt
' text file directory listing is returned in

gn:returndirtext=returndirtext.txt
' local text file of time and size of last returndir.txt
gn:lastreturndir=lastreturndir.txt
' text file list of files to return
gn:returnfile=returnfile.txt
' local text file of time and size of last returnfile.txt
gn:lastreturnfile=lastreturnfile.txt
' text file list of files to delete (must be full path or begin with / to branch off main app)
gn:killfile=killfile.txt
' local text file of time and size of last killfile.txt
gn:lastkillfile=lastkillfile.txt
' local text file of time and size of last spielberg.txt (this file)
gn:lastspielbergfile=lastspielbergfile.txt
' prefix of name of machine FTP directory
gn:webdirprefix =advermain\CV

' name of region FTP directory
gn:webdirregion=advermain\REG1
' name of group FTP directory
gn:webdirgroup=advermain\GROUP1
' name of district FTP directory
gn:webdirdistrict=advermain\DIS3
' name of state FTP directory
gn:webdirstate=advermain\STA1
' name of trouble notification FTP directory
gn:webdirtrouble=advermain\CV_Trouble
' main Dialer DUN
gn:maindialer=MainDialer
' Name of file with Machine ID
gn:meidtxt=MeId.txt
' seconds to wait for dialer to connect after starting
gn:timetowait=50

' number of trys dialer will try before giving up (not same as DUN setting)
gn:numtrys=3
' file that flags when director program starts
gn:directorok=DirOK.txt
' flag file to notify that dialer program started
gn:dialerok=DialOK.txt
' name of upgrade directory
gn:upgradefolder=upgrades
' ok text constant
gn:ok=OK
' Unknown text constant
gn:unknown=UNKNOWN
' Maximum size of log
gn:maxlogsize=40000
' log file name
gn:cvlog=CV

' Already have pics log file name
gn:cvAlreadylog=CVAlready
' Maximum size of button log
gn:maxbuttonlogsize=30000
' log button file name
gn:cvbuttonlog=CVButton
' makes the director call instantly upon restart
gn:noinstdialfile=noInstDial.txt
' if there are files that have a jump to or tag file then show the small indicator TRUE OR FALSE
gn:showjumptags=
' if there are files that have a jump to or tag file then allow middle button to jump to file TRUE OR FALSE
gn:activatejumps=
' DO not show add number TRUE OR FALSE
gn:donotshowadnumbers=
' How many numbered small act files to look for

gn:numberofsmallacts=5
'STARTER constants
'----------
' Vertical resolution of display
st:vrez=768
' Horizontal resolution of display
st:hrez=1024
' color bit depth of display
st:colors=24
' picture when machine starts - expands out
st:mainpic=CV_START.jpg
' picture when a problem with machine occurs
st:retrypic=CV_Retry.jpg
' seconds user intervention (keypress) can stop program
st:startinterrupter=5
' seconds CV_Starter.exe program waits for CV_Director.exe to start

st:directorstart=60
' seconds between checks of CV_Starter.exe looking for CV_Director.exe
st:dircheckssecs=3
' name of Director program
st:directorprog=CV_Director.exe
' name of Monitor program
st:monitorprog=CV_Monitor.exe
' name of file that logs last reboot time
st:lastreboottry=lastTry.txt
' file that keeps track of number of reboots attempted
st:numberoftrys=numberTry.txt
' number of trys to reboot at one time
st:trythismanyreboots=3
' seconds to wait after number of retrys attempted to try again
st:waitforreboot=3600
' beginning of every line written to log by starter

st:stlinebegin=ST
'DIALER constants
'----------
' name of main DUN
dl:maindialer=MainDialer
' user name for ISP
dl:dialeruser=**********
' password for ISP
dl:dialerpassword=********
' phone number for ISP
dl:dialerphone*********
' user name for emergency ISP
dl:emergdialeruser=
' password for emergency ISP
dl:emergdialerpassword=

' phone number for emergency ISP
dl:emergdialerphone=
' number of seconds to check that dialer started
dl:dialchecks=3
' beginning of every line writen to log by dialer
dl:dllinebegin=DL
'
'The dialer will not call in between these times
'they will be stored in register once recieved
' send default date of DEFAULTCALLTIME = 1:11 to clear entrys
' NOTE both start and end times must be sent to make settings
dl:NoCallStartTime1=
'
dl:NoCallStartTime2=
'
dl:NoCallStartTime3=

'
dl:NoCallEndTime1=
'
dl:NoCallEndTime2=
'
dl:NoCallEndTime3=
'DIRECTOR constants
'----------
' name of Dialer program
di:dialerprog=CV_DIALER.exe
' how often to check if it is time to call in
di:chkcalltimesecs=1800
' how often to check if it is time to change acts
di:chkacttimesecs=300
' call in time

di:timetocalltime=2:00 am
' file holds next call in time
di:nextcallfile=DirNextCall.txt
' file that keeps track of how many times dialer wasn't found
di:dialernotfoundflag =dialError.txt
' beginning of every line writen to log by director
di:dilinebegin=DI
' name of main act file
di:mainactfile=ActsFile.txt
' name of last main act file
di:lastmainactfile=LastActsFile.txt
' name of small act file
di:smallactfile=SmallAct.txt
' name of last main act file
di:lastsmallactfile=LastSmallActFile.txt
' FTP channel number

di:channelno= 0
' FTP home
di:ceserver=Classiviews.com
' FTP user name
di:ceuser=*********
' FTP password
di:cepass=**********
' FTP Alternate home
di:bu_ceserver=Classiviews.com
' FTP Alternate user name
di:bu_ceuser=*********
' FTP Alternate password
di:bu_cepass=********
' how long has connection been open
di:connectionmins=30
' how long to wait for dialer to start

di:dialstart = 60
' how many days between times unused ads are deleted (-number = never)
di:maxnumberdaysbeforedelete=7
' location of default act
di:coredir=C:\Core
' location of act and panel files
di:machinedir =Machine
' location of picture files
di:picturedir =Pictures

There are multiple layers of error handling redundancy including a global computer network, e.g., Internet, Service Provider connection failure, File Transfer Protocol Internet site failure, partial download handling error, power interruption, operating system failure, logging advertisement display times, atomic time setting, redialing and rebooting on a particular failure level, and so forth.

The next step is to download a new screen configuration <420>. With this invention the possibilities are virtually endless as will be described below. The next program step is to download parameters associated with a specific panel instruction file "ACT file" <422>. This can include, as nonlimiting examples: height, width,

transition type, scroll, number of panel pictures, seconds to display, order, file size, file identification, scroll direction and speed of the scroll. There are defaults associated with each of these parameters and all panels are individually driven.

The next step is to download the actual advertising data file <426>. An illustrative but nonlimiting example would be JPEG files. This is followed by then making a query as to whether or not the advertising instruction or ACT files should be returned to the software system <428>. If the response to this query is positive, the listed files are transmitted back or returned to the system. If the response to this query is negative, then a query is made as to whether these files should be deleted <430>. If the response to this query is positive, then the files will be deleted <432>. If the response to this query is negative, then the configuration files (ACT) associated with the advertising is created <436>. The creation and publication of configuration files is automatic. The single panel instructions or ACT file is then processed <438>.

The next step is to retrieve the panel configuration files associated with a single panel instructions or ACT file <440>. The electronic display can be configured in a series of panels in a myriad of arrangements. As shown in FIG. 8, an illustrative but nonlimiting display screen is shown as generally indicated by numeral 706. There is a main display portion 502 with a bottom display panel 504 and a side display panel 506. A trademark for the software system can be displayed in small rectangular panel 508. Referring now to FIG. 9, another alternative embodiment of an illustrative but nonlimiting display screen is shown as generally indicated by numeral 706. There is a main display portion 602 with a top display panel 606 and a bottom display panel 604.

A trademark for the software system can be displayed in a small rectangular panel 608. These are merely two illustrative and nonlimiting illustrations.

Referring again to FIG. 4, after retrieving the panel configuration files, then the software enters a panel software loop <442>. The first step in the panel software loop is to retrieve the percentage of a specific panel in the top and left portion in relation to the entire electronic display screen 706 <444>. This is followed by retrieving the percentage of a specific panel in relation to the width and height of the entire electronic display screen 706 <446>. The percentages of the specific panel in the top portion and left portion of the entire electronic display 706 as well as the percentages of the specific panel of the width and height in relation to the entire electronic display are then converted into twips <448>. Twips are units of measurement used in graphics, which represent 1/1440 of an inch or 1/20 of a printer's point. There are 1440 twips to an inch and 567 twips to a centimeter. Twips are measurements that are screen-independent.

The next step is to convert the twips to pixels <450>. A pixel is a picture 30 element and is a single point in a digital graphic image. With a color monitor, each pixel represents three dots (red, blue, and green). With the preferred liquid crystal diode display, there is a display size of 1024 x 768 pixels SVGA system with a top panel 502 in FIG. 5 displaying a height of 682 pixels and the bottom panel 504 being a scrolling marquee of 86 pixels.

The next step is to write this pixel information to a text file <452> and start the display subroutine 454. This subroutine involves starting the display subroutine 466, reading the pixel information text file <468>, setting the panel size <470>,

setting the looping function for creating a duration of time for showing the advertisement on the electronic display 706 <472>, loading the next advertisement file <474> and showing it for a period of time in seconds <476>. Upon completion of the display subroutine, a query is made as to how many panels are to be displayed. If there are more panels to be displayed, a counter of the number of panels is incremented by one <451> and the software program returns to step <442> to continue the panel loop. If no more panels require displaying, then a control loop in the software is entered <458>. A determination is made if it is time to call to retrieve another advertisement from the system <460>. If this query is negative, another panel configuration or ACT file is ready to be displayed <464> and the software returns to step <438> for processing. If the query as to whether it is time to call global computer network, e.g., Internet, service provider to retrieve new advertisements is positive <460>, then the software system makes sure that there was a hang-up for the dial-up network from process step <430>. The software program then returns to process step <418> to start the dial-up process. If it is not time for the next single panel instructions or ACT file in step <462>, then the software returns to the start of the control loop <458>. Either MICROSOFT® WINDOWS® or UNIX® operating system can be used with the present invention.

This patent application is intended to cover all aspects of providing advertisements on an electronic display. Any type of data storage device or data transfer device will suffice to provide the advertisements. An alternative to a global computer network, e.g., Internet is the use of satellite and wireless technology. An example of using satellite technology with a global computer network, e.g., Internet is disclosed in U.S. Patent No. 6,105,060, entitled: "System for Providing Global

Portable Internet Access Using Low Earth Orbit Satellite and Satellite Direct Radio Broadcast System", which issued August 15, 2000 to Rothblatt and is incorporated herein by reference.

A first alternative embodiment is the use of encoded local advertisements sent by satellite and then decoded locally with a receiver associated with an electronic display. Each receiver would decode the appropriate want ads associated with a particular electronic display. The transmission of video content via satellite is disclosed in U.S. Patent No. 6,111,611 issued to Ozkan et al. on August 29, 2000 and is incorporated herein by reference.

INDUSTRIAL APPLICABILITY

The present invention is advantageously applicable in presenting local advertisements to customers on an electronic display. This is a powerful marketing tool to attract customers to advertisements that that would not be motivated enough to review the newspaper or specialized publications for advertisements. This format can show full color pictures with much more information as to the condition, quality, color, dimensions, and so forth of the particular goods or services offered for sale. This decreases the amount of time the advertiser spends in answering questions over the phone or in person. This system is utilized in conjunction with a website on a global computer network, e.g. Internet, so that virtually all possible information about a particular product or service can be imparted to the consumer with full searching capabilities.

Other aspects, objects and advantages of the present invention can be obtained from a study of the drawings, the disclosure and the appended claims.

Claims

1. A method for displaying advertising comprising:

downloading at least one advertisement from a data storage device or a data transfer device with at least one processor that is in electronic communication with the data storage or the data transfer device; and

displaying the at least one advertisement on a predetermined number of electronic displays of a plurality of electronic displays, wherein the plurality of electronic displays are operatively connected to the at least one processor.

2. The method for displaying advertising according to Claim 1, wherein the displaying the at least one advertisement is on at least one panel of a plurality of panels visually appearing on each of the predetermined number of electronic displays.

3. The method for displaying advertising according to Claim 1, wherein the displaying the at least one advertisement on the predetermined number of electronic displays is at a predetermined time for a predetermined duration of time.

4. The method for displaying advertising according to Claim 1, wherein the displaying of the at least one advertisement on the predetermined number of electronic displays is repeated during a predetermined time interval.

5. The method for displaying advertising according to Claim 1, further including, prior to downloading at least one advertisement from a data storage device or a data transfer device, the following:

uploading at least one advertisement to a data storage device or a data transfer device; and

uploading information associated with the at least one advertisement selected from the group consisting of duration of display for the at least one advertisement, time of display of the at least one advertisement, number of repeated showings for the at least one advertisement and any combination thereof.

6. The method for displaying advertising according to Claim 1, further including downloading information that deletes at least one advertisement from the at least one processor.

7. The method for displaying advertising according to Claim 1, wherein the electronic communication between the data storage device or the data transfer device and the at least one processor is selected from the group consisting of modems, network cards, wireless communication, satellite communication and any combination thereof.

8. The method for displaying advertising according to Claim 1, wherein each electronic display of the plurality of electronic displays is selected from the group consisting of a liquid crystal diode display, a plasma screen and a cathode ray tube.

9. A method for displaying advertising comprising:

downloading a plurality of advertisements from a data storage device or a data transfer device with at least one processor that is in electronic communication with the data storage device or the data transfer device;

downloading a plurality of data files that are in one-to-one correspondence with the plurality of advertisements, wherein the plurality of data files provide information selected from the group consisting of a duration of display for each advertisement, a number of times that each advertisement is shown and a predetermined time when each advertisement is shown; and

displaying of the plurality of advertisements on a predetermined number of electronic displays of a plurality of electronic displays.

10. The method for displaying advertising according to Claim 9, further including:

updating the at least one processor with recompiled data from the group consisting of processor information, at least one predetermined grouping of processors, at least one advertising data file, at least one panel configuration file and combinations thereof;

processing logs of status information selected from the group consisting of processor status information, system status information and advertising information with the at least one processor;

updating a data storage device or a data transfer device that provides access to advertising information; and

providing process alerts when errors or discrepancies are encountered by the at least one processor.

11. The method for displaying advertising according to Claim 9, further including inputting at least one advertisement of the plurality of advertisements into a file that is accessible from the data storage device or the data transfer device

12. The method for displaying advertising according to Claim 11, further including:

associating descriptive material for at least one advertisement of the plurality of advertisements;

receiving customer contact information for at least one advertisement of the plurality of advertisements; and

receiving payment information for at least one advertisement of the plurality of advertisements.

13. The method for displaying advertising according to Claim 12, wherein the descriptive material associated with at least one advertisement of the plurality of advertisements is selected from the group consisting of an advertising category for the at least one advertisement of the plurality of advertisements, an advertising title for the at least one advertisement of the plurality of advertisements, a predetermined number of electronic displays that will show the at least one advertisement of the plurality of advertisements, the starting date for the at least one advertisement of the plurality of advertisements, the duration of showing for the at least one advertisement

of the plurality of advertisements, a template type for the at least one advertisement of the plurality of advertisements, descriptive text associated with the at least one advertisement of the plurality of advertisements and any combination thereof.

14. The method for displaying advertising according to Claim 12, wherein the customer contact information associated with the at least one advertisement of the plurality of advertisements is selected from the group consisting of a customer identification code, a business name, a contact name, a daytime phone, a nighttime phone, a fax number, an e-mail address, a processor identification and any combination thereof.

15. The method for displaying advertising according to Claim 12, wherein the payment information associated with the at least one advertisement of the plurality of advertisements is selected from the group consisting of a payment method, an amount of cash, a bank card number, an expiration date for a bank card, a check number, a routing code for a check and any combination thereof.

16. The method for displaying advertising according to Claim 9, further including:

altering at least one advertisement of the plurality of advertisements stored on the at least one processor; and

reselecting a predetermined number of the plurality of electronic displays that will display the at least one advertisement of the plurality of advertisements.

17. The method for displaying advertising according to Claim 9, wherein a predetermined subset of the plurality of advertisements are simultaneously displayed on the predetermined number of electronic displays.

18. A method for displaying advertising comprising:

setting a resolution for at least one electronic display with at least one processor;

downloading an electronic display configuration with the at least one processor;

downloading at least one advertising data file configuration with the at least one processor;

downloading at least one panel configuration file configuration with the at least one processor;

determining at least one percentage of an attribute for a panel in relationship to an attribute for the at least one electronic display with the at least one processor;

converting the at least one percentage of an attribute for a panel to graphical display information for the at least one electronic display with the at least one processor;

writing the graphical display information to a text file with the at least one processor;

reading the graphical display information from the text file with the at least one processor;

setting a size for the panel as a function of the graphical display information for the at least one advertisement with the at least one processor;

loading the at least one advertising data file with the at least one processor; and

displaying the at least one advertising data file within the panel for a predetermined duration of time on at least one electronic display.

19. The method for displaying advertising according to Claim 18, wherein the at least one percentage of an attribute for the panel is selected from the group consisting of a top portion of the panel, a bottom portion of the panel, a left portion of the panel, a right portion of the panel, a width of the panel and a height of the panel in relation to the electronic display.

20. The method for displaying advertising according to Claim 18, wherein the converting of the at least one percentage to graphical display information for the at least one electronic display includes:

converting the at least one percentage of an attribute for the panel to graphical display information into twips; and

converting the value of twips corresponding to the graphical display information for the at least one percentage of an attribute for the panel into pixels.

21. A system for displaying advertising comprising:

at least one processor;

a data storage device or a data transfer device that is in electronic communication with the at least one processor; and

a plurality of electronic displays that is in electronic communication with the at least one processor, wherein the at least one processor downloads at least one advertisement from a data storage device or a data transfer device and displays the at least one advertisement on a predetermined number of electronic displays of the plurality of electronic displays.

22. The system for displaying advertising according to Claim 21, wherein the at least one processor is utilized to display at least one advertisement on at least one panel of a plurality of panels visually appearing on each of the predetermined number of electronic displays of the plurality of electronic displays.

23. The system for displaying advertising according to Claim 21, wherein the at least one processor is utilized to display at least one advertisement at a predetermined time for a predetermined duration on each of the predetermined number of electronic displays of the plurality of electronic displays.

24. The system for displaying advertising according to Claim 21, wherein the processor is utilized to repeatedly display at least one advertisement during a predetermined time period on each of the predetermined number of electronic displays of the plurality of electronic displays.

25. The system for displaying advertising according to Claim 21, wherein the at least one processor uploads at least one advertisement to a website on the data storage device or the data transfer device and the at least one processor uploads

information associated with the at least one advertisement selected from the group consisting of a duration of display, a time of display, a number of repeated showings and any combination thereof.

26. The system for displaying advertising according to Claim 21, wherein the at least one processor downloads information that deletes at least one advertisement from at least one processor.

27. The system for displaying advertising according to Claim 21, further including an electronic communication mechanism for providing electronic communication between the at least one processor and the data storage device or the data transfer device selected from the group consisting of modems, network cards, wireless communication, satellite communication and any combination thereof.

28. The system for displaying advertising according to Claim 21, wherein the at least one electronic display is selected from the group consisting of a liquid crystal diode display, a plasma screen and a cathode ray tube.

29. A system for displaying advertising comprising:

at least one processor;

a data storage device or a data transfer device, wherein the at least one processor is in electronic communication with the data storage device or the data transfer device; and

a plurality of electronic displays electrically connected to the at least one processor, wherein a plurality of advertisements are downloaded from the data storage device or the data transfer device with the at least one processor and a plurality of data files that are in a one-to-one correspondence with the plurality of advertisements that are downloaded with the at least one processor, wherein the plurality of data files provide information selected from the group consisting of duration of showing for each advertisement, number of times that each advertisement is shown and a predetermined time when each advertisement is shown and the plurality of advertisements are displayed on a predetermined number of electronic displays of a plurality of electronic displays.

30. The system for displaying advertising according to Claim 29, wherein the at least one processor inputs a plurality of advertisements into the processor.

31. The system for displaying advertising according to Claim 29, wherein the at least one processor is capable of receiving input of descriptive material associated with the plurality of advertisements and the processor is capable of receiving customer contact information for the plurality of advertisements and the at least one processor is capable of receiving payment information for each advertisement of the plurality of advertisements.

32. The system for displaying advertising according to Claim 31, wherein the descriptive material with each advertisement of the plurality of advertisements is selected from the group consisting of an advertising category, an advertising title, a

predetermined number of electronic displays that will show the at least one advertisement, the starting date for each advertisement of the plurality of advertisements, the duration of showing for each advertisement of the plurality of advertisements, a template type for each advertisement of the plurality of advertisements, descriptive text associated with for each advertisement of the plurality of advertisements and any combination thereof and the customer contact information associated with each advertisement that is selected from the group consisting of a customer identification, a business name, a contact name, a daytime phone, a nighttime phone, a fax number, an e-mail address, a processor number and any combination thereof and the customer contact information associated with each advertisement is selected from the group consisting of a customer identification code, a business name, a contact name, a daytime phone, a nighttime phone, a fax number, an e-mail address, a processor identification and any combination thereof and the payment information associated with each advertisement is selected from the group consisting of a payment method, amount of cash, a bank card number, an expiration date for a bank card, a check number, a routing code for a check and any combination thereof.

33. The system for displaying advertising according to Claim 29, wherein the at least one processor is capable of altering at least one advertisement of the plurality of advertisements stored on the at least one processor.

34. The system for displaying advertising according to Claim 29, wherein the at least one processor simultaneously displays on the at least one electronic display a predetermined subset of the plurality of advertisements

35. A system for displaying advertising comprising:

at least one processor;

a data storage device or a data transfer device that is in electronic communication with the at least one processor; and

at least one electronic display that is electrically connected to the at least one processor, wherein the at least one processor determines resolution for the at least one electronic display, downloads an electronic display configuration from the data storage device or the data transfer device, downloads at least one advertising data file from the data storage device or the data transfer device, downloads at least one panel configuration file from the data storage device or the data transfer device, determines at least one percentage of an attribute for a panel in relationship to an attribute for the at least one electronic display, converts the at least one percentage of an attribute for a panel to graphical display information for the at least one electronic display, writes the graphical display information to a text file, reads the graphical display information from the text file, sets a size for the panel as a function of the graphical display information for the at least one advertisement, loads the at least one advertising data file, and displays the at least one advertising data file within the panel for a predetermined duration of time on the at least one electronic display.

36. The system for displaying advertising according to Claim 35, wherein the at least one percentage of an attribute for a panel is selected from the group consisting of a top portion of the panel, a bottom portion of the panel, a left portion of the panel, a right portion of the panel, a width of the panel and a height of the panel in relation to the electronic display.

37. The system for displaying advertising according to Claim 36, wherein the at least one processor converts of the at least one percentage to graphical display information for the at least one electronic display by converting the at least one percentage of an attribute for a panel to graphical display information into twips and converting the value of twips corresponding to the graphical display information for the at least one percentage of an attribute for a panel into pixels.

38. A data processing system for displaying advertising utilizing an application program comprising:

a processor for processing the application program;

a database of at least one advertising data file; and

a database of at least one panel configuration file, wherein the processor utilizes the database of the at least one advertising data file and the database of the at least one panel configuration file on a one-to-one corresponding basis to display an advertising data file with an associated panel on at least one electronic display.

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39. A software program product for use in displaying advertising comprising:

a computer usable medium for causing a processor to associate an advertising data file with a file of associated information for displaying the advertising data file on at least one electronic display.

40. The software program product for use in displaying advertising according to Claim 39, wherein the file of associated information is selected from the group consisting of a duration of showing for each advertisement, a number of times that each advertisement is shown, a predetermined time when each advertisement is shown and panel configuration information.

41. A system for displaying advertising comprising:

at least one processor;

a data storage device or a data transfer device that is in electronic communication with the at least one processor;

at least one electronic display that is in electronic communication with the at least one processor, wherein the at least one processor downloads a plurality of advertisements from the data storage device or the data transfer device and sequentially displays the plurality of advertisements on a predetermined number of electronic displays of the plurality of electronic displays; and

at least one switch that is electrically connected to the processor that allows the plurality of advertisements to be viewed in a group consisting of moving forward through a sequence of the plurality of advertisements, moving backward through the

sequence of the plurality of advertisements and obtaining additional information regarding a particular advertisement of the plurality of advertisements.

Fig. 1

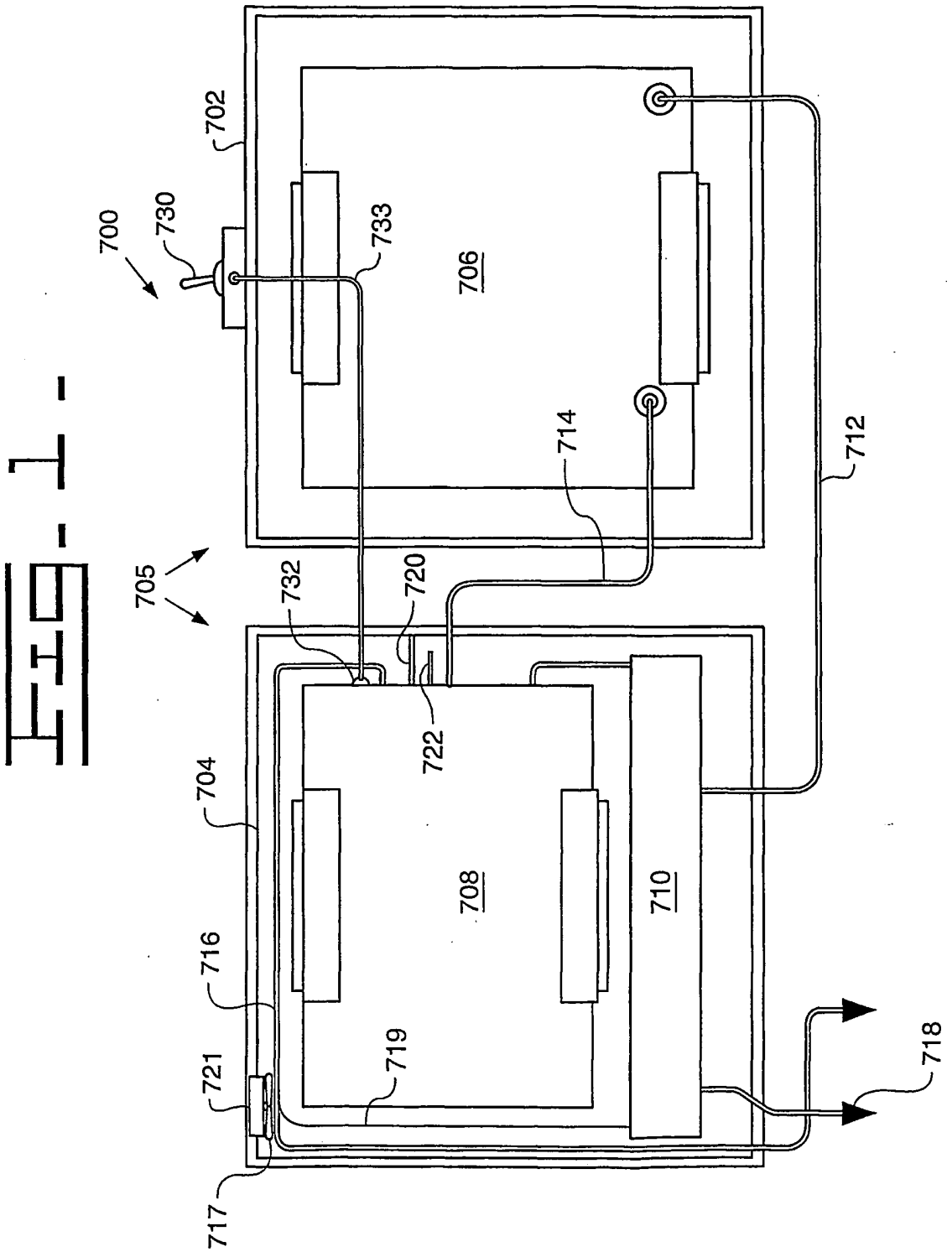

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717

Fig. 2

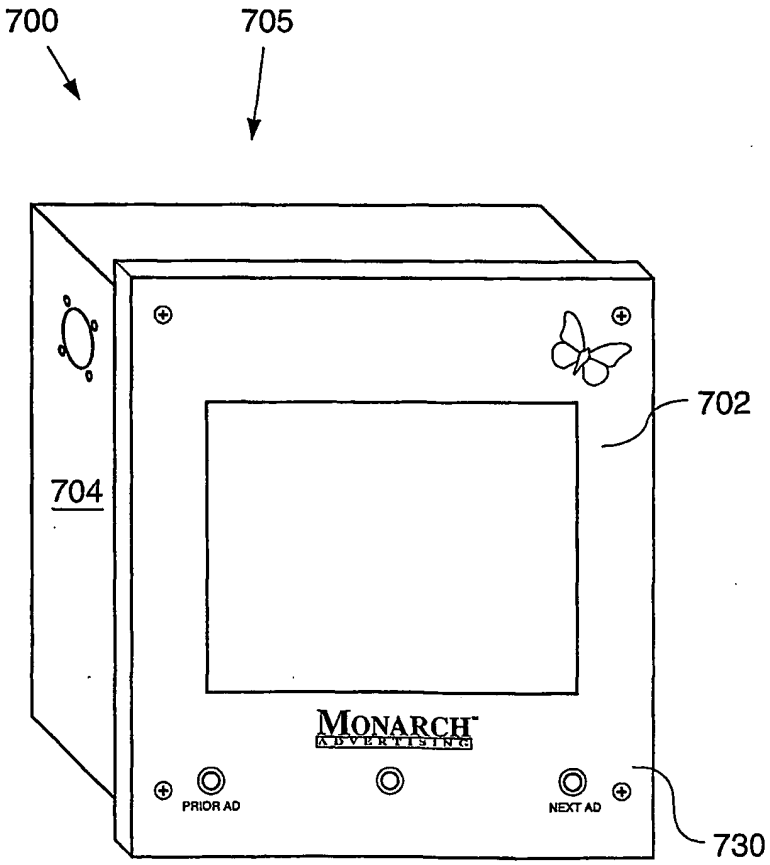


Fig. 3

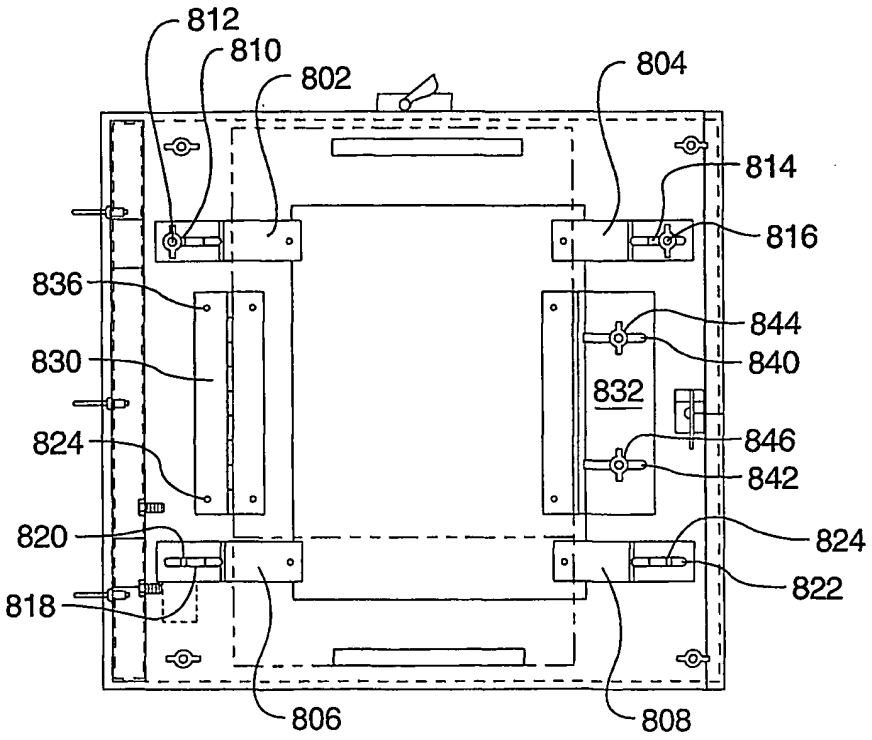
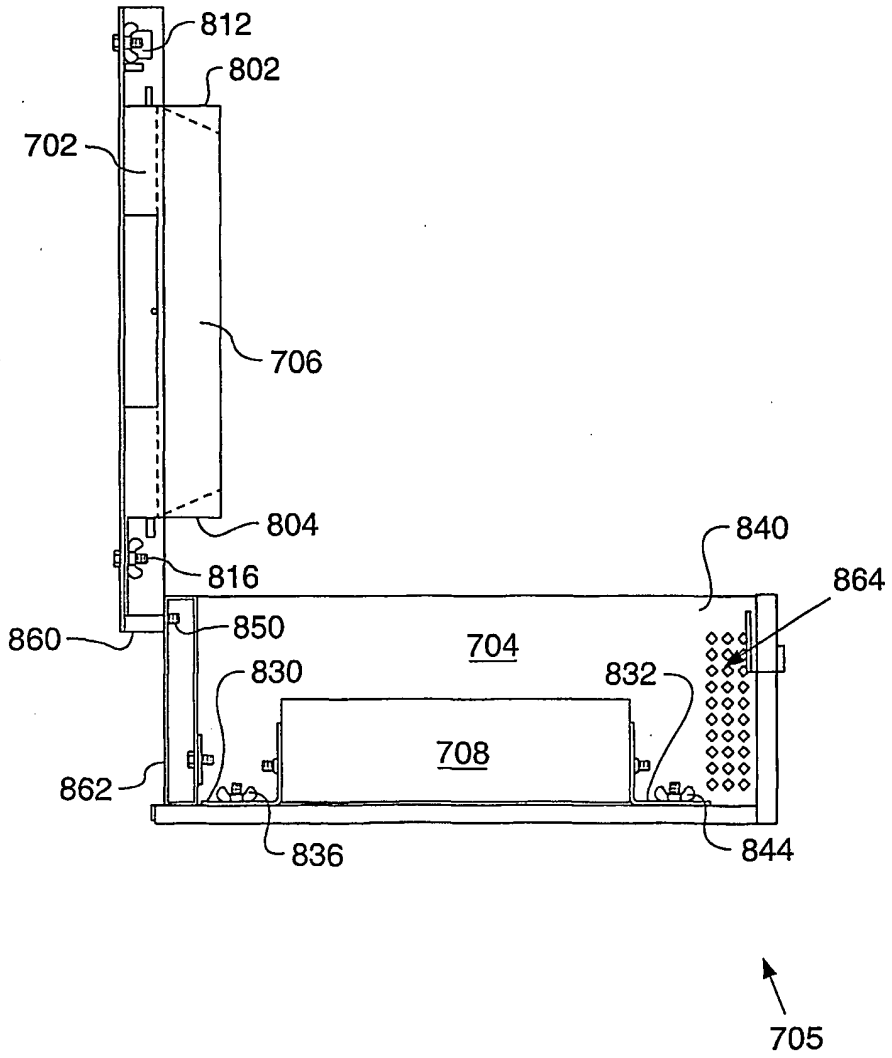

812
810
802
804
814
816
836
844
830
840
832
824
846
842
820
824
822
818
806
808

FIG. 4


812
802
702
706
804
816
840
864
860
850
704
830
832
708
862
836
844
705

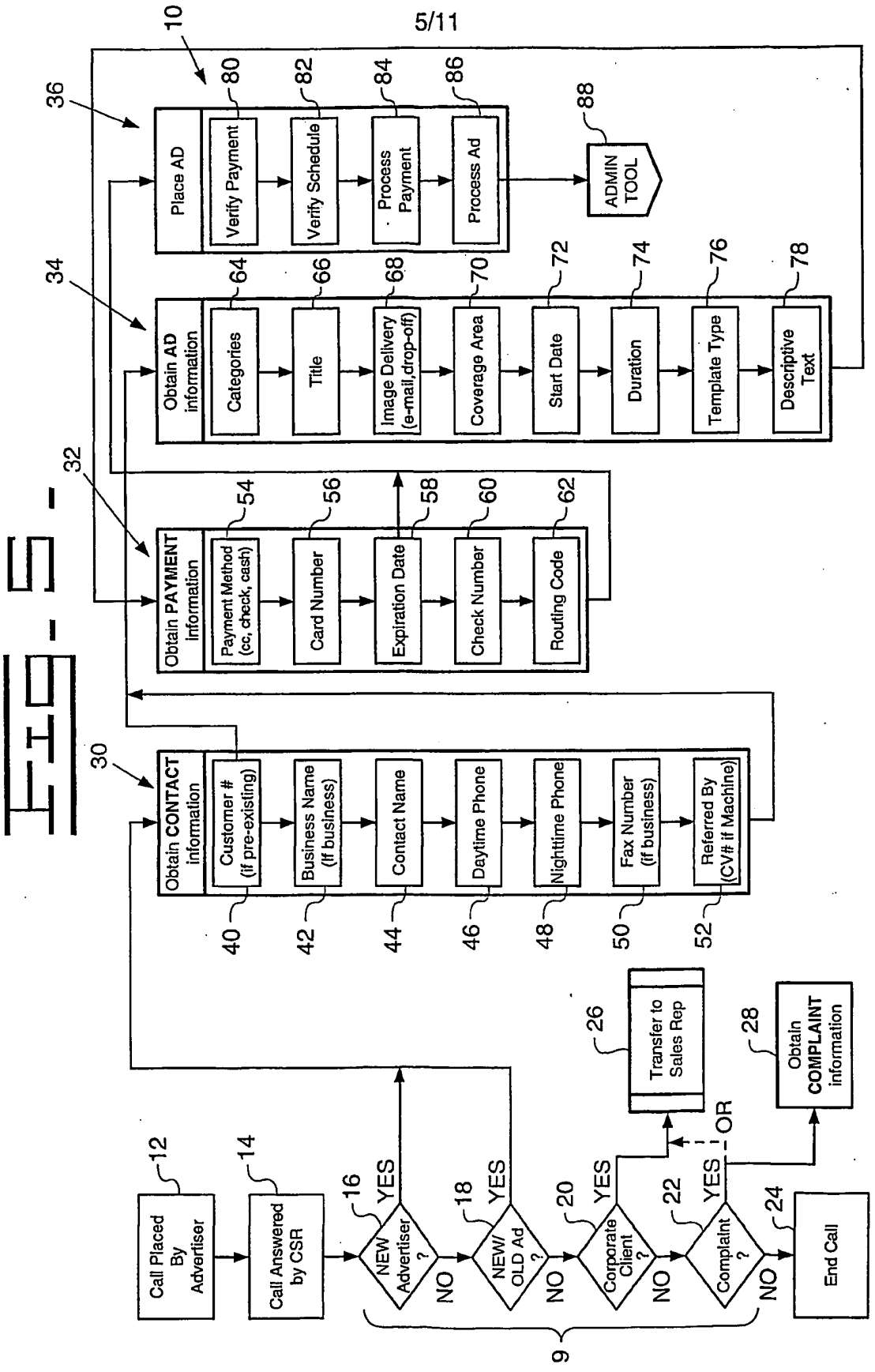
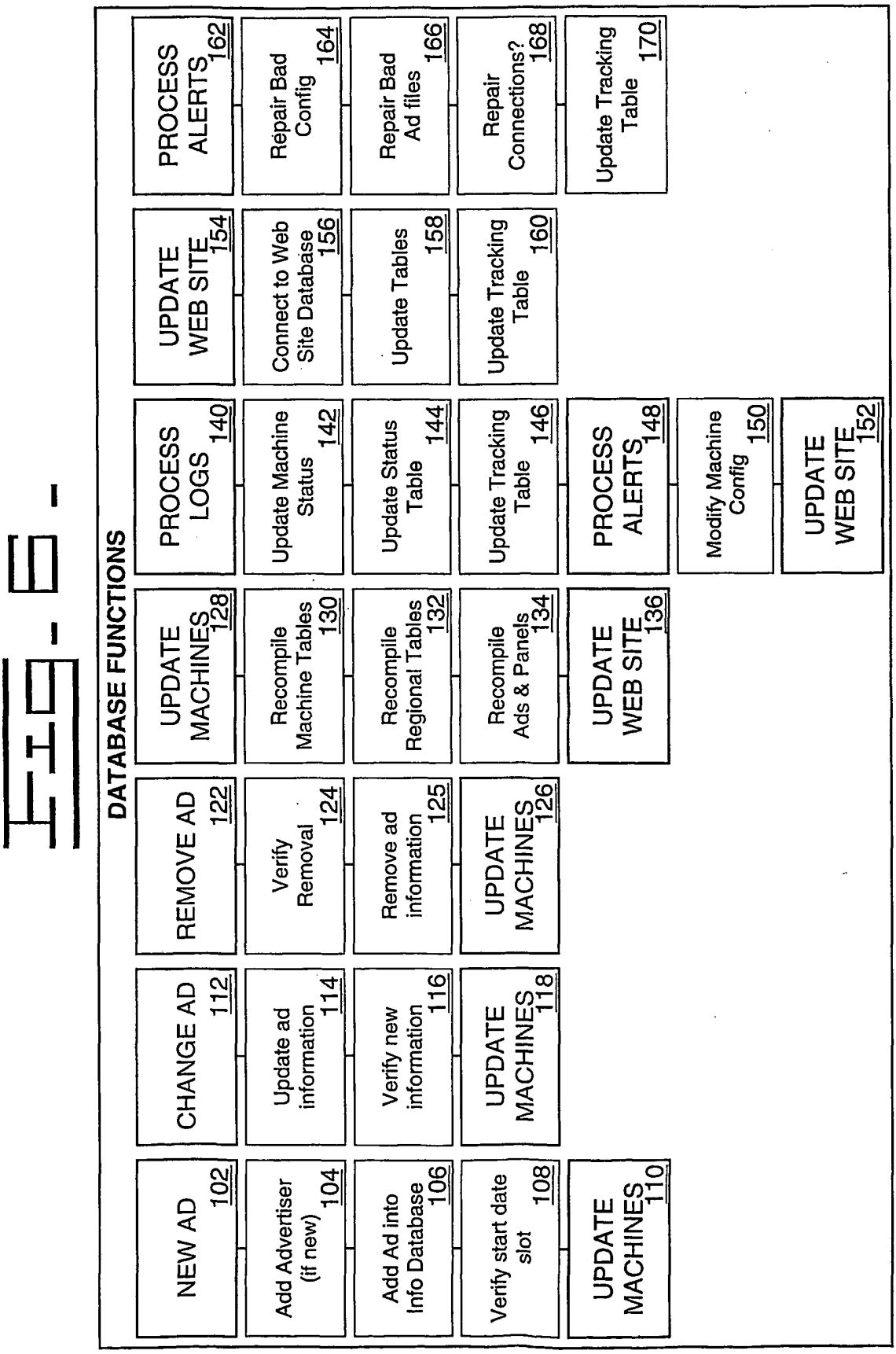

10
36
Place AD
80
Verify Payment
82
Verify Schedule
84
Process Payment
86
Process Ad
88
ADMIN TOOL
34
Obtain AD information
64
Categories
66
Title
68
Image Delivery (e-mail,drop-off)
70
Coverage Area
72
Start Date
74
Duration
76
Template Type
78
Descriptive Text
32
Obtain PAYMENT Information
54
Payment Method (cc, check, cash)
56
Card Number
58
Expiration Date
60
Check Number
62
Routing Code
30
Obtain CONTACT information
Customer # (if pre-existing)
Business Name (if business)
Contact Name
Daytime Phone
Nighttime Phone
Fax Number (if business)
Referred By (CV# if Machine)
40
42
44
46
48
50
52
12
Call Placed By Advertiser
14
Call Answered by CSR
16
NEW Advertiser ?
YES
NO
18
NEW/ OLD Ad ?
YES
NO
20
Corporate Client ?
YES
NO
22
Complaint ?
YES
NO
OR
24
End Call
26
Transfer to Sales Rep
28
Obtain COMPLAINT information
9

FIG-5-

FIG. 5


DATABASE FUNCTIONS
NEW AD 102
Add Advertiser (if new) 104
Add Ad into Info Database 106
Verify start date slot 108
UPDATE MACHINES 110
CHANGE AD 112
Update ad information 114
Verify new information 116
UPDATE MACHINES 118
REMOVE AD 122
Verify Removal 124
Remove ad information 125
UPDATE MACHINES 126
UPDATE MACHINES 128
Recompile Machine Tables 130
Recompile Regional Tables 132
Recompile Ads & Panels 134
UPDATE WEB SITE 136
PROCESS LOGS 140
Update Machine Status 142
Update Status Table 144
Update Tracking Table 146
PROCESS ALERTS 148
Modify Machine Config 150
UPDATE WEB SITE 152
UPDATE WEB SITE 154
Connect to Web Site Database 156
Update Tables 158
Update Tracking Table 160
PROCESS ALERTS 162
Repair Bad Config 164
Repair Bad Ad files 166
Repair Connections? 168
Update Tracking Table 170

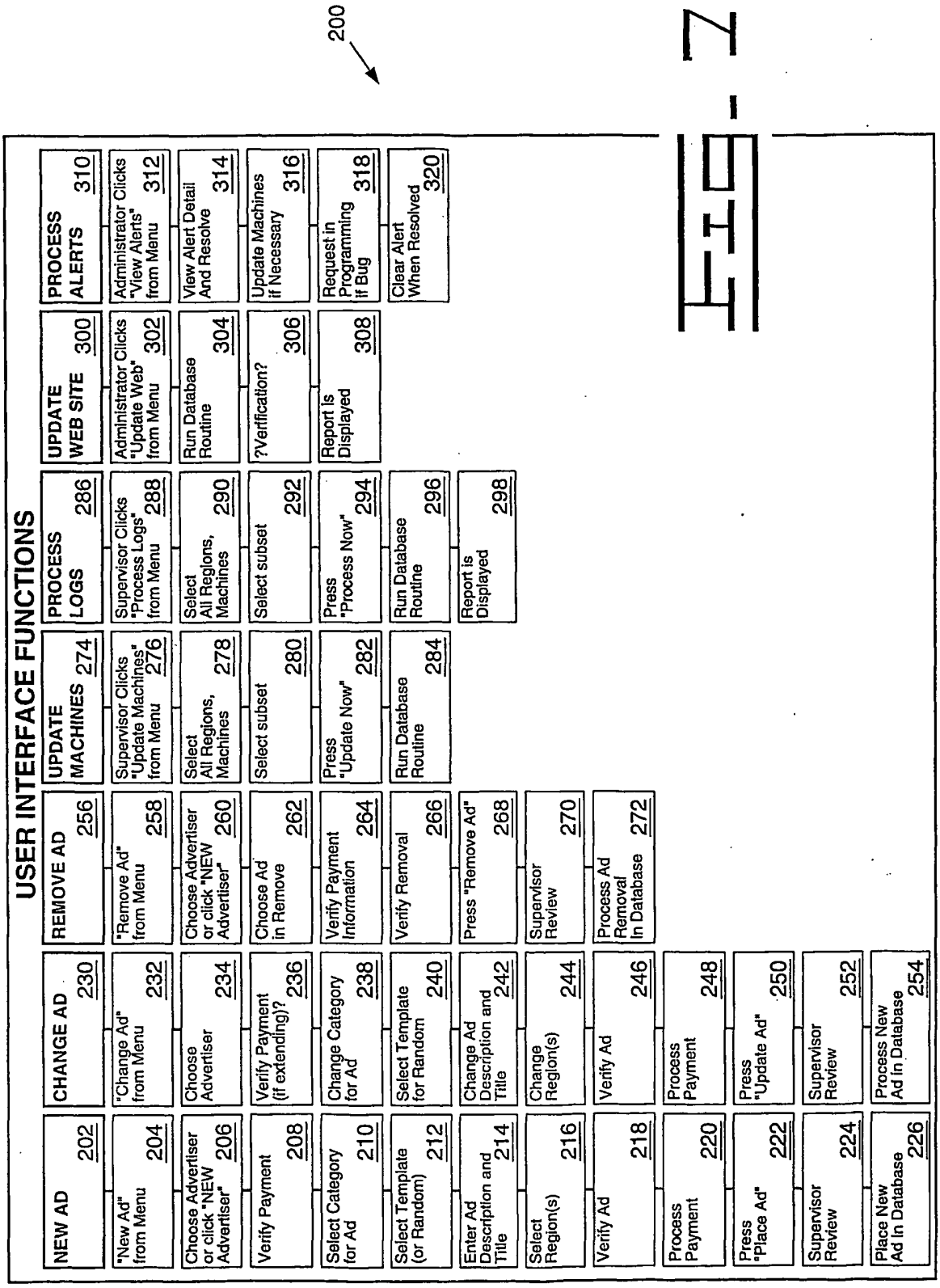

200
USER INTERFACE FUNCTIONS
NEW AD 202
"New Ad" from Menu 204
Choose Advertiser or click "NEW Advertiser" 206
Verify Payment 208
Select Category for Ad 210
Select Template (or Random) 212
Enter Ad Description and Title 214
Select Region(s) 216
Verify Ad 218
Process Payment 220
Press "Place Ad" 222
Supervisor Review 224
Place New Ad in Database 226
CHANGE AD 230
"Change Ad" from Menu 232
Choose Advertiser 234
Verify Payment (if extending)? 236
Change Category for Ad 238
Select Template for Random 240
Change Ad Description and Title 242
Change Region(s) 244
Verify Ad 246
Process Payment 248
Press "Update Ad" 250
Supervisor Review 252
Process New Ad in Database 254
REMOVE AD 256
"Remove Ad" from Menu 258
Choose Advertiser or click "NEW Advertiser" 260
Choose Ad in Remove 262
Verify Payment Information 264
Verify Removal 266
Press "Remove Ad" 268
Supervisor Review 270
Process Ad Removal In Database 272
UPDATE MACHINES 274
Supervisor Clicks "Update Machines" from Menu 276
Select All Regions, Machines 278
Select subset 280
Press "Update Now" 282
Run Database Routine 284
PROCESS LOGS 286
Supervisor Clicks "Process Logs" from Menu 288
Select All Regions, Machines 290
Select subset 292
Press "Process Now" 294
Run Database Routine 296
Report Is Displayed 298
UPDATE WEB SITE 300
Administrator Clicks "Update Web" from Menu 302
Run Database Routine 304
?Verification? 306
Report Is Displayed 308
PROCESS ALERTS 310
Administrator Clicks "View Alerts" from Menu 312
View Alert Detail And Resolve 314
Update Machines if Necessary 316
Request in Programming if Bug 318
Clear Alert When Resolved 320

FIG - 7

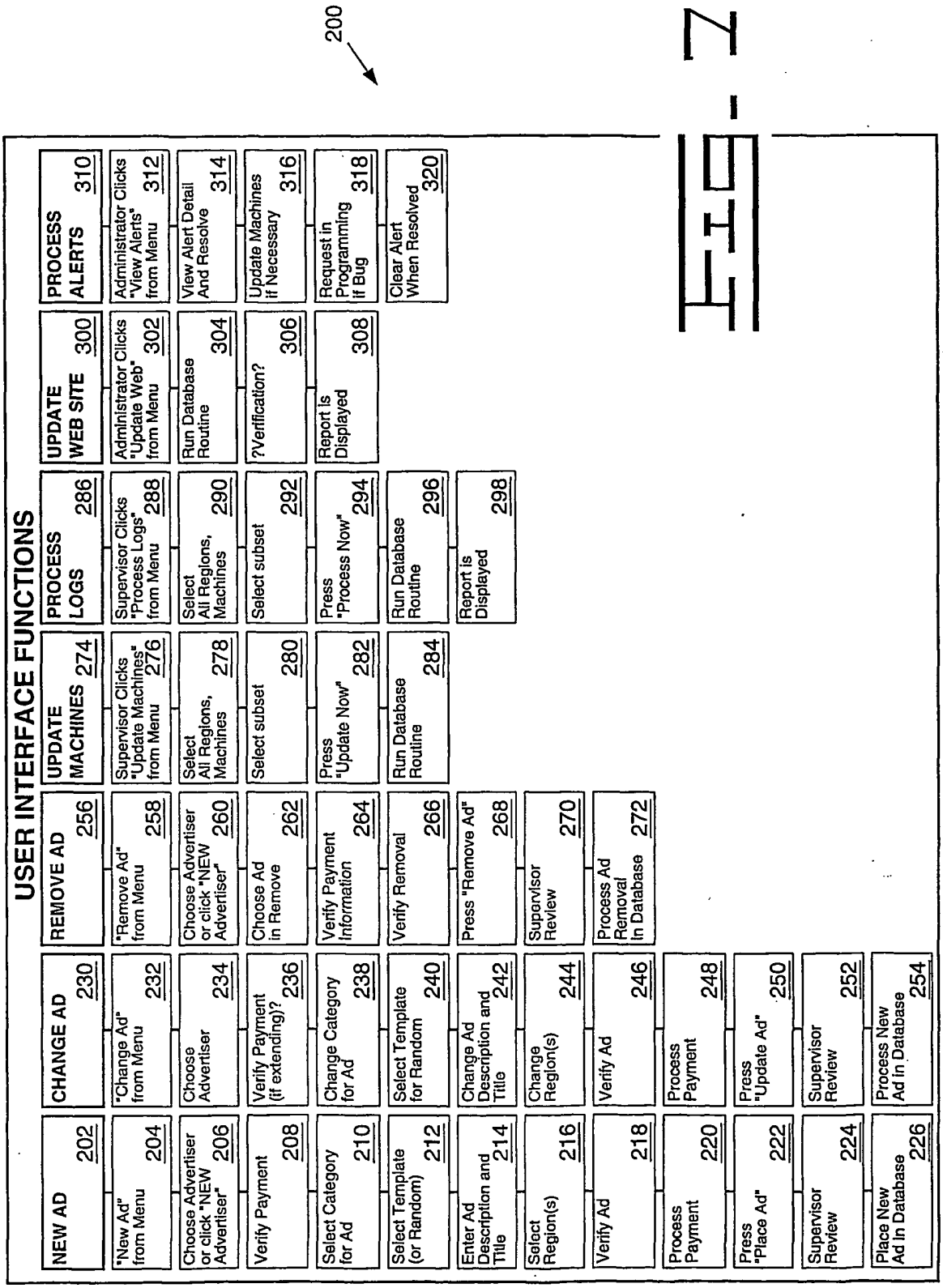

200
USER INTERFACE FUNCTIONS
NEW AD 202
"New Ad" from Menu 204
Choose Advertiser or click "NEW Advertiser" 206
Verify Payment 208
Select Category for Ad 210
Select Template (or Random) 212
Enter Ad Description and Title 214
Select Region(s) 216
Verify Ad 218
Process Payment 220
Press "Place Ad" 222
Supervisor Review 224
Place New Ad in Database 226
CHANGE AD 230
"Change Ad" from Menu 232
Choose Advertiser 234
Verify Payment (if extending)? 236
Change Category for Ad 238
Select Template for Random 240
Change Ad Description and Title 242
Change Region(s) 244
Verify Ad 246
Process Payment 248
Press "Update Ad" 250
Supervisor Review 252
Process New Ad in Database 254
REMOVE AD 256
"Remove Ad" from Menu 258
Choose Advertiser or click "NEW Advertiser" 260
Choose Ad in Remove 262
Verify Payment Information 264
Verify Removal 266
Press "Remove Ad" 268
Supervisor Review 270
Process Ad Removal In Database 272
UPDATE MACHINES 274
Supervisor Clicks "Update Machines" from Menu 276
Select All Regions, Machines 278
Select subset 280
Press "Update Now" 282
Run Database Routine 284
Report is Displayed 298
PROCESS LOGS 286
Supervisor Clicks "Process Logs" from Menu 288
Select All Regions, Machines 290
Select subset 292
Press "Process Now" 294
Run Database Routine 296
UPDATE WEB SITE 300
Administrator Clicks "Update Web" from Menu 302
Run Database Routine 304
?Verification? 306
Report Is Displayed 308
PROCESS ALERTS 310
Administrator Clicks "View Alerts" from Menu 312
View Alert Detail And Resolve 314
Update Machines if Necessary 316
Request in Programming if Bug 318
Clear Alert When Resolved 320

FIG-7-

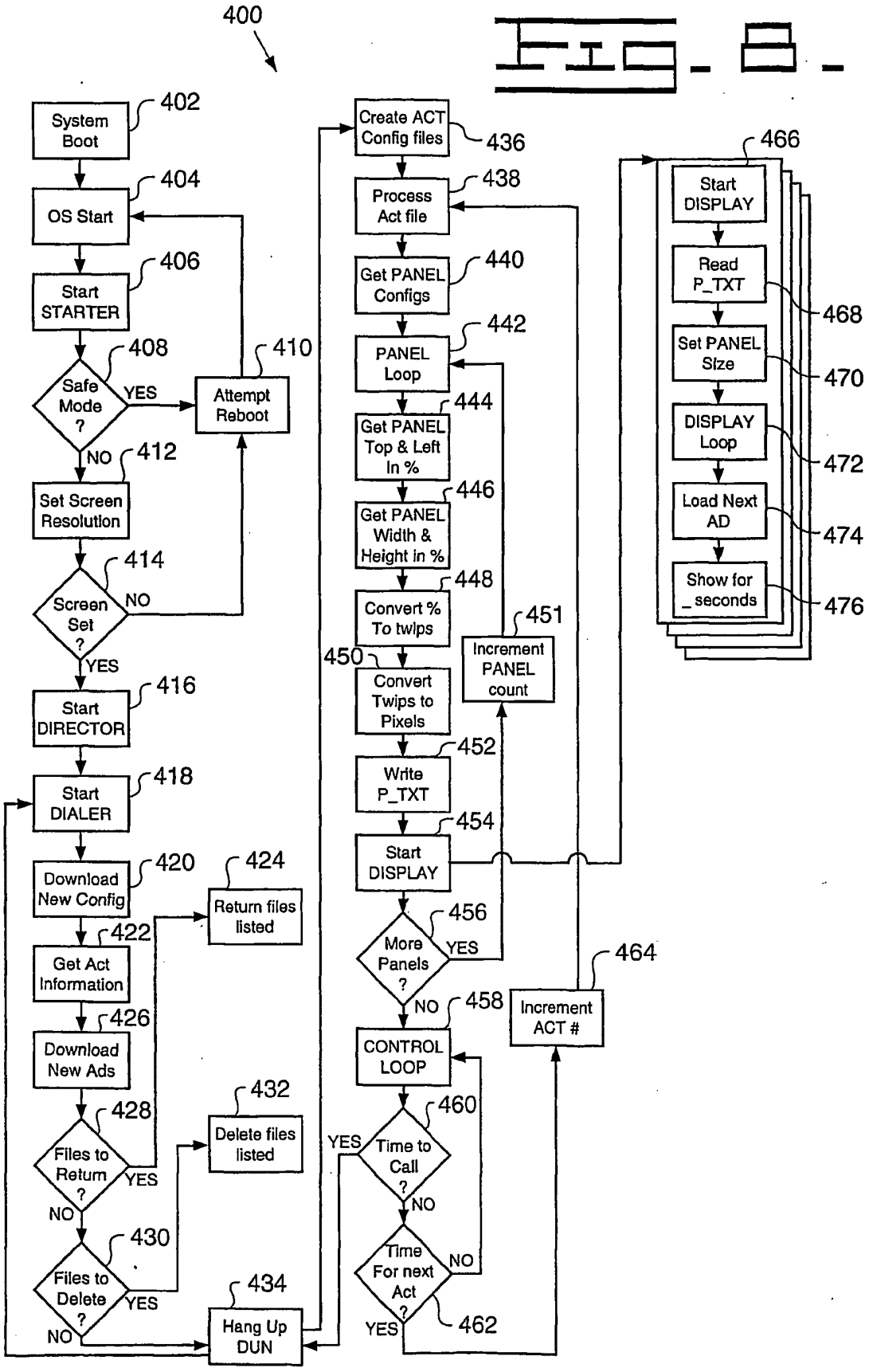

400
System Boot
402
OS Start
404
Start STARTER
406
Safe Mode ?
408
YES
Attempt Reboot
410
NO
Set Screen Resolution
412
Screen Set ?
414
NO
YES
Start DIRECTOR
416
Start DIALER
418
Download New Config
420
Return files listed
424
Get Act Information
422
Download New Ads
426
Files to Return ?
428
YES
Delete files listed
432
NO
Files to Delete ?
430
YES
NO
Hang Up DUN
434
Create ACT Config files
436
Process Act file
438
Get PANEL Configs
440
PANEL Loop
442
Get PANEL Top & Left In %
444
Get PANEL Width & Height in %
446
Convert % To twips
448
Increment PANEL count
451
Convert Twips to Pixels
450
Write P_TXT
452
Start DISPLAY
454
More Panels ?
456
YES
NO
Increment ACT #
464
CONTROL LOOP
458
Time to Call ?
460
YES
NO
Time For next Act ?
NO
YES
462
Start DISPLAY
466
Read P_TXT
468
Set PANEL Size
470
DISPLAY Loop
472
Load Next AD
474
Show for _ seconds
476

FIG. 8

Fig. 11

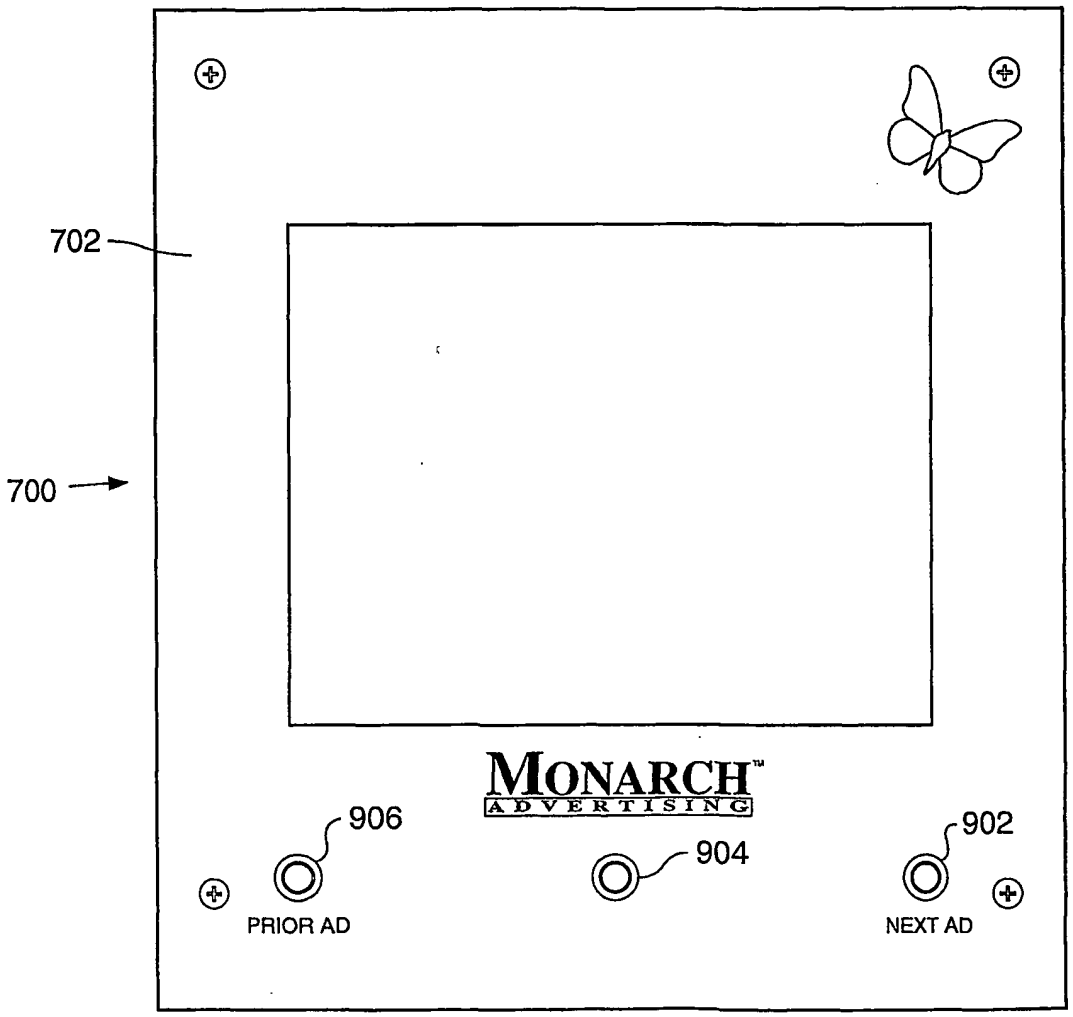
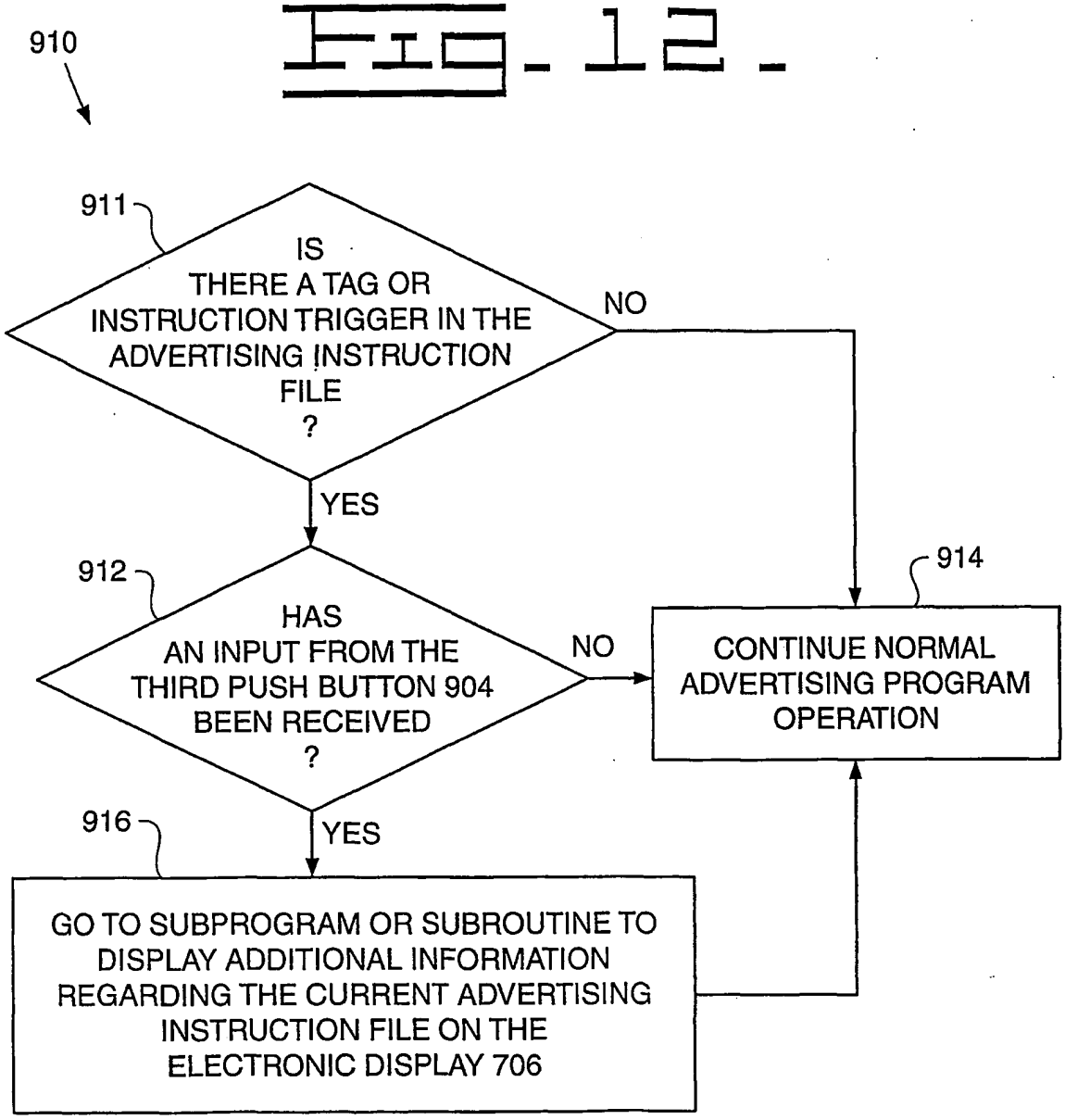


Fig. 12.


910
911
IS THERE A TAG OR INSTRUCTION TRIGGER IN THE ADVERTISING INSTRUCTION FILE ?
NO
YES
912
HAS AN INPUT FROM THE THIRD PUSH BUTTON 904 BEEN RECEIVED ?
NO
914
CONTINUE NORMAL ADVERTISING PROGRAM OPERATION
YES
916
GO TO SUBPROGRAM OR SUBROUTINE TO DISPLAY ADDITIONAL INFORMATION REGARDING THE CURRENT ADVERTISING INSTRUCTION FILE ON THE ELECTRONIC DISPLAY 706

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/15377

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : G09G 5/00
US CL :345/104, 156, 173, 1.1, 2.1, 2.2; 705/14, 15, 27
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/104, 156, 173, 1.1, 2.1, 2.2; 705/14, 15, 27

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 93/16443 A1 (HUMBLE) 19 August 1993, figures 1-3, page 1, second paragraph, the bottom half of page 3, middle of page 5, bottom half of page 8, the last two paragraphs of page 10 and page 12.	1-41
Y	US 5,966,696 A (GIRAUD) 12 October 1999, figures 1-3 and col. 1, line 32 through col. 3, line 8.	1-17, 21-34, 38-41
Y	US 6,038,545 A (MANDEBERG et al.) 14 March 2000, figures 6A, 6B, 7-8 and col. 10, line 54 through col. 13, line 31.	1-17, 21-34, 38-41
Y	US 6,043,802 A (GORMISH) 08 March 2000, figure 15 and col. 11, line 21 through col. 12, line 4.	18-20, 35-37

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
14 JULY 2002

Date of mailing of the international search report
06 AUG 2002

Name and mailing address of the ISA/US
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Eugenia Zogan

Form PCT/ISA/210 (second sheet) (July 1998)*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/15377

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,566,353 A (CHO et al.) 15 October 1996, whole document.	1-41
A	US 6,026,376 A (KENNEY) 15 February 2000, whole document.	1-41

Form PCT/ISA/210 (continuation of second sheet) (July 1998)*

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PTO/SB/05 (03-01)
Approved for use through 10/31/2002. OMB 0651-0032
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	42092-0001
First Inventor	Paul Poniatowski
Title	AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM
Express Mail Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [✔] Fee Transmittal Form (e.g., PTO/SB/17) *(Submit an original and a duplicate for fee processing)*
2. [✔] Applicant claims small entity status. See 37 CFR 1.27.
3. [✔] Specification [*Total Pages* 14] *(preferred arrangement set forth below)*
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings (*if filed*)
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. [✔] Drawing(s) *(35 U.S.C. 113)* [*Total Sheets* 2]
5. Oath or Declaration [*Total Pages*]
   - a. [✔] Newly executed (original or copy)
   - b. [ ] Copy from a prior application (37 CFR 1.63 (d)) *(for continuation/divisional with Box 18 completed)*
     - i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. [ ] Application Data Sheet. See 37 CFR 1.76
7. [ ] CD-ROM or CD-R in duplicate, large table or Computer Program (*Appendix*)
8. Nucleotide and/or Amino Acid Sequence Submission (*if applicable, all necessary*)
   - a. [ ] Computer Readable Form (CRF)
   - b. Specification Sequence Listing on:
     - i. [ ] CD-ROM or CD-R (2 copies); or
     - ii. [ ] paper
   - c. [ ] Statements verifying identity of above copies

ADDRESS TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231

ACCOMPANYING APPLICATION PARTS

9. [ ] Assignment Papers (cover sheet & document(s))
10. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [ ] Power of Attorney
11. [ ] English Translation Document *(if applicable)*
12. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
13. [ ] Preliminary Amendment
14. [✔] Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. [ ] Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. [ ] Other: .....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:*

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.: _____/_____

Prior application information: *Examiner:* _____ *Group Art Unit:* _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

[ ] *Customer Number or Bar Code Label* *(Insert Customer No. or Attach bar code label here)* or [✔] *Correspondence address below*

Name	Cassan Maclean				
	Suite 401				
Address	80 Aberdeen Street				
City	Ottawa	*State*	Ontario	*Zip Code*	K1S 5R5
Country	Canada	*Telephone*	613-238-6404	*Fax*	613-230-8755

Name (Print/Type)	Arturo A. Brion	*Registration No. (Attorney/Agent)*	51,374
Signature		*Date*	04/04/2003

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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 375.00

Complete if Known	
Application Number	
Filing Date	
First Named Inventor	Paul Poniatowski
Examiner Name	
Art Unit	
Attorney Docket No.	42092-0001

METHOD OF PAYMENT *(check all that apply)*

☐ Check ☑ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number
Deposit Account Name

The Commissioner is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☐ Credit any overpayments

☐ Charge any additional fee(s) during the pendency of this application

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	750	2001	375	Utility filing fee	375.00
1002	330	2002	165	Design filing fee	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 375.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below		Fee Paid
Total Claims	13	-20** =		X	=	
Independent Claims	2	- 3** =		X	=	
Multiple Dependent					=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0.00

***or number previously paid, if greater; For Reissues, see above*

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR 1.129(b))	
1801	750	2801	375	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 0.00

SUBMITTED BY				(Complete *(if applicable)*	
Name (Print/Type)	Arturo A. Brion	*Registration No. (Attorney/Agent)*	51,374	*Telephone* 613-238-6404	
Signature				*Date*	04/04/2003

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42092-0001

AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

Field of the Invention

[00001] The present invention relates to information dissemination systems and is particularly applicable but is not limited to systems and methods for distributing information to the general public at publicly accessible locations.

Background to the Invention

[00002] The reason communications revolution has increased the amount of data available to the public. The public's hunger for more and more information has been whetted by this excess of information.

[00003] Current systems for information dissemination, especially for disseminating to the members of the public who take public means of transportation, are currently inadequate. These systems are solely visual and static. Sandwich boards, billboards, and other very old static forms of advertising are used for such ends. However, as noted above, these systems are inadequate. Such static forms are purely visual and cannot be readily changed in response to changed conditions. Unfortunately, the ubiquity of televisions and computers have had a deleterious effect on the attention span of the average person. As such, current static systems are unable to keep people's attention.

[00004] Another major drawback of current systems is the lack of an audio component. Again, the proliferation of multi-media devices and the ubiquity of multi-media in today's society has the public clamouring for the same presentation type in almost all of their information input. While there are some information dissemination systems that integrate an audio portion (such as publicly accessible television sets), these can be intrusive and annoying to those who do not wish to take advantage of the system.

[00005] There is therefore a need for an information dissemination system that

integrates both video and audio components while simultaneously avoiding becoming an annoyance to those not wishing to access the information being disseminated. Such an information dissemination system should also be dynamic in that modifying the information content should be relatively simple. Furthermore, the system should be able to keep end users (i.e. the public, especially those who are travelling in public transportation vehicles) occupied and should be able to hold their attention. Finally, it is also very desirable if such a system would be cost effective and financially self sustaining. It is therefore an object of the present invention to mitigate if not overcome the deficiencies of the prior art.

Summary of the Invention

[00006] The present invention relates to systems and methods for providing information to the public by way of publicly accessible devices. A network of video displays are deployed at publicly accessible locations such as inside public transportation vehicles or at public transportation stations. The video feed to these video displays are provided by a video distribution hub which receives the video feed from a network hub. Different audio feeds are accessible to end users or by telephone. End users can call a telephone interface which receives and routes audio feeds from an audio distribution hub. End users can access audio feeds which may be synchronized with a video feed to provide a complete audio visual experience to the end user. For more useful content, the video displayed at any location may be adjusted to be relevant to the area where the video display is deployed. Audio content synchronized to one of these disparate video feeds can be accessed by the end user by dialing different options through the telephone interface. Audio feeds not tied to a specific video feed, such as radio stations or themed audio feeds, may also be accessed by the end user through the telephone interface.

[00007] In a first aspect, the present invention provides a system for distributing information to the public, said information comprising at least one video feed and a plurality of audio feeds, the system comprising:

- a network hub for receiving said information from a source;

- a plurality of publicly viewable video display screens;

- at least one video distribution hub, the or each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;

- at least one audio distribution hub, the or each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users;

- a telephone interface for receiving end user telephone call for accessing said plurality of audio feeds said telephone interface communicating with said at least one audio distribution hub, said telephone interface automatically routing audio feeds from said at least one audio distribution hub to said end user telephone calls based on end user input,

wherein at least one audio feed is synchronized with one of the at least one video feed.

[00008] In a second aspect, the present invention provides a system for providing at least one audio feed to end users, the system comprising:

- a network hub for receiving at least one audio feed;

- at least one audio distribution hub receiving said at least one audio feed from said network hub:

- a telephone interface for receiving telephone calls from said end users, said interface communicating with said at least one audio distribution hub and said telephone interface automatically routing said at least one audio feed to said telephone calls based on input from said end users.

Brief Description of the Drawings

[00009] A better understanding of the invention will be obtained by considering the detailed description below, with reference to the following drawings in which:

Figure 1 is a block diagram of a system for distributing information according to one aspect of the invention; and

Figure 2 is a block diagram of an example setup for a video display screen for use with

the system of Figure 1.

Detailed Description

[00010] Referring to Figure 1, a block diagram of a system for distributing information is illustrated. The system has 10 has a network hub 20, multiple video distribution hubs 30A-30E, audio distribution hubs 40A, 40B, and at least one telephone interface 50. The network hub receives multiple audio feeds 60, video feeds 70, and hub end combined audio/video feeds 80 from a variety of sources. These feeds are then separated into dedicated audio only and video-only feeds. The dedicated audio-only feeds are sent to the audio distribution hubs 40A, 40B while the dedicated video-only feeds are sent to the video distribution hubs 30A-30E. At the video distribution hubs, the relevant video only feeds are transmitted to multiple video display screens 90A-90K by transmitters 100A-100E. On the audio side, the telephone interface 50 receives the dedicated audio only feed and routes this to the telephone interface 50. The telephone interface 50 receives telephone calls from end users who wish to access one of the audio feeds. The end users, who could be calling and using their mobile or cellular telephones, can select one of the available audio feeds. Based on the end user input, the interface 50 selects the relevant audio feed and routes this feed to the relevant end user.

[00011] The network hub 20 can be seen as an audio/video feed aggregator - it receives feeds from a variety of sources and collects and combines these feeds into two signals, a dedicated audio feed and a dedicated video feed. The sources from which the feeds originate may be legion - the feeds could come from the Internet, a cable TV provider, broadcast TV, broadcast radio, a dedicated video or audio signal specifically created for the system, or any other source. The network hub 20 separates the feeds depending on the content - video feeds are separated and routed differently from audio feeds using well-known methods and techniques. Video feeds are aggregated into a first single signal with different video feeds occupying different parts or frequencies of that first single signal. Audio feeds are aggregated into a second single signal with different audio feeds occupying different parts or frequencies of that

second single signal. The video feed signal (the first single signal) is then transmitted to the video distribution hubs 30A-30E. The audio feed signal (the second single signal) is transmitted to the audio distribution hubs 40A, 40B.

[00012] Regarding the video distribution hubs 30A - 30E, each one can "tune" into or isolate one of the video fees aggregated into the video feed signal from the network hub 20. The video feed that a distribution hub tunes into is then passed to a corresponding transmitter. A transmitter then transmits the video feed to multiple video display screens. Each video distribution hub 30A-30E can be a video tuner which tunes to a specific video feed in the video feed signal. Such tuners are well-known in the art.

[00013] The transmitters 100A-100E may be, depending on the implementation, wireless, wired, or optical transmitters. The transmitters 100A-100E transmit the isolated or tuned into video feed to the different video display screens. Each video transmission hub and transmitter combination services video display screens located at a specific geographic area. Thus, one geographic area may have display screens 90A, 90B, 90C, showing video feed A as tuned to by video transmission hub 30A while another geographic area may have display screens 90G, 90H showing video feed B as tuned to by video transmission hub 30D. Such an arrangement allows area - or region - centric video feeds to be distributed to the proper areas. Such an arrangement also allows the system to quickly change what is being shown in the video display screen in a specific area. As an example, if an important bulletin alert occurs and is in a video Q, all of the video distribution hubs 30A-30E could automatically switch to video feed Q, ensuring quick dissemination of the bulletin alert to the video display screens serviced by video transmission hubs 30A-30E. Similarly, if the video feed to be sent to a specific geographic area is to be changed, then only the transmission hub which services that specific geographic area needs to have any changes made. That transmission hub may merely need to tune into a different video feed.

[00014] It should be noted that, to assist the viewing public in determining the content of the video feed being shown on the display screens, each video feed can be provided with closed captioning. This way, viewers can read the text of the audio for the video feed. It should further be noted that advertising and other relevant data may

be inserted into each of the video feeds. This may be done by dividing the visual representation of the video feed into separate areas, with each area being provided with different data. As an example, Figure 2 illustrates one possible configuration of the visual representation. Area 200 may have the actual moving video being presented (such as a newscast, a situation comedy, or a soap opera program). Area 210 may present the weather forecast for the city, area 220 may present a stock market report and area 230 may present sports scores. Area 240 may be reserved for the closed captioning for the video in area 200 and area 250 may be provided for advertisements that are targeted to the end users. As noted above, the video portions of the presentation (presented in area 200) may be different for different areas. Similarly, different advertisements may be presented for different geographic areas. Ideally, up to ¾ of the display screen may be devoted to advertising space. Devoting such a high proportion of the screen to revenue generating advertising should produce enough revenue for the operation of the system.

[00015] Regarding the video display screens 90A-90K, these display screens are ideally deployed at publicly viewable areas. These may be deployed inside public transportation vehicles such as subway cars and buses and they may be deployed as static installations in subway/bus stations, busy street corners, and other areas of populace concentration. Plasma display screens may be used as the display screens and, in one embodiment, such screens may be hardened and configured to withstand the elements for an outside deployment. Such a deployment may be placed outside moving vehicles such as buses, thereby providing information dissemination to not only commuters inside the vehicle but commuters outside the vehicle as well. For such mobile deployments, wireless technology may be used to transmit the video feed to the video display screens. For static deployments, wired technology such as cable, optical, and other well-known technologies, may be used for the transmission of the video feed to the video display screens. Other static deployments such as inside public transportation vehicles may use flat computer monitors to minimize deployment costs.

[00016] To further lower deployment costs, manufacturers of the display screens could offer preferential pricing for their screens to those deploying and operating the

system. Such a measure would provide the manufacturers free advertising as the public would be exposed to their product for free.

[00017] The audio portion of the system 10 operates in a similar manner with one important difference - end users can select which audio feed to access. As noted above, the audio feed signal is received by the audio transmission hubs 40A, 40B. The different audio feeds can be accessed by tuning into or isolating the relevant audio feed from the rest of the audio feed signal. This is what the telephone interface 50 does, along with automatically receiving end user telephone calls and automatically routing the relevant audio feed to the relevant end user telephone call. The telephone interface 50 has multiple tuners with each tuner isolating or tuning into one of the audio feeds in the audio feed signal. Upon a request by an end user who is calling in, the relevant audio feed is diverted or routed to this end user.

[00018] The telephone interface 50 acts as an access point for end users. End users can call into the telephone interface (with the relevant telephone number perhaps flashed on the video display screens) and access a specific audio feed. To present a complete audio visual experience in conjunction with that with what is being presented on the video display screens, at least one of the audio feeds could be synchronized with the presentation on the video display screens. As an example, if geographic area A is showing video show A1 on screens 90A-90C and geographic area B is showing video show A2 on screens 90I-90K, end users in area A would need to access the audio feed synchronized the video show A1 while end users in the area B would need to access the audio feed synchronized to the video show A2. This may be done by an end user calling the telephone interface 50 and, after navigating an automated answering and menu system, accessing the relevant audio feed. This answering and menu system is well-known technology and is readily available. Thus, an end user in area A would, to get the proper audio visual experience, access a different audio feed from that accessed by an end user in area B. As yet another variant, the audio feed synchronized to a specific video show could be presented in different languages as separate audio feeds. As an example, video show A1 showing on screens 90A-90C could be synchronized to three different audio feeds - one audio feed being in English,

another audio feed being in French, and a third audio feed being in Chinese. As such, an end user could access anyone of the video feeds synchronized to that specific video show in the language of preference for the end user. Thus, a single video feed being presented in a specific geographic area could be accessible to people who do not necessarily speak the exact same language. Similarly, the closed captioning presented on the video display screens could be presented in multiple languages or, if one language is predominant in a specific area, the closed captioning could be presented in that single language. The technology for routing audio feeds synchronized to a video feed is currently available and used in passenger aircraft that provides in-flight entertainment. Adapting such technology with appropriate telephone menu technology will produce the requisite telephone interface described above.

[00019] It should be noted that the audio feeds available need not all be synchronized to the video feeds. Other audio feeds, such as audio feeds that provide music, commentary, radio station feeds, and others, may be available, depending on the implementation. This system is ideally suited to be accessed by commuters with cellular or mobile phones 260. Commuters, while on their morning or afternoon commute may view the video display screens inside the public transportation vehicle or in the stations while waiting for the vehicles. In concert with this, the commuters can use their mobile telephones to call the telephone interface and listen in on the audio portion of the program being presented in area 200 of the video display screen. Alternatively, the commuter may decide not to view the video program on the video display screen but merely listen to some other audio program being presented as a separate audio feed through his or her mobile telephone. However, the system need not be limited to mobile telephones. End users who have, ideally, a landline speaker phone may also access the telephone interface to listen to the different available audio feeds at work or at home. To address the different tastes of different types of people, themed audio feeds, such as all-sports, all-classical music, all-news or all-music (with different audio feeds for different types of music) may also be available.

[00020] To accommodate the different regions in a large geographic area, multiple telephone interface/audio transmission hubs may be implemented, with different

telephone interfaces serving different areas.

[00021] To allow for a financially self-sustaining system, advertising space may be sold on either the video feeds (as explained above) or in the audio feeds. Advertisements may be sold on a per display screen basis, a regional coverage basis, or on a visibility (time visible on screen) basis. Similarly, subscription fees may be collected from end users who wish to access the audio feed. Alternatively, the system could be free to mobile telephone users with the operational and deployment costs being borne by advertisers and/or public transportation bodies.

[00022] The system described above is flexible enough for many different types of advertising and promotions. As an example, advertisers could include in their advertising a specific telephone code which users may enter while listening to an audio feed. Entering the code would then automatically connect the end user to the advertiser's telephone call-in center so the end user can then take advantage of the offer (e.g. a vacation trip for a low promotional price). Alternatively, end users may establish an account, with their credit cards on file, with the operators of the system. These end users may then do their shopping over the telephone based on what is being advertised on the display screens. End user choices, such as the colour, size, or type of merchandise, could be entered by the end user via the telephone keypad. Tho verify an end user's identity, PIN (personal identification numbers) could be associated with each end user account. Such PIN numbers would be required to validate/finalize the transaction before the end user's credit card is charged and before the item is shipped to the end user's on-file address.

[00023] The system also offers a myriad of advantages to society and the public in general. It may be used as part of a public broadcasting system to inform the populace of alerts or emergencies. It can also increase literacy as those without mobile phones will need to read the closed captioning and/or the text on-screen to determine what is being presented. It will also produce greater usage of public transportation vehicles as passengers are not only transported from one place to another but are also entertained. Such an increase in ridership may also augur an decrease in the number of vehicles on the road, thereby leading to a more environment-friendly society. The increased

advertising may also lead to greater consumer spending, thereby fueling economic growth for the areas where the system is deployed.

[00024] Although various exemplary embodiments of the invention have been disclosed, it should be apparent to those skilled in the art that various changes and modifications can be made which will achieve some of the advantages of the invention without departing from the true scope of the invention.

[00025] A person understanding this invention may now conceive of alternative structures and embodiments or variations of the above all of which are intended to fall within the scope of the invention as defined in the claims that follow.

We claim:

1. A system for distributing information to the public, said information comprising at least one video feed and a plurality of audio feeds, the system comprising:

- a network hub for receiving said information from a source;
- a plurality of publicly viewable video display screens;
- at least one video distribution hub, the or each video distribution hub receiving one video feed from said network hub and transmitting said one video feed to at least one of said display screens;
- at least one audio distribution hub, the or each audio distribution hub receiving said plurality of audio feeds from said network hub, each of said audio feeds being accessible by end users;
- a telephone interface for receiving end user telephone call for accessing said plurality of audio feeds said telephone interface communicating with said at least one audio distribution hub, said telephone interface automatically routing audio feeds from said at least one audio distribution hub to said end user telephone calls based on end user input,

wherein at least one audio feed is synchronized with one of the at least one video feed.

2. A system according to claim 1 wherein said network hub receives said information as separate video and audio feeds.

3. A system according to claim 1 wherein at least one audio feed received by said network hub is a thermal audio feed.

4. A system according to claim 1 wherein at least one of said plurality of publicly viewable video display screens receives a video feed from said video distribution hub by wireless means.

5. A system according to claim 1 wherein at least one of said plurality of publicly viewable video display screens receives a video feed from said video distribution hub through a closed circuit network.

6. A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screens is deployed outside a vehicle.

7. A system according to claim 4 wherein said at least one of said plurality of publicly viewable video display screens is deployed inside a vehicle.

8. A system according to claim 1 wherein said network hub receives multiple video feeds, each of said multiple video fees being transmitted to said video display screens located in different geographic regions.

9. A system according to claim 1 wherein said at least one video feed is provided with closed captioning.

10. A system according to claim 1 wherein said at least one video feed is provided with advertisements.

11. A system for providing at least one audio feed to end users, the system comprising:

- a network hub for receiving at least one audio feed;

- at least one audio distribution hub receiving said at least one audio feed from said network hub:

- a telephone interface for receiving telephone calls from said end users, said interface communicating with said at least one audio distribution hub and said telephone interface automatically routing said at least one audio feed to said telephone calls based on input from said end users.

12. A system according to claim 11 wherein a plurality of audio feeds are received by

said network hub and at least one of said plurality of audio feeds is synchronized with a video feed.

13. A system according to claim 12 wherein said video feed is publicly viewable.

Abstract

Systems and methods for providing information to the public by way of publicly accessible devices. A network of video displays are deployed at publicly accessible locations such as inside public transportation vehicles or at public transportation stations. The video feed to these video displays are provided by a video distribution hub which receives the video feed from a network hub. Different audio feeds are accessible to end users or by telephone. End users can call a telephone interface which receives and routes audio feeds from an audio distribution hub. End users can access audio feeds which may be synchronized with a video feed to provide a complete audio visual experience to the end user. For more useful content, the video displayed at any location may be adjusted to be relevant to the area where the video display is deployed. Audio content synchronized to one of these disparate video feeds can be accessed by the end user by dialing different options through the telephone interface. Audio feeds not tied to a specific video feed, such as radio stations or themed audio feeds, may also be accessed by the end user through the telephone interface.

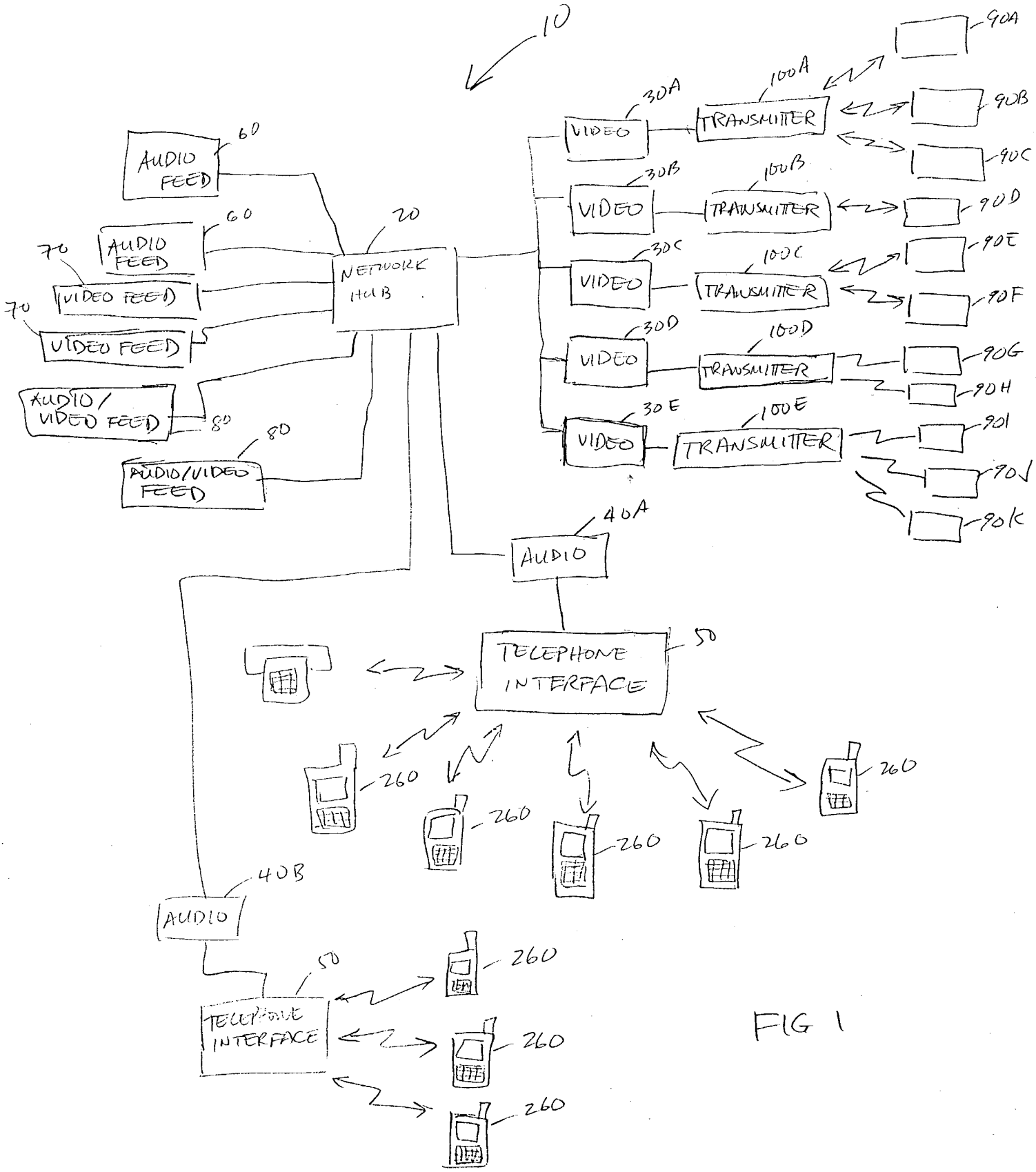

10
AUDIO FEED
60
AUDIO FEED
60
70
VIDEO FEED
70
VIDEO FEED
AUDIO/VIDEO FEED
80
AUDIO/VIDEO FEED
80
20
NETWORK HUB
VIDEO
30A
TRANSMITTER
100A
90A
90B
VIDEO
30B
TRANSMITTER
100B
90C
90D
VIDEO
30C
TRANSMITTER
100C
90E
90F
VIDEO
30D
TRANSMITTER
100D
90G
90H
VIDEO
30E
TRANSMITTER
100E
90I
90J
90K
40A
AUDIO
TELEPHONE INTERFACE
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260
260
260
260
260
40B
AUDIO
50
TELEPHONE INTERFACE
260
260
260

FIG 1

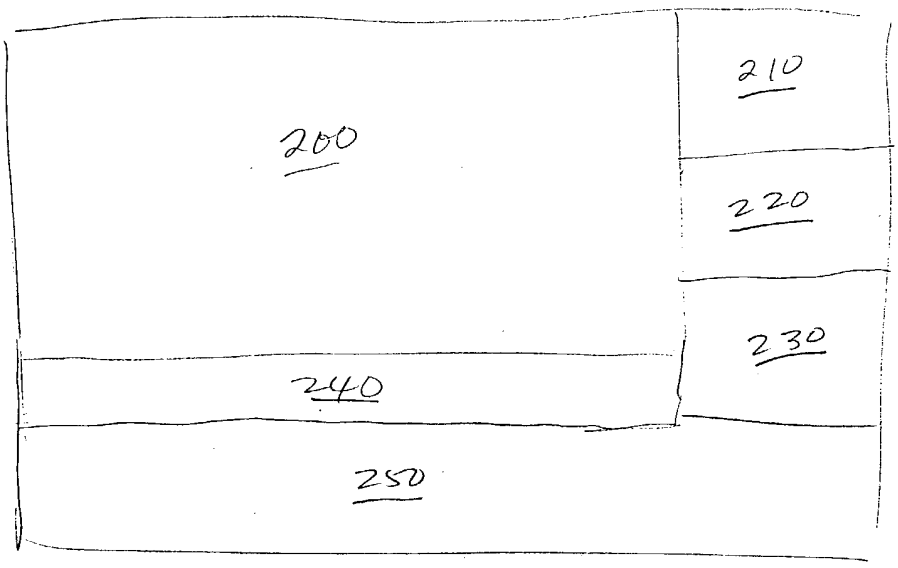


FIG 2

42092-0001

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

AUDIO/VISUAL INFORMATION DISSEMINATION SYSTEM

the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. §1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby appoint practitioners named below:

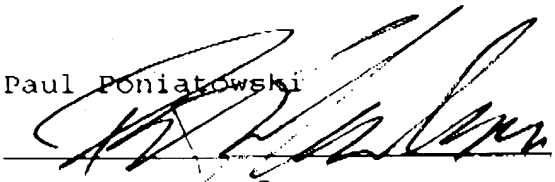
NAME	Reg. No.
P. Scott Maclean	39,543
Lynn S. Cassan	32,378
Arturo A. Brion	51,374
Allan P. Millard	43,397

as my/our attorney(s) or agent(s), with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Unless otherwise directed in an Associate Power of Attorney, direct all correspondence to: Cassan Maclean, Suite 401, 80 Aberdeen St., Ottawa, Ontario CANADA K1S 5R5.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such wilful false statements may jeopardize the validity of the application or any patent issued thereon.

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PATENT APPLICATION FEE DETERMINATION RECORD
Effective January 1, 2003

Application or Docket Number: 42092-0001

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	13	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	13 minus 20=	* 0
INDEPENDENT CLAIMS	2 minus 3 =	* 0
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	375.00	OR	BASIC FEE	750.00
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL	375	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

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