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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/868,139	07/19/2022	Yoshihiro MACHIDA	ASA-9608-05	2706

24956 7590 11/07/2023

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER	
TEKLE, DANIEL T	

ART UNIT	PAPER NUMBER
2481	

NOTIFICATION DATE	DELIVERY MODE
11/07/2023	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmiplaw.com

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APPLICATION NO.	ISSUE DATE	PATENT NO.
17/868,139	07-Nov-2023	11812091

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
ALEXANDRIA, VA 22314

EGRANT NOTIFICATION

Your electronic patent grant (eGrant) is now available, which can be accessed via Patent Center at https://patentcenter.uspto.gov

The electronic patent grant is the official patent grant under 35 U.S.C. 153. For more information, please visit https://www.uspto.gov/electronicgrants

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
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/868,139	11/07/2023	11812091	ASA-9608-05	2706

24956 7590 10/18/2023

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at https://patentcenter.uspto.gov/. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

The USPTO is implementing electronic patent issuance with a transition period, during which period the USPTO will mail a ceremonial paper copy of the electronic patent grant to the correspondence address of record. Additional copies of the patent (i.e., certified and presentation copies) may be ordered for a fee from the USPTO's Certified Copy Center at https://certifiedcopycenter.uspto.gov/index.html. The Certified Copy Center may be reached at (800)972-6382.

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 0 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 Center (https://patentcenter.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 Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional inventors):

Yoshihiro MACHIDA, YOKOHAMA, JAPAN;
Nobuhiro TSUTSUMI, YOKOHAMA, JAPAN;
Kouji KAMOGAWA, YOKOHAMA, JAPAN;

APPLICANT(s) (Please see PATENT CENTER site https://patentcenter.uspto.gov for additional applicants):

MAXELL, LTD., Kyoto, JAPAN;

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99) Change(s) applied to document, /Y.C.C./ 7/11/2023		
	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	2481
	Examiner Name	TEKLE, D. T.
	Attorney Docket Number	ASA-9608-05

	18	20050024341		2005-02-03	Gillespie et al.		
	19	20050028204		2005-02-03	Nakamura et al.		
	20	20050132420		2005-06-16	Howard et al.		
	21	20050160461		2005-07-21	Baumgartner et al.		
	22	20050267676		2005-12-01	Nezu et al.		
	23	20060010099		2006-01-12	Takeda et al.		
	24	20060242106		2006-10-26	Bank		

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2000-206949 w/ABS	JP	A	2000-07-28	PIONEER ELECTRONIC CORP		
	2	2003-209710 w/ABS	JP	A	2003-07-25	CANON KK		

EFS Web 2.1.18

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.T/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Change(s) applied to document,

/Y.C.C./

7/11/2023

Application Number	17868139
Filing Date	2022-07-19
First Named Inventor	MACHIDA, Y.
Art Unit	2481
Examiner Name	TEKLE, D. T.
Attorney Docket Number	ASA-9608-05

	7	20020162117		2002-10-31	Pearson et al.	
	8	20030147635		2003-08-07	Jung et al.	
	9	20030234805		2003-12-25	Toyama et al.	
	10	20040001703		2004-01-01	Kang	
	11	20040028375		2004-02-12	Kim et al.	
	12	20040040041		2004-02-26	Crawford	
	13	20040075670		2004-04-22	Bezine et al.	
	14	20040103434		2004-05-27	Ellis	
	15	20040133923		2004-07-08	Watson et al.	
	16	20040154040		2004-08-05	Ellis	
	17	20040194139		2004-09-30	Rao et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
Change(s) applied to document, /Y.C.C./ 7/11/2023	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	2481
	Examiner Name	TEKLE, D. T.
	Attorney Docket Number	ASA-9608-05

	42	9065979		2015-06-23	Cohen et al.	
	43	6609253		2003-08-19	Swix et al.	
	44	6233389		2001-05-15	Barton et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20070124765		2007-05-31	Bennett et al.	
	2	20020021306		2002-02-21	Gehrke et al.	
	3	20020054028		2002-05-09 ~~2005-08-16~~	Uchida et al.	
	4	20020059586		2002-05-16	Carney et al.	
	5	20020060750		2002-05-23	Istvan et al.	
	6	20020065927		2002-05-30	Janik et al.	

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.T/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	MACHIDA, Y.
	Art Unit	2481
	Examiner Name	TEKLE, D. T.
	Attorney Docket Number	ASA-9608-05

Change(s) applied to document,
/Y.C.C./
7/11/2023

	31	7650621		2010-01-19	Thomas et al.	
	32	7673250		2010-03-02	Taylor	
	33	8086093		2011-12-27	Stuckman	
	34	8112711		2012-02-07	Ackley	
	35	8151210		2012-04-03	Nezu et al.	
	36	8402505		2013-03-19	Alten	
	37	8418202		2013-04-09	Ahmad-Taylor	
	38	8516520		2013-08-20	Look et al.	
	39	8601514		2013-12-03	Kellum et al.	
	40	8707354		2014-04-22	Moreau et al.	
	41	8773360		2014-07-08	Uchida et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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/Y.C.C./
7/11/2023

	20	6976216		2005-12-13	Peskin et al.	
	21	7043477		2006-05-09	Mercer et al.	
	22	7155674		2006-12-26	Breen et al.	
	23	7194701		2007-03-20	Stavely et al.	
	24	7257775		2007-08-14	Jivakov et al.	
	25	7392532		2008-06-24	White et al.	
	26	7475349		2009-01-06	Wagner et al.	
	27	7523478		2009-04-21	Blackketter et al.	
	28	7536647		2009-05-19	Walker et al.	
	29	7546537		2009-06-09	Crawford	
	30	7590997		2009-09-15	Perez	

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.T/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	2481
	Examiner Name	TEKLE, D. T.
Change(s) applied to document, /Y.C.C./ 7/11/2023	Attorney Docket Number	ASA-9608-05

	9	6100883		2000-08-08	Hoarty et al.	
	10	6154771		2000-11-28	Rangan et al.	
	11	6177931		2001-01-23	Alexander et al.	
	12	6240555		2001-05-29	Shoff et al.	
	13	6378130		2002-04-23	Adams	
	14	6407779		2002-06-18	Herz	
	15	6493038		2002-12-10	Singh et al.	
	16	6628302		2003-09-30	White et al.	
	17	6678891		2004-01-13	Wilcox et al.	
	18	6757907		2004-06-29	Schumacher et al.	
	19	6804825		2004-10-12	White et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.T/

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Change(s) applied to document,

/Y.C.C./

7/11/2023

Application Number	17868139
Filing Date	2022-07-19
First Named Inventor	MACHIDA, Y.
Art Unit	2481
Examiner Name	TEKLE, D. T.
Attorney Docket Number	ASA-9608-05

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7536647		2009-05-19	Walker et al.	
	2	5428730		1995-06-27	Baker et al.	
	3	5517257		1996-05-14	Dunn et al.	
	4	5831664		1998-11-03	Wharton et al.	
	5	5606374		1997-02-25	Bertram	
	6	5648824		1997-07-15	Dunn et al.	
	7	5809204		1998-09-15	Young et al.	
	8	5929850		1999-07-27	Broadwin et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.T/

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 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. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

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

24956 7590 07/03/2023
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/868,139	07/19/2022	Yoshihiro MACHIDA	ASA-9608-05	2706

TITLE OF INVENTION: MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	10/03/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
TEKLE, DANIEL T	2481	386-240000

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/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or 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 Mattingly & Malur, PC
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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: MAXELL, LTD.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Kyoto, Japan

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required)

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

☒ Electronic Payment via Patent Center or EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 501417

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

☐ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /John R. Mattingly/ Date October 2, 2023

Typed or printed name John R. Mattingly Registration No. 30,293

IPR2025-01311; Samsung
Ex. 1002 - Page 12

Electronic Patent Application Fee Transmittal

Application Number:	17868139
Filing Date:	19-Jul-2022
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-9608-05

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1200**

Electronic Acknowledgement Receipt

EFS ID:	48666284
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	02-OCT-2023
Filing Date:	19-JUL-2022
Time Stamp:	13:48:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	E202302D49328613
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Issue Fee Payment (PTO-85B)	9608-05_issuefeetransmittal.pdf	126954 ed160938f39a922817453c027aa04a9d38db03fa	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37890 74fb7f7e596999b55ae86495b42acaa8ea066e30	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	164844		

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

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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NOTICE OF ALLOWANCE AND FEE(S) DUE

24956 7590 07/03/2023

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER
TEKLE, DANIEL T

ART UNIT	PAPER NUMBER
2481	

DATE MAILED: 07/03/2023

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/868,139	07/19/2022	Yoshihiro MACHIDA	ASA-9608-05	2706

TITLE OF INVENTION: MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	10/03/2023

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

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. 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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 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. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

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

24956 7590 07/03/2023
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/868,139	07/19/2022	Yoshihiro MACHIDA	ASA-9608-05	2706

TITLE OF INVENTION: MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	10/03/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
TEKLE, DANIEL T	2481	386-240000

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/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required)

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

❑ Electronic Payment via Patent Center or EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/868,139	07/19/2022	Yoshihiro MACHIDA	ASA-9608-05	2706

24956 7590 07/03/2023

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER	
TEKLE, DANIEL T	
ART UNIT	PAPER NUMBER
2481	

DATE MAILED: 07/03/2023

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

PTOL-85 (Rev. 02/11)

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OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 30 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.

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.

Notice of Allowability	Application No. 17/868,139	Applicant(s) MACHIDA et al.	
	Examiner DANIEL T TEKLE	Art Unit 2481	AIA (FITF) Status Yes

-- 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 07/19/2022.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 2-21 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   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.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/DANIEL T TEKLE/
Examiner, Art Unit 2481

Continuation of Attachment(s) 2. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 07/19/2022; 08/30/2022; 04/04/2023; 05/19/2023

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Reasons for allowance

The following is an examiner's statement of reasons for allowance: Independent claims 2 and 15 present limitation as a whole that are allowable over the prior art, recites the uniquely distinct features for "wherein the related information includes: time related information which represents a time during which the reproduced digital contents and at least one of the interactive operation buttons are displayed, and panel related information for deciding whether displaying the first operation panel including at least one of the linear operation buttons or the second operation panel including at least one of the interactive operation buttons, wherein the controller, when controlling reproduction of the digital contents, is further configured to: display at least one of the interactive operation buttons during the time represented by the time related information, and other than the time represented by the time related information, display at least one of the linear operation buttons or at least one of the interactive operation buttons based on the panel related information" as well as all in combination with all limitations in the independent claims and the enabling portions of the specification. The closest prior art of Holloway et al. US 2006/0041655 discloses a system for controlling a host using a remote control whose functions are defined by that host. Functions on the remote control are arranged by the host and grouped logically for easy navigation. The communication between the remote and host is bi-directional, and can occur in real time. The controlled devices can be devices for controlling applications within a home or within a commercial building..--Abstract, either singularly or in combination, fail to anticipate or render the above underlined limitation obvious.

The dependent claims further limit the independent claims and are considered allowable on the same basis as the independent claims as well as for the further limitations set forth. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claims 2-20 and 21 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL T TEKLE whose telephone number is (571)270-1117. The examiner can normally be reached Monday-Friday 8:00-4:30 ET.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on 571-272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit:

https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DANIEL T TEKLE/
Examiner, Art Unit 2481

Examiner-Initiated Interview Summary	**Application No.** 17/868,139	**Applicant(s)** MACHIDA et al.		
	Examiner DANIEL T TEKLE	**Art Unit** 2481	**AIA (First Inventor to File) Status** Yes	**Page** **1 of 1**

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
DANIEL T TEKLE	Primary Examiner	Telephonic
John R. Mattingly, 30,293	Attorney of Record	

Date of Interview: 08 June 2023

Issues Discussed:

Non-statutory Double Patenting

There has been a multiple phone call discussion between applicant and examiner in regarding non-statutory double patenting. On June 14, 2023, applicant file TD based the discussion and TD was approved by the office on June 14, 2023.

/DANIEL T TEKLE/ Examiner, Art Unit 2481	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

Notice of References Cited	Application/Control No. 17/868,139	Applicant(s)/Patent Under Reexamination MACHIDA et al.	
	Examiner DANIEL T TEKLE	Art Unit 2481	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20060041655-A1	02-2006	Holloway; Marty	H04N21/42224	709/223
*	B	US-5416535-A	05-1995	Sato; Kazuhiro	H04B1/202	348/E5.103
*	C	US-8245250-B2	08-2012	Casement; Marcy	H04N21/4751	725/50
*	D	US-20050166230-A1	07-2005	Gaydou, Danny R.	G11B27/105	348/E7.071
*	E	US-6732367-B1	05-2004	Ellis; Michael D.	H04N21/84	725/27
*	F	US-6025869-A	02-2000	Stas; Stefan	H04N21/4314	725/27
*	G	US-5801747-A	09-1998	Bedard; Karen	H04N21/44224	725/13
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/868,139	MACHIDA et al.
	Examiner	**Art Unit**
	DANIEL T TEKLE	2481

CPC						
Symbol					**Type**	**Version**
H04N	/	21	/	4312	F	2013-01-01
G06F	/	3	/	0481	I	2013-01-01
G11B	/	19	/	025	I	2013-01-01
G11B	/	27	/	3027	I	2013-01-01
H04N	/	21	/	4122	I	2013-01-01
H04N	/	21	/	4263	I	2013-01-01
H04N	/	21	/	434	I	2013-01-01
H04N	/	21	/	4345	I	2013-01-01
H04N	/	21	/	466	I	2013-01-01
G11B	/	27	/	34	I	2013-01-01
G11B	/	27	/	36	I	2013-01-01
H04N	/	21	/	47217	I	2013-01-01
G06F	/	2203	/	04803	A	2013-01-01
G06F	/	3	/	04847	A	2013-01-01
G06F	/	3	/	04886	A	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/DANIEL T TEKLE/ Examiner, Art Unit 2481	14 June 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	2	8

U.S. Patent and Trademark Office — Part of Paper No.: 20230611

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/868,139	MACHIDA et al.
	Examiner	**Art Unit**
	DANIEL T TEKLE	2481

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04N	/	21	/	431

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 20	
/DANIEL T TEKLE/ Examiner, Art Unit 2481 (Primary Examiner) 14 June 2023 (Date)	O.G. Print Claim(s) 2	O.G. Print Figure 8

U.S. Patent and Trademark Office Part of Paper No.: 20230611

IPR2025-01311; Samsung
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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/868,139	MACHIDA et al.
	Examiner	**Art Unit**
	DANIEL T TEKLE	2481

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	9	10	18	19										
1	2	10	11	19	20										
2	3	11	12	20	21										
3	4	12	13												
4	5	13	14												
5	6	14	15												
6	7	15	16												
7	8	16	17												
8	9	17	18												

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/DANIEL T TEKLE/ Examiner, Art Unit 2481 (Primary Examiner)	14 June 2023 (Date)	O.G. Print Claim(s) 2	O.G. Print Figure 8

U.S. Patent and Trademark Office

Part of Paper No.: 20230611

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/868,139	MACHIDA et al.
	Examiner	Art Unit
	DANIEL T TEKLE	2481

CPC - Searched*		
Symbol	Date	Examiner
H04N21/4312	06/12/2023	D.T.

CPC Combination Sets - Searched*		
Symbol	Date	Examiner
(H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803)	06/12/2023	D.T.

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
PE2E SEARCH (US-PGPUB, US-PAT, US-OCR, EPO, JPO, DERWENT, IBM_TDB)	06/12/2023	D.T.
SEARCH QUERY ATTACHED	06/12/2023	D.T
INVENTOR NAME	06/12/2023	D.T
CPC CLASS/SUBCLASS	06/12/2023	D.T
GLOBAL DOSSIER	06/12/2023	D.T

/DANIEL T TEKLE/ Examiner, Art Unit 2481	

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/868,139	MACHIDA et al.
	Examiner	Art Unit
	DANIEL T TEKLE	2481

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	INTERFERENCE SEARCHED	06/12/2023	D.T

/DANIEL T TEKLE/ Examiner, Art Unit 2481	

IPR2025-01311; Samsung
Ex. 1002 - Page 32

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BIB DATA SHEET

CONFIRMATION NO. 2706

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
17/868,139	07/19/2022 RULE	386	2481	ASA-9608-05

APPLICANTS
MAXELL, LTD., Kyoto, JAPAN;

INVENTORS
Yoshihiro MACHIDA, YOKOHAMA, JAPAN;
Nobuhiro TSUTSUMI, YOKOHAMA, JAPAN;
Kouji KAMOGAWA, YOKOHAMA, JAPAN;

**** CONTINUING DATA ***************************
This application is a CON of 15/670,155 08/07/2017 PAT 11470379
which is a CON of 15/287,074 10/06/2016 PAT 9743129
which is a CON of 13/443,955 04/11/2012 PAT 9489985
which is a CON of 11/508,209 08/23/2006 PAT 8170394

**** FOREIGN APPLICATIONS ***************************
JAPAN 2005-248576 08/30/2005

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
07/27/2022

Foreign Priority claimed		STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☑ Yes ☐ No	☐ Met after Allowance	JAPAN	11	20	2
35 USC 119(a-d) conditions met ☑ Yes ☐ No					
Verified and Acknowledged /Daniel T Tekle/ Examiner's Signature	D.T. Initials				

ADDRESS
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314
UNITED STATES

TITLE
MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

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Attorney Docket Number	ASA-9608-05

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7293276	B2	2007-11-06	PHILLIPS et al.	
	2	8112711	B2	2012-02-07	ACKLEY	
	3	8181205	B2	2012-05-15	RUSS et al.	
	4	7073189	B2	2006-07-04	MCELHATTEN et al.	
	5	8773360	B2	2014-07-08	UCHIDA et al.	
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	1	Motorola Mobility LLC v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,170,394, Inter Partes Review No. IPR2022-01348 filed August 18, 2022	
	2	MYERS, B. A., "A Taxonomy of Window Manager User Interfaces", IEEE Computer Graphics & Applications, September 1988, pp. 65-84	
	3	PRESS, L., "Personal Computing: Compuvision or Teleputer?", Communication of the ACM, September 1990, pp. 29-36, Vol. 33, No. 9	
	4	"ARIB Technical Report TR-B14 Version 2.8", Association of Radio Industries and Businesses, May 29, 2006, pp. 1-564, Vol. 3	

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	5	Blackberry Corporation v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,170,394, Inter Partes Review No. IPR2019-00089, March 29, 2019	
	6	Excerpts from File History of U.S. Patent No. 8,170,394	
	7	Excerpts from Sony's Digital Dreams Publication, 1999	
	8	Excerpts from Apple's Macintosh Human Interface Guidelines, 1992	
	9	Overview and Amendment History of Amendment HIstory of ARIB Technical Report TRB14, 2018	

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Name/Print	John R. Mattingly	Registration Number	30,293

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Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2023-04-04
Name/Print	John R. Mattingly	Registration Number	30,293

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Art Unit	2481
Examiner Name	TEKLE, D. T.
Attorney Docket Number	ASA-9608-05

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	1	7536647		2009-05-19		
	2	5428730		1995-06-27		
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	1	2000-206949 w/ABS	JP	A	2000-07-28	PIONEER ELECTRONIC CORP		
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Examiner Signature	/DANIEL T TEKLE/	Date Considered	06/13/2023

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CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2023-05-19
Name/Print	John R. Mattingly	Registration Number	30,293

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L5	0	(display$3) SAME (interactive adj1 content) SAME (time near3 information) SAME (linear adj1 content) SAME (switch$3 adj1 information)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:07 PM
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L9	1	15/670155	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:20 PM
L10	12917	(display) WITH (operat$3 near5 panel) WITH (switch$3)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:37 PM
L11	501	((display) WITH (operat$3 near5 panel) WITH (switch$3)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:40 PM

L12	1	((display) WITH (operat$3 near5 panel) WITH (switch$3) WITH (linear adj1 content)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:41 PM
L13	38	((display) WITH (operat$3 near5 panel) WITH (switch$3) WITH (video)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:42 PM
L14	0	((display) WITH (operat$3 near5 panel) WITH (numerical near3 key$1) WITH (switch$3) WITH (video)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:43 PM

		G06F2203/04803).cpc.					
L15	0	((display) WITH (operat$3 near5 panel) WITH (numerical near3 key$1) WITH (switch$3) WITH (video))	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:43 PM
L16	1	((display) WITH (operat$3 near5 panel) WITH (numerical) WITH (switch$3) WITH (video))	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:43 PM
L17	1	((display$3) WITH (operat$3 near5 panel) WITH (numerical) WITH (switch$3) WITH (video))	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:44 PM
L18	4985	((display$3) WITH (operat$3 near5 panel)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:47 PM
L19	3	((display$3) WITH (virtual near3 control NEAR panel$1) WITH (GUI OR (graphical near2 interface))) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:50 PM
L20	2	((display$3) WITH (virtual near3 control NEAR panel$1) WITH	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:52 PM

		(GUI OR (graphical near2 interface)) WITH (switch$3 OR chang$3 OR exchang$3))					
L21	12	((display$3) SAME (virtual near3 control NEAR panel$1) SAME (GUI OR (graphical near2 interface)) SAME (switch$3 OR chang$3 OR exchang$3))	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:53 PM
L22	145	machida-Yoshihiro.in.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:55 PM
L23	9	Tsutsumi-Nobuhiro.in.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:55 PM
L24	21	Kamogawa-Kouji.in.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/24 03:56 PM
L25	1	"20060041655"	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 05:13 PM
L26	1	"20180061455"	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 05:17 PM
L27	1	15/670155 AND (fig. 2)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:24 PM
L28	677	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:29 PM
L29	105	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME (switch$3)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:29 PM
L30	0	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME (switch$3) SAME (remote adj1 control$3)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:30 PM
L31	0	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME (switch$3) SAME (remote NEAR control$3)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:30 PM
L32	0	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:30 PM

		(switch$3) SAME (remote near5 control$3)					
L33	21	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME (remote near5 control$3)	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:31 PM
L34	0	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME ((vertual OR graphical OR GUI) near5 (remote near5 control$3))	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:33 PM
L35	0	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME ((vertual OR graphical OR GUI) near5 (remote near5 control$3))	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:33 PM
L36	11	(((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME (switch$3)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:39 PM
L37	105	(((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME (switch$3))	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:42 PM
L38	2	"20070053657"	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:48 PM
L39	2	"20150095953"	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:50 PM
L40	4	(digital adj1 content$1) SAME (interactive near5 button$1) SAME (linear near5 button$1) SAME (display$3)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 10:55 PM
L41	6	(interactive near5 button$1) SAME (linear near5 button$1) SAME (display$3)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 10:56 PM
L42	1	17/868139 AND (panel near5 information)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 10:57 PM
L43	10	(menu OR panel) WITH	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12

		(interactive) WITH (linear) WITH (button$1)					11:06 PM
L44	65	(menu OR panel) SAME (interactive) SAME (linear) SAME (button$1) SAME (display$3)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:07 PM
L45	17	((menu OR panel) SAME (interactive) SAME (linear) SAME (button$1) SAME (display$3)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:10 PM
L46	0	(((menu OR panel) near5 inforamtion) SAME (interactive) SAME (linear) SAME (button$1) SAME (display$3)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:11 PM
L47	0	(((menu OR panel) near5 inforamtion) SAME (interactive) SAME (linear) SAME (button$1) SAME (display$3))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:11 PM
L48	0	(((menu OR panel)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12

		near5 inforamtion) SAME (interactive) SAME (button$1) SAME (display$3))					11:11 PM
L49	0	(((menu OR panel) near10 inforamtion) SAME (interactive) SAME (button$1) SAME (display$3))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:12 PM
L50	0	(((menu OR panel) near10 (inforamtion OR matadata$1)) SAME (interactive) SAME (button$1) SAME (display$3))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:12 PM
L51	295	(((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR5 (menu OR panel)) SAME (switch$3))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:13 PM
L52	72	(((monitor OR display) near5 (divid$3 OR split OR fragment$2)) WITH ((control OR operat$3) NEAR5 (menu OR panel)) WITH (switch$3))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:14 PM
L53	8	(((monitor OR display) near5 (divid$3 OR split OR fragment$2)) WITH ((control OR operat$3) NEAR5 (menu OR panel)) WITH (switch$3)) AND (H04N21/4312 OR G06F3/0481 OR G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:14 PM
L54	0	(((monitor OR display) near5 (divid$3 OR split OR fragment$2)) WITH ((control OR operat$3) NEAR5 (menu OR	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:16 PM

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		panel)) WITH (switch$3) WITH (TV OR television))					
L55	3	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR5 (menu OR panel)) SAME (switch$3) SAME (TV OR television)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:16 PM
L56	497	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) WITH (menu OR panel) WITH (information OR metadata))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:18 PM
L57	326	((monitor OR display) near5 (divid$3 OR split OR fragment$2)) WITH ((control OR operat$3) WITH (menu OR panel) WITH (information OR metadata))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:18 PM
L58	174	((monitor OR display) near5 (divid$3 OR split OR fragment$2) near5 (menu OR panel)) WITH ((control OR operat$3) WITH (information OR metadata))	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:19 PM
L62	40	(time near5 information) SAME ((menu OR panel) near5 information) SAME (interactive) SAME (button$1) SAME (display$3)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:27 PM
L63	3	(time near5 information) WITH ((menu OR panel) near5 information) WITH (interactive) WITH (button$1) WITH (display$3)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:28 PM
L64	23	((time near5 information) SAME ((menu OR panel) near5 information) SAME (interactive) SAME (button$1) SAME (display$3)) AND (H04N21/4312 OR G06F3/0481 OR	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:28 PM

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		G11B19/025 OR G11B27/3027 OR G11B27/34 OR G11B27/36 OR H04N21/4122 OR H04N21/4263 OR H04N21/434 OR H04N21/4345 OR H04N21/466 OR H04N21/47217 OR G06F3/04847 OR G06F3/04886 OR G06F2203/04803).cpc.					
L66	148	("20020021306" OR "20020054028" OR "20020059586" OR "20020060750" OR "20020065927" OR "20020162117" OR "20030147635" OR "20030234805" OR "20040001703" OR "20040028375" OR "20040040041" OR "20040075670" OR "20040103434" OR "20040133923" OR "20040154040" OR "20040194139" OR "20050024341" OR "20050028204" OR "20050132420" OR "20050160461" OR "20050267676" OR "20060010099" OR "20060242106" OR "20070124765" OR "5428730" OR "5517257" OR "5606374" OR "5648824" OR "5809204" OR "5831664" OR "5929850" OR "6100883" OR "6154771" OR "6177931" OR "6233389" OR "6240555" OR "6378130" OR "6407779" OR "6493038" OR "6609253" OR "6628302" OR "6678891" OR "6757907" OR "6804825" OR "6976216" OR	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13 12:11 AM

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		"7043477" OR "7155674" OR "7194701" OR "7257775" OR "7392532" OR "7475349" OR "7523478" OR "7536647" OR "7546537" OR "7590997" OR "7650621" OR "7673250" OR "8086093" OR "8112711" OR "8151210" OR "8402505" OR "8418202" OR "8516520" OR "8601514" OR "8707354" OR "8773360" OR "9065979" OR "7073189" OR "7293276" OR "7365782" OR "7667123" OR "8181205" OR "20020132216" OR "20030037068" OR "20030050885" OR "20030113100" OR "20030149988" OR "20030163811" OR "20030214604" OR "20040047588" OR "20040059790" OR "20040060063" OR "20040063479" OR "20040117831" OR "20040131335" OR "20040249925" OR "20050053356" OR "20050097600" OR "20050134746" OR "20050160458" OR "20050160465" OR "20050166230" OR "20050172332" OR "20050188408" OR "20050198663" OR "20050240961" OR "20050262535" OR "20060015911" OR "20060020969" OR "20060020982" OR "20060041655" OR "20060050059" OR "20060161954" OR				

		"20060256241" OR "20060271971" OR "20070003220" OR "20070044015" OR "20070106945" OR "20070185968" OR "20080184297" OR "20110061078" OR "20120227075" OR "4746919" OR "4825209" OR "5315999" OR "5367316" OR "5416535" OR "5721829" OR "5801747" OR "5850218" OR "5914941" OR "6025869" OR "6055413" OR "6141003" OR "6297856" OR "6348932" OR "6392664" OR "6404418" OR "6446040" OR "6603488" OR "6636157" OR "6690431" OR "6732367" OR "6930730" OR "6993722" OR "7071865" OR "7126587" OR "7174518" OR "7522087" OR "7595846" OR "7797718" OR "7899915" OR "7917933" OR "8068718" OR "8170394" OR "8245250" OR "8352986" OR "9489985").pn.					
L67	0	62 AND 66	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13 12:12 AM
L68	148	("20020021306" OR "20020054028" OR "20020059586" OR "20020060750" OR "20020065927" OR "20020162117" OR "20030147635" OR "20030234805" OR "20040001703" OR "20040028375" OR	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13 12:49 AM

		"20040040041" OR "20040075670" OR "20040103434" OR "20040133923" OR "20040154040" OR "20040194139" OR "20050024341" OR "20050028204" OR "20050132420" OR "20050160461" OR "20050267676" OR "20060010099" OR "20060242106" OR "20070124765" OR "5428730" OR "5517257" OR "5606374" OR "5648824" OR "5809204" OR "5831664" OR "5929850" OR "6100883" OR "6154771" OR "6177931" OR "6233389" OR "6240555" OR "6378130" OR "6407779" OR "6493038" OR "6609253" OR "6628302" OR "6678891" OR "6757907" OR "6804825" OR "6976216" OR "7043477" OR "7155674" OR "7194701" OR "7257775" OR "7392532" OR "7475349" OR "7523478" OR "7536647" OR "7546537" OR "7590997" OR "7650621" OR "7673250" OR "8086093" OR "8112711" OR "8151210" OR "8402505" OR "8418202" OR "8516520" OR "8601514" OR "8707354" OR "8773360" OR "9065979" OR "20020132216" OR					

		"20030037068" OR "20030050885" OR "20030113100" OR "20030149988" OR "20030163811" OR "20030214604" OR "20040047588" OR "20040059790" OR "20040060063" OR "20040063479" OR "20040117831" OR "20040131335" OR "20040249925" OR "20050053356" OR "20050097600" OR "20050134746" OR "20050160458" OR "20050160465" OR "20050166230" OR "20050172332" OR "20050188408" OR "20050198663" OR "20050240961" OR "20050262535" OR "20060015911" OR "20060020969" OR "20060020982" OR "20060041655" OR "20060050059" OR "20060161954" OR "20060256241" OR "20060271971" OR "20070003220" OR "20070044015" OR "20070106945" OR "20070185968" OR "20080184297" OR "20110061078" OR "20120227075" OR "4746919" OR "4825209" OR "5315999" OR "5367316" OR "5416535" OR "5721829" OR "5801747" OR "5850218" OR "5914941" OR "6025869" OR "6055413" OR "6141003" OR "6297856" OR "6348932" OR "6392664" OR "6404418" OR "6446040" OR "6603488" OR "6636157" OR				

		"6690431" OR "6732367" OR "6930730" OR "6993722" OR "7071865" OR "7073189" OR "7126587" OR "7174518" OR "7293276" OR "7365782" OR "7522087" OR "7595846" OR "7667123" OR "7797718" OR "7899915" OR "7917933" OR "8068718" OR "8170394" OR "8181205" OR "8245250" OR "8352986" OR "9489985").pn.					
L69	0	64 AND 68	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13 12:49 AM
L70	148	("20020021306" OR "20020054028" OR "20020059586" OR "20020060750" OR "20020065927" OR "20020162117" OR "20030147635" OR "20030234805" OR "20040001703" OR "20040028375" OR "20040040041" OR "20040075670" OR "20040103434" OR "20040133923" OR "20040154040" OR "20040194139" OR "20050024341" OR "20050028204" OR "20050132420" OR "20050160461" OR "20050267676" OR "20060010099" OR "20060242106" OR "20070124765" OR "5428730" OR "5517257" OR "5606374" OR "5648824" OR "5809204" OR "5831664" OR "5929850" OR "6100883" OR "6154771" OR	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13 10:36 AM

		"6177931" OR "6233389" OR "6240555" OR "6378130" OR "6407779" OR "6493038" OR "6609253" OR "6628302" OR "6678891" OR "6757907" OR "6804825" OR "6976216" OR "7043477" OR "7155674" OR "7194701" OR "7257775" OR "7392532" OR "7475349" OR "7523478" OR "7536647" OR "7546537" OR "7590997" OR "7650621" OR "7673250" OR "8086093" OR "8112711" OR "8151210" OR "8402505" OR "8418202" OR "8516520" OR "8601514" OR "8707354" OR "8773360" OR "9065979" OR "20020132216" OR "20030037068" OR "20030050885" OR "20030113100" OR "20030149988" OR "20030163811" OR "20030214604" OR "20040047588" OR "20040059790" OR "20040060063" OR "20040063479" OR "20040117831" OR "20040131335" OR "20040249925" OR "20050053356" OR "20050097600" OR "20050134746" OR "20050160458" OR "20050160465" OR "20050166230" OR "20050172332" OR "20050188408" OR "20050198663" OR "20050240961" OR				

		"20050262535" OR "20060015911" OR "20060020969" OR "20060020982" OR "20060041655" OR "20060050059" OR "20060161954" OR "20060256241" OR "20060271971" OR "20070003220" OR "20070044015" OR "20070106945" OR "20070185968" OR "20080184297" OR "20110061078" OR "20120227075" OR "4746919" OR "4825209" OR "5315999" OR "5367316" OR "5416535" OR "5721829" OR "5801747" OR "5850218" OR "5914941" OR "6025869" OR "6055413" OR "6141003" OR "6297856" OR "6348932" OR "6392664" OR "6404418" OR "6446040" OR "6603488" OR "6636157" OR "6690431" OR "6732367" OR "6930730" OR "6993722" OR "7071865" OR "7073189" OR "7126587" OR "7174518" OR "7293276" OR "7365782" OR "7522087" OR "7595846" OR "7667123" OR "7797718" OR "7899915" OR "7917933" OR "8068718" OR "8170394" OR "8181205" OR "8245250" OR "8352986" OR "9489985").pn.					
L71	0	64 AND 70	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13

							10:36 AM
L72	0	18/138178 AND (decoded WITH content WITH linear)	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13 10:37 AM
L73	0	18/138178	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/13 10:38 AM
L74	25	"20060041655"	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/15 09:36 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	0	((display$3) WITH (virtual near3 control NEAR panel$1) WITH (GUI OR (graphical near2 interface)) WITH (switch$3 OR chang$3 OR exchang$3)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:42 PM
N2	11	(((monitor OR display) near5 (divid$3 OR split OR fragment$2)) SAME ((control OR operat$3) NEAR panel) SAME (switch$3)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/03/25 09:42 PM
N3	3	((time near5 information) WITH ((menu OR panel) near5 information) WITH (interactive) WITH (button$1) WITH (display$3)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2023/06/12 11:28 PM

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2022-07-19
First Named Inventor	Y. MACHIDA
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-9608-05

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5416535		1995-05-16	Sato et al.	
	2	7174518		2007-02-06	J. Kim	
	3	7595846		2009-09-29	H. Moon	
	4	7917933		2011-03-29	Thomas et al.	
	5	7071865		2006-07-04	Shibamiya et al.	
	6	7126587		2006-10-24	Kawakami et al.	
	7	5315999		1994-05-31	Kinicki et al.	
	8	6297856		2001-10-02	Nakamura et al.	

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	First Named Inventor	Y. MACHIDA
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	9	4825209		1989-04-25	Sasaki et al.	
	10	4746919		1988-05-24	G. Reitmeier	
	11	4825209	A	1989-04-25	Sasaki; Hiroaki	
	12	7595846	B2	2009-09-29	Moon; Han	
	13	6404418	B1	2002-06-11	Leem; Geon-Hoa	
	14	5914941		1999-06-22	Janky, James M.	
	15	7522087		2009-04-21	Shibamiya et al.	
	16	6297856		2001-10-02	Nakamura et al.	
	17	8170394		2012-05-01	Machida et al.	
	18	5416535		1995-05-16	Sato et al.	
	19	8068718		2011-11-29	Hamasaka et al.	

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	First Named Inventor	Y. MACHIDA
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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	20	6690431		2004-02-10	Yang et al.	
	21	9489985		2016-11-08	Machida; Yoshihiro	
	22	8245250	B2	2012-08-14	Casement; Marcy	
	23	6732367	B1	2004-05-04	Ellis; Micheal D.	
	24	6025869	A	2000-02-15	Stas; Stefan	
	25	5801747	A	1998-09-01	Bedard; Karen	
	26	5721829	A	1998-02-24	Dunn; Matthew W.	
	27	6055413	A	2000-04-25	Morse; Gary James	
	28	6446040	B1	2002-09-03	Socher; Gudrun	
	29	6392664	B1	2002-05-21	White; Chris M.	
	30	7899915	B2	2011-03-01	Reisman; Richard	

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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	31	6930730	B2	2005-08-16	Maxon; Brian	
	32	7797718	B2	2010-09-14	Stecyk; Polly	
	33	6636157	B1	2003-10-21	Sato; Kazuhiro	
	34	8352986	B2	2013-01-08	Uchida; Mami	
	35	5367316	A	1994-11-22	Ikezaki; Masao	
	36	6141003	A	2000-10-31	Chor; Ives	
	37	6348932	B1	2002-02-19	Nishikawa; Yuko S.	
	38	6993722	B1	2006-01-31	Greer; Frank	
	39	6603488	B2	2003-08-05	Humpleman; Richard James	
	40	5850218	A	1998-12-15	LaJoie; Mike L.	

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	First Named Inventor	Y. MACHIDA
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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050262535		2005-11-24	Uchida et al.	
	2	20030050885		2003-03-13	Cohen et al.	
	3	20070003220		2007-01-14	Hamasaka et al.	
	4	20050188408		2005-08-25	Wallis et al.	
	5	20070106945		2007-05-10	J. Kim	
	6	20050097600		2005-05-05	D. Heer	
	7	20050053356		2005-03-10	Mate et al.	
	8	20040131335		2004-07-08	Halgas et al.	
	9	20080184297		2008-07-31	Ellis et al.	
	10	20060271971		2006-11-30	J. Drazin	

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	First Named Inventor	Y. MACHIDA
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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	11	20110061078	A1	2001-03-10	Rothschild; Leigh M.	
	12	20040249925	A1	2004-12-09	Jeon, Seong-Joon	
	13	20050134746	A1	2005-06-23	Brandt, Nicholas C.	
	14	20060015911	A1	2006-01-19	Dean; Rick	
	15	20060256241	A1	2006-11-16	Suzuki; Hidekazu	
	16	20050172332	A1	2005-08-04	Fukuda, Tetsu	
	17	20060161954		2006-07-20	Hamada et al.	
	18	20070185968		2007-08-09	White et al.	
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	Filing Date	2022-07-19
	First Named Inventor	Y. MACHIDA
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	22	20040063479	A1	2004-04-01	Kimura; Seitaro	
	23	20040059790	A1	2004-03-25	Austin-Lane, Christopher Emery	
	24	20030037068	A1	2003-02-20	Thomas, William L.	
	25	20120227075	A1	2012-09-06	Asmussen; Michael L.	
	26	20050198663	A1	2005-09-08	Chaney, John William	
	27	20060020982	A1	2006-01-26	Jerding; Dean F.	
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	29	20020132216	A1	2002-09-19	Dohrmann, Bernhard	
	30	20030214604	A1	2003-11-20	Lee, Jae Kyung	
	31	20070044015	A1	2007-02-22	Ikeda; Shingo	
	32	20030149988	A1	2003-08-07	Ellis, Michael D.	

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	First Named Inventor	Y. MACHIDA
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	33	20050160458	A1	2005-07-21	Baumgartner, Joseph P.	
	34	20030113100	A1	2003-06-19	Hecht, Gret	
	35	20040047588	A1	2004-03-11	Okada, Tomoyuki	
	36	20040117831	A1	2004-06-17	Ellis, Michael D.	
	37	20040060063	A1	2004-03-25	Russ, Samuel H.	
	38	20030163811	A1	2003-08-28	Luehrs, Douglas Richard	
	39	20060050059	A1	2006-03-09	Satoh; Kimiyasu	
	40	20050160465	A1	2005-07-21	Walker, Todd A.	
	41	20060020969	A1	2006-01-26	Utsuki; Shingo	
	42	20050262535	A1	2005-11-24	Uchida, Mami	

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Examiner Name	
Attorney Docket Number	ASA-9608-05

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	11298822	JP		1999-10-29	Tsuda et al.		
	2	1376321	EP		2004-01-02	Hona		
	3	2005024828	WO		2005-03-17	Hamasaka et al.		
	4	9844732	WO		1998-10-08	Van Gestel		
	5	08079647	JP		1996-03-01	Iwamoto		
	6	2000287159	JP		2000-10-13	Miyata		
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	8	2005006144	JP		2005-01-06	Fujitsu Ltd.		
	9	09168131	JP		1997-06-24	Sony Corp.		
	10	2535309	GB	A	2016-08-17	Sally Cook		

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	Filing Date	2022-07-19
	First Named Inventor	Y. MACHIDA
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	11	2482234	CA	A1	2003-11-06	Mears Mark Gilmore		
	12	0133344	WO	A2	2001-05-10	Villers Jean-Stephane		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Machine generated translation of JP 2005-006144 to Suda et al. 06/2005	

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Examiner Signature	/DANIEL T TEKLE/	Date Considered	06/13/2023

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	Application Number	
	Filing Date	2022-07-19
	First Named Inventor	Y. MACHIDA
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/JOHN R. MATTINGLY/	Date (YYYY-MM-DD)	2022-07-19
Name/Print	JOHN R. MATTINGLY	Registration Number	30293

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 1 hour 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

17868139

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US 17868139 6 Members in Patent Family (6 currently shown) ()

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All IP5 Offices

- EP
- CN
- KR
- JP
- US

Non-IP5 Offices

()	Office ()	Application ()	Assignee	Title ()	App. Date ()	Priority #	Pub. # ()	Pub. Date	A
()	JP	2005248576 View Dossier ()	1) Hitachi, Ltd., 2) INOUE, Manabu,	DIGITAL CONTENT REPRODUCTION APPARATUS	08/30/2005	JP 2005248576	JP 2007067593 A () JP 4640046 B2 ()	03/15/2007 03/02/2011	
()	US	11508209 View Dossier ()	1) Machida, Yoshihiro 2) Tsutsumi, Nobuhiro 3) Kamogawa, Kouji	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	08/23/2006	JP 2005248576	US 20070047920 A1 () US 8170394 B2 ()	03/01/2007 05/01/2012	
()	US	13443955 View Dossier ()	1) Machida, Yoshihiro 2) Tsutsumi, Nobuhiro 3) Kamogawa, Kouji	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	04/11/2012	JP 2005248576 US 11508209 US 13443955	US 20120195569 A1 () US 9489985 B2 ()	08/02/2012 11/08/2016	
()	US	15287074 View Dossier ()	1) MACHIDA, Yoshihiro 2) TSUTSUMI, Nobuhiro 3) KAMOGAWA, Kouji	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	10/06/2016	US 15287074 JP 2005248576 US 11508209 US 13443955	US 20170041659 A1 () US 9743129 B2 ()	02/09/2017 08/22/2017	
()	US	15670155 View Dossier ()	1) MACHIDA, Yoshihiro 2) TSUTSUMI, Nobuhiro 3) KAMOGAWA, Kouji	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	08/07/2017	US 15670155 US 15287074 JP 2005248576 US 11508209 US 13443955	US 20170339449 A1 () US 11470379 B2 ()	11/23/2017 10/11/2022	
()	US	17868139 View Dossier ()	1) MACHIDA, Yoshihiro 2) TSUTSUMI, Nobuhiro 3) KAMOGAWA, Kouji	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	07/19/2022	US 15670155 US 15287074 US 17868139 JP 2005248576 US 11508209 US 13443955	US 20220385965 A1 ()	12/01/2022	

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USPTO BACKGROUND

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Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	17868139
Filing Date	19-Jul-2022
First Named Inventor	Yoshihiro MACHIDA
Attorney Docket Number	ASA-9608-05
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

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Registration Number 30293

○ A sole inventor

○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application

○ A joint inventor; all of whom are signing this request

Signature	/John R. Mattingly/
Name	John R. Mattingly

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	17868139
Filing Date:	19-Jul-2022
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-9608-05

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	170	170
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
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Application No.: 17868139

Filing Date: 19-Jul-2022

Applicant/Patent under Reexamination: MACHIDA

Electronic Terminal Disclaimer filed on June 13, 2023

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EFS ID:	48141458
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	13-JUN-2023
Filing Date:	19-JUL-2022
Time Stamp:	15:59:29
Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	yes
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Payment was successfully received in RAM	$170
RAM confirmation Number	E20236CF59278301
Deposit Account	501417
Authorized User	Krista Hargrove

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Warnings:					
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(Not for submission under 37 CFR 1.99)

Application Number	17868139
Filing Date	2022-07-19
First Named Inventor	MACHIDA, Y.
Art Unit	2481
Examiner Name	TEKLE, D. T.
Attorney Docket Number	ASA-9608-05

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	3	5517257		1996-05-14		
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	7	5809204		1998-09-15		
	8	5929850		1999-07-27		

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	1	2000-206949 w/ABS	JP	A	2000-07-28	PIONEER ELECTRONIC CORP		
	2	2003-209710 w/ABS	JP	A	2003-07-25	CANON KK		

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	3	03/026275	WO	A2	2003-03-27	META TV, INC.		
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T5
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	Examiner Name	TEKLE, D. T.
	Attorney Docket Number	ASA-9608-05

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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☒ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2023-05-19
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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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Bibliographic data: JP2000206949 (A) — 2000-07-28

DISPLAY DEVICE

Inventor(s): FUKADA HIROTSUGU; KOBAYASHI HIROSHI; MIYAKE TAKASHI; KANEKO YUKIHIRO ± (FUKADA HIROTSUGU, ; KOBAYASHI HIROSHI, ; MIYAKE TAKASHI, ; KANEKO YUKIHIRO)

Applicant(s): PIONEER ELECTRONIC CORP ± (PIONEER ELECTRONIC CORP)

Classification: **- international:** ***G09G5/00; G11B31/00;*** (IPC1-7): G09G5/00; G11B31/00

- cooperative:

Application number: JP19990007978 19990114

Priority number(s): JP19990007978 19990114

Also published as: JP3691677 (B2)

Abstract of JP2000206949 (A)

PROBLEM TO BE SOLVED: To provide a display device effectively displaying information which is already obtained in accordance with instructions of a user or the like. SOLUTION: This display device is provided with a preset data storage part 41 storing plural pieces of information, a display part 16, operation buttons 19 to 28 with plural display parts and a central control part 37 controlling the display operation of the display part 16 and the operation buttons 19 to 22. The central control part 37 makes the preset data storage part 41 display the information stored in the part 41 on the plural operation buttons 19 to 28 and when one of the buttons 19 to 28 is operated by a user or the like, the control part 37 makes the display part 16 display the information which is displayed on the operated operation button and makes an operation means with plural display parts display the information other than the information which is displayed on the display part 16 among pieces of information which is stored in the part 41.

(19)日本国特許庁（ＪＰ）　(12)公開特許公報（Ａ）　(11)特許出願公開番号
特開2000－206949
（Ｐ2000－206949Ａ）
(43)公開日　平成12年７月28日(2000.7.28)

(51)Int.Cl.[7]	識別記号	ＦＩ		テーマコード（参考）
Ｇ０９Ｇ　5/00	５１０	Ｃ０９Ｇ　5/00	５１０Ｈ	５Ｃ０８２
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Ｇ１１Ｂ　31/00	５２５	Ｃ１１Ｂ　31/00	５２５Ｅ	

審査請求　未請求　請求項の数５　ＯＬ　（全９頁）

(21)出願番号　特願平11－7978

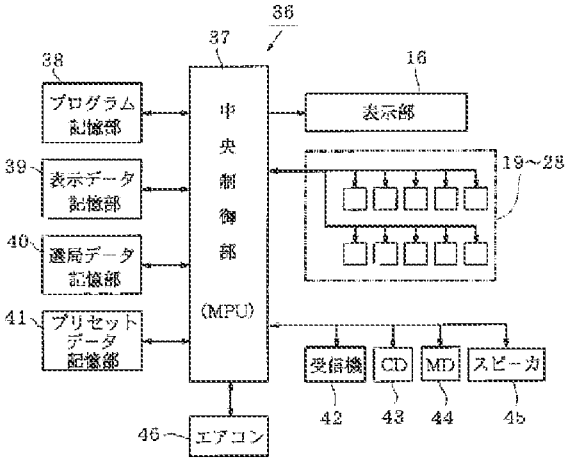
(22)出願日　平成11年１月14日(1999.1.14)

(71)出願人　000005016
パイオニア株式会社
東京都目黒区目黒１丁目４番１号
(72)発明者　深田　裕嗣
埼玉県川越市大字山田字西町25番地１　パイオニア株式会社川越工場内
(72)発明者　小林　弘
埼玉県川越市大字山田字西町25番地１　パイオニア株式会社川越工場内
(74)代理人　100063565
弁理士　小橋　信淳

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(54)【発明の名称】　表示装置

(57)【要約】
【課題】既に取得している情報を使用者等の指示に応じてより効果的に表示する表示装置を提供する。
【解決手段】複数の情報を記憶するプリセットデータ記憶部４１と、表示部１６と、複数個の表示部付き操作釦１９～２８と、表示部１６と複数個の表示部付き操作釦１９～２２の表示動作を制御する中央制御部３７を備える。中央制御部３７は、プリセットデータ記憶部４１に記憶されている情報を複数個の表示部付き操作釦１９～２８に表示させ、表示部付き操作釦１９～２８のいずれか１つが使用者等によって操作されると、その操作された表示部付き操作釦に表示されていた情報を表示部１６に表示させ、複数個の表示部付き操作手段には、プリセットデータ記憶部４１に記憶されている情報のうち、表示部１６に表示させた情報以外の情報を表示させる。



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【特許請求の範囲】
【請求項１】　複数の情報を記憶する記憶手段と、複数個の表示部付き操作手段を備える表示装置であって、
前記記憶手段に記憶されている情報を前記複数個の表示部付き操作手段に表示させ、前記表示部付き操作手段のうちのいずれか一の操作手段が操作されると、前記記憶手段に記憶されている情報のうちの前記操作された表示部付き操作手段の情報以外の情報を前記複数個の表示部付き操作手段に表示させる制御手段を備えたことを特徴とする表示装置。
【請求項２】　前記複数個の表示部付き操作手段に設けられている前記表示部以外の表示手段を更に備え、
前記制御手段は、前記操作された表示部付き操作手段の情報を前記表示手段に表示させることを特徴とする請求項１に記載の表示装置。
【請求項３】　放送局から発信される放送信号を受信する受信手段と、前記受信手段で検出される複数の放送局に関する情報を記憶する記憶手段と、前記複数の放送局に関する情報をそれぞれ割り当てて表示する複数の表示部付き操作手段とを備える表示装置であって、
前記記憶手段に記憶されている前記放送局に関する情報を前記複数個の表示部付き操作手段に表示させ、前記表示部付き操作手段のうちのいずれか一の操作手段が操作されると、前記記憶手段に記憶されている前記放送局に関する情報のうち、前記操作された表示部付き操作手段の情報以外の前記放送局に関する情報を前記複数個の表示部付き操作手段に表示させる制御手段を備えたことを特徴とする表示装置。
【請求項４】　前記複数個の表示部付き操作手段に設けられている前記表示部以外の表示手段を更に備え、
前記制御手段は、前記操作された表示部付き操作手段の放送局に関する情報を前記表示手段に表示させることを特徴とする請求項３に記載の表示装置。
【請求項５】　前記制御手段は、前記表示部付き操作手段の数より前記記憶手段に記憶されている情報の数が多いと、前記表示部付き操作手段の数づつの組に区分けし、それぞれ区分けされた情報毎に前記表示部付き操作手段に表示させることを特徴する請求項１～４のいずれか１項に記載の表示装置。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】本発明は、例えばオーディオ機器や映像機器その他の電子機器に設けられる表示装置に関し、特に、既に取得している情報を使用者等の指示に応じて表示する表示装置に関するものである。
【０００２】
【従来の技術】周知の如く、各種の電子機器には様々な表示装置が設けられている。これらの表示装置のうち、使用者等が希望する情報を対話的に表示する多機能の表示装置が知られている。

【０００３】図１３は、多機能表示装置の従来例として、使用者等が選局したラジオ放送局の周波数を表示する、車載用オーディオ装置に設けられた表示装置の構成例を示している。図１３において、この車載用オーディオ装置のフロントパネル１には、表示部２、コンパクトディスク挿入口３、カートリッジテープ挿入口４の他、音量調整用釦５、手動選局釦６、自動選局釦７、ワンタッチ選局釦８～１３等の各種操作釦が設けられている。表示部２と手動選局釦６と自動選局釦７及びワンタッチ選局釦８～１３により、使用者等が所望の放送局を選局するための選局機能を備えた多機能表示装置が構成されている。
【０００４】使用者等が手動選局釦６又は自動選局釦７を操作すると、車載用オーディオ装置内に搭載されているチューナが放送局から発信される放送を受信し、各放送局の周波数をワンタッチ選局釦８～１３に割り当てる。また、使用者等がワンタッチ選局釦８～１３のいずれか１つを選択操作すると、選択されたワンタッチ選局釦の周波数をチューナの受信周波数に設定し、更に、受信周波数とＡＭ／ＦＭ周波数の受信バンドを文字等によって表示部２に表示するようになっている。
【０００５】より具体的には、手動選局釦６は、使用者等が放送局を１つづつ手動でプリセットするために設けられている。使用者が選局釦６を押すと、選局釦６が押される毎に、上記チューナーが低い周波数から高い周波数へ順次に選局し、使用者等の操作により選局された放送局の周波数を記憶手段に記憶させると共に、各放送局の周波数をワンタッチ選局釦８～１３に割り当てる。
【０００６】自動選局釦７は、使用者等が複数の放送局を自動的にプリセットするために設けられている。使用者等が自動選局釦７を１回押すと、上記チューナが低い周波数から高い周波数へ連続して選局し、放送を受信する度にその放送局の周波数を自動的に上記記憶手段に記憶させると共に、各放送局の周波数をワンタッチ選局釦８～１３に割り当てる。
【０００７】使用者等が手動選局釦６又は自動選局釦７によって上記のプリセットを行った後、ワンタッチ選局釦８～１３のうちの１つを押すと、そのワンタッチ選局釦に割り当てられた周波数をチューナの受信周波数に設定すると共に、表示部２に受信周波数とＡＭ／ＦＭの受信バンドを文字等によって表示する。
【０００８】このように、使用者等が放送局をプリセットすると、次回からはワンタッチ選局釦８～１３を操作するだけで所望の放送局を簡単に選局することが可能となり、更に、表示部２の表示内容に基づいて所望の放送局が選局されたか否かを確認できるようになっている。
【０００９】
【発明が解決しようとする課題】ところで、上記従来の表示装置は、ワンタッチ選局釦８～１３に各放送局の周波数を１対１に対応付けて割り当てておき、使用者等が

操作するワンタッチ選局釦に該当する放送局の周波数を表示部２に表示するという機能を有しているにすぎない。このため、ワンタッチ選局釦８～１３の個数以上の放送局を表示部２に表示させることができないという問題があった。

【００１０】また、多くの放送局をプリセットできるようにするためにワンタッチ選局釦の数を増やす方法も考えられるが、単にワンタッチ選局釦の数を増しただけでは、使用されないワンタッチ選局釦が増えて冗長になるという問題があり、また、車載用オーディオ装置のように限られたスペース内に多数のワンタッチ選局釦を設けることは極めて困難であった。

【００１１】また、最後に操作されたワンタッチ選局釦で選局された放送局のみを表示部２に表示するようになっている。すなわち、スピーカから現在出力されている放送の放送局のみが表示部２に表示されるようになっている。このため、使用者等がプリセットされている放送局の中から別の放送局を選局しようとすると、残りのワンタッチ選局釦を当てずっぽうに操作し、所望の放送局が表示部２に表示されるまで、上記の操作を繰り返さなければならないことから、必ずしも操作性がよいとはいえなかった。

【００１２】また、複数の放送局が同時に表示されないため、使用者等がプリセットされている放送局を確認する場合にも、ワンタッチ選局釦８～１３を順繰りに操作し、表示部２に表示される放送局を１つ１つ切換えながら確認する必要があり、必ずしも操作性がよいとはいえなかった。

【００１３】また、車両運転中に使用者等がこれらの操作を行うことは、必ずしも好ましいことではなかった。

【００１４】本発明はこのような従来技術に鑑みてなされたものであり、既に取得している情報を使用者等の指示に応じてより効果的に表示する表示装置を提供することを目的する。

【００１５】

【課題を解決するための手段】上記目的を達成するために本発明は、複数の情報を記憶する記憶手段と、複数個の表示部付き操作手段を備える表示装置であって、上記記憶手段に記憶されている情報を上記複数個の表示部付き操作手段に表示させ、上記表示部付き操作手段のうちのいずれか一の操作手段が操作されると、上記記憶手段に記憶されている情報のうちの上記操作された表示部付き操作手段の情報以外の情報を上記複数個の表示部付き操作手段に表示させる制御手段を備える構成とした。

【００１６】かかる構成によると、複数個の表示部付き操作手段のうちの１つが選択的に操作されると、その操作された切換え表示に表示されていた情報以外の情報が、複数個の表示部付き操作手段に割り当てられて表示される。したがって、例えば、操作されたことによって表示の必要性がなくなった情報については表示しないこととし、それ以外の情報を複数個の表示部付き操作手段に割り当てて表示することとなる結果、表示部付き操作手段の数よりも多くの情報を効率良く表示することを可能にする。

【００１７】また、上記複数個の表示部付き操作手段に設けられている上記表示部以外の表示手段を更に備え、上記制御手段は、上記操作された表示部付き操作手段の情報を上記表示手段に表示させる構成とした。

【００１８】かかる構成によると、複数個の表示部付き操作手段のうちの１つが選択的に操作されると、その表示部付き操作手段に表示されていた情報が、表示手段に切換え表示される。更に、その切換え表示によって表示手段に表示されることとなった情報以外の情報が、複数個の表示部付き操作手段に割り当てられて表示される。すなわち、表示手段と表示部付き操作手段には、同一の情報が重複して表示されない。更に、表示手段には、表示部付き操作手段に表示されていた情報が表示される。この結果、表示部付き操作手段の数よりも多くの情報が効率良く表示されるのに加えて、使用者等は、選択した操作手段の情報を引き続き視覚的に確認することが可能となる。

【００１９】また、上記制御手段を、上記表示部付き操作手段の数より上記記憶手段に記憶されている情報の数が多いと、上記表示部付き操作手段の数ずつの組に区分けし、それぞれ区分けされた情報毎に上記表示部付き操作手段に表示させる構成とした。

【００２０】かかる構成によると、各組に区分けされた複数の情報を表示部付き操作手段によって同時に表示することができると共に、多くの情報を複数組に分けて表示することができる。

【００２１】

【発明の実施の形態】以下、本発明の実施の形態を図面を参照して説明する。尚、一実施の形態として、車載用オーディオ装置に設けられる表示装置について説明する。図１において、本車載用オーディオ装置１４の操作パネル１５には、液晶ディスプレイ等から成る表示手段としての表示部１６と、コンパクトディスク（ＣＤ；Compact Disc）を挿入するための挿入口１７と、ミニディスク（ＭＤ；Mini Disc）を挿入するための挿入口１８が設けられている。更に、挿入口１８の下方には、４個づつを組にして２段に配設された操作釦１９～２２，２３～２６と、操作釦２２，２６の右側にそれぞれ配設された操作釦２７，２８が備えられている。そして、表示部１６と操作釦１９～２８によって、本実施形態に係る表示装置が構成されている。

【００２２】ここで、操作釦１９～２２は、主としてプリセットされている放送局を選局するために設けられ、操作釦２７は、主として車両に搭載されているオーディオシステムを調節するためのファンクションキーとして設けられている。また、操作釦２３～２６，２８は、主

として車両に搭載されているエアーコンディショナーの現在の動作状況等を表示させたりその動作を調節するためのファンクションキーとして設けられている。

【００２３】これらの操作釦１９～２８は、いずれも図２の縦断面図に示す構造を有している。すなわち、操作パネル１５の所定部分に穿設された矩形状の穴２９を介して外側に露出する窓部材３０と、窓部材３０の背面側に所定の隙間をもって対向配置されたエレクトロルミネッセンス３１とを備えて構成されている。

【００２４】窓部材３０は、透明なプラスッチックで成形されており、その一端３０ａが電気回路基板３２上に立設されている支持部材３３によって揺動自在に支持され、外部から力が付与されない状態では常に穴２９側に付勢され、使用者等が操作パネル１５の前面側から押すと、エレクトロルミネッセンス３１側へ若干揺動するようになっている。

【００２５】窓部材３０の他端３０ｂには、電気回路基板３２上に設けられた電気接点３４に対し所定の隙間をもって対向する電気接点３５が設けられている。使用者等が窓部材３０を操作パネル１５の前面側から押すと、上記の揺動により電気接点３４，３５が電気的に接触し、後述する中央制御部３７がこの電気的接触を検出することで、使用者等によりスイッチ操作が行われたと判定する。

【００２６】エレクトロルミネッセンス３１は、透過型の液晶ディスプレイやドットマトリックス型の発光ダイオード等で構成され、中央制御部３７から供給される表示データに基づいて、窓部材３０に面した表示領域に文字や図形等を表示する。

【００２７】かかる構成により、操作釦１９～２８は表示可能な押し釦式スイッチ、すなわち、表示部付き操作手段となっており、使用者等はエレクトロルミネッセンス３１で表示される文字や図形等を透明な窓部材３０を通して見ることができるようになっている。

【００２８】図３は、本表示装置を制御する制御回路３６の構成を示すブロック図である。同図において、制御回路３６には、表示部１６と操作釦１９～２８が接続されたマイクロプロセッサ（ＭＰＵ）を有する中央制御部３７が設けられている。また、中央制御部３７には、プログラム記憶部３８、表示データ記憶部３９、選局データ記憶部４０、プリセットデータ記憶部４１が接続される他、ＡＭ／ＦＭチューナを備えた受信機４２と、上記コンパクトディスクとミニディスクを再生するＣＤ再生装置４３とＭＤ再生装置４４、スピーカ４５及びエアーコンディショナー４６が接続されている。

【００２９】ここで、プログラム記憶部３８には、予め設定されたシステムプログラムが記憶されており、中央制御部３７が操作釦１９～２８の操作に応じて上記システムプログラムを実行することにより、本表示装置の表示動作を制御するようになっている。表示データ記憶部３９には、表示部１６に表示すべき文字や図形等の表示データが予め記憶されている。選局データ記憶部４０には、図４に示すように、ラジオ放送用周波数のチャンネル番号表に掲載されている全国の放送局（Ｂ１）～（Ｂｎ）とそれらの周波数及びＡＭ／ＦＭ等の周波数バンドに関するデータが予め記憶されている。プリセットデータ記憶部４１は、後述のプリセットにより取得した放送局とその周波数のデータを所定形式のコードデータとして記憶するために設けられている。また、図５に示すように、上記コードデータには、放送局とその周波数のデータに対応付けられた選局頻度とページの項目データが設けられている。

【００３０】次に、上記構成を有する表示装置の作動について図５～図１０を参照して説明する。使用者等が車両のイグニッションキーを操作し電源オンの状態にすると、中央制御部３７がこれを検知してデフォルト表示モードを設定する。これにより、図６に示すように、表示部１６には、暦と月日及び現在時刻等が表示され、操作釦１９～２２，２７のそれぞれには、ＡＭ／ＦＭ受信機４２とＣＤ再生装置４３及びＭＤ再生装置４４の操作と、オーディオ調整の操作が可能である旨の表示が行われ、操作釦２３～２６，２８のそれぞれには、エアーコンディショナー４６の調整操作が可能である旨の表示が行われる。

【００３１】このディフォルト表示モードで、使用者等が「ＣＤ」の表示がなされた操作釦２１を選択的に押すと、図７に示すように、表示部１６には、ＣＤ再生装置４３中にコンパクトディスクが挿入されていることの有無や、挿入されているコンパクトディスクに記録されている曲名や記録時間、選択トラック等のＣＤ再生に関する関連情報が文字や図形等で表示される。操作釦１９～２６のそれぞれには、再生開始や早送り等のＣＤ再生装置４３を操作するのに必要な操作ボタン表示が行われる。

【００３２】また、使用者等が「ＭＤ」の表示がなされている操作釦２２を選択的に押した場合にも、図７と同様に、ＭＤ再生に関する関連情報が表示される。

【００３３】図６のディフォルト表示モードで、「Ａ／Ｃ」の表示がなされた操作ボタン２８が押されると、図８に示すように、表示部１６には、エアーコンディショナー４６の動作状況や車内温度等が表示され、操作釦１９～２６のそれぞれには、エアーコンディショナー４６を調節するために必要な操作ボタン表示が行われる。また、図６のディフォルト表示モードで、操作釦２３～２６が選択的に押されると、その選択された操作釦に表示されている項目に関連する操作内容が、表示部１６と操作釦２３～２６に切換え表示されるようになっている。

【００３４】更に、図６に示すディフォルト表示モードで、「ＡＭ」の表示がなされている操作ボタン１９が押されると、図９に示すように、表示部１６には、受信機

４２が現在受信中の放送局の局名とその周波数及び受信バンド等の関連情報が文字や図形等によって表示される。操作釦１９～２２には、プリセットデータ記憶部４１に既に記憶されている放送局の局名が文字等によって表示される。また、操作釦２３～２６には、オーデオシステムを調節するためのファンクションキーとして機能することを示す表示が行われる。

【００３５】ここで、図９中の「AUDIO CONT.」の表示がなされた操作釦２３が押されると、図１０に示すように、操作釦２３～２６には、各スピーカ４５の音量バランスや再生音の周波数特性を調整するためのファンクションキーに切換わった旨の表示が行われ、使用者等がそれぞれの操作釦２３～２６を操作することによりオーディオシステムの調整を行うことができる。

【００３６】図９に示した「AUTO PRESET」の表示がなされた操作釦２４が押されると、新たに放送局を自動的にプリセットするためのプリセットモードとなり、中央制御部３７の制御下で次のプリセット処理が行われる。受信機４２のチューナが低い周波数から高い周波数へ連続して選局し、放送を受信する度にその放送局の周波数を自動的にプリセットデータ記憶部４１に記憶させると共に、受信強度の強い周波数を周波数の低い順からプリセットデータ記憶部４１に記憶させる。

【００３７】更に、選局した各周波数に該当する放送局の局名を選局データ記憶部４０から検索し、図５に示したように、放送局とその周波数を対応づけてプリセットデータ記憶部４１に記憶させる。更に、選局された放送局の数が操作釦１９～２２の個数N（＝４個）より多い場合には、最も受信強度が強く且つ最も低い周波数の放送局を第１番目の記憶領域に記憶させ、残りの放送局をN個（＝４個）ずつの組に区分けして、各組のページ項目に“001”，“010”，“011”等のバイナリーデータでページ番号を付すようになっている。

【００３８】プリセットが完了すると、図９に示したように、表示部１６には、プリセットデータ記憶部４１の第１の記憶領域（NO.1）に記憶されている放送局（Ｂ１）とその周波数$f_{1,1}$及び周波数バンド等の関連情報が表示されると共に、放送局（Ｂ１）の放送が受信可能となり、第１ページに該当する４個の放送局（Ｂ４），（Ｂ５），（Ｂ６），（Ｂ８）とそれらの周波数が操作釦１９～２２に表示される。

【００３９】そして、使用者等が操作釦１９～２２の何れか１つを押して放送局を選択すると、表示部１６に表示されていた放送局の局名と、押された操作釦に表示されていた放送局の局名が入れ換えて表示され、その入れ換え表示によって表示部２に新たに表示された放送局の周波数が受信周波数となって、放送を聴くことができる。

【００４０】より具体的には、例えば、「放送局（Ｂ１）」の放送を受信しているときに、「放送局（Ｂ５）」が表示されている操作釦２０が押されると、図５に示す第１番目の記憶領域（NO.1）に記憶されているデータと第３番目の記憶領域（NO.3）に記憶されているデータが入れ換えられる。この結果、図９に示した表示内容が図１１に示すように切り換えられ、表示部１６には「放送局（Ｂ５）」に関する関連情報が切換え表示され、操作釦２０には、「放送局（Ｂ１）」の局名が切換え表示され、残り３個の操作釦１９，２１，２２の表示はそのまま維持される。

【００４１】また、操作釦１９～２２によって選局が行われると、図５に示したように、各放送局毎に設けられている選局頻度の項目に、選局された放送局の選択頻度データを記憶させると共に、選択頻度の高い放送局に関するデータをプリセットデータ記憶部４１中のより上位の記憶領域に入れ換えることで、使用者等が好む放送局を優先的に表示部１６と操作釦１９～２２に表示させることができるようになっている。

【００４２】また、上述したように、プリセットモードで選局された放送局の数が操作釦１９～２２の個数Nより多い場合には、図９中の、改ページ記号「∨」が表示された操作釦２５を使用者等が押すと、ページ切換えモードとなり、次の下位ページに該当する放送局（Ｂ９），（Ｂ11），（Ｂ15），（Ｂ18）の局名が操作釦１９～２２に切換え表示される。また、改ページ記号「∨」が表示された操作釦２５が押される毎に、順次に下位ページに該当する放送局の局名が操作釦１９～２２に切換え表示され、別の放送局を所謂ワンタッチ操作で選局することができるようになっている。但し、ページ切換えモードでは、表示部１６の表示は変更されないため、使用者等は現在受信中の放送局の放送を継続して聴くことができるようになっている。

【００４３】また、図９中の改ページ記号「∧」が表示された操作釦２６が押されると、上記同様のページ切換えモードとなり、この操作釦２６が押される毎に、上位ページに該当する放送局の局名が順繰りに操作釦１９～２２に切換え表示される。

【００４４】尚、図６に示したディフォルト表示モードの状態で、「ＦＭ」の表示がなされている操作釦２０が押された場合には、図９に示したのと同様の表示が行われるので、「ＡＭ」の表示がなされている操作釦１９が押された場合と同様に、ＦＭ放送の放送局をプリセットしたり、ワンタッチ選局等の操作を行うことができる。

【００４５】また、図７～図１０に示した表示が行われている状態で、使用者等が「ＡＵＤＩＯ」の表示がなされている操作釦２７又は「Ａ／Ｃ」の表示がなされている操作釦２８を押すと、強制的に図６に示したデフォルト表示に切換わり、また、図７～図１０に示した表示が予め決められた時間継続すると、自動的に図６に示したデフォルト表示に切換わるようになっている。

【００４６】このように本実施形態によれば、現在受信

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中の放送局の関連情報を表示部１６に表示させ、現在受信中でない放送局の局名を操作釦１９～２２に表示させるようにしたので、所謂ワンタッチ選局用の操作釦１９～２２がN個（４個）であるにもかかわらず、操作者等にとっては、表示部１６に表示される放送局を加えて、実質的にN＋１個（５個）の選局を行うことができる。

【００４７】換言すれば、従来技術では、N個の放送局を表示させるにはN個のワンタッチ選局釦を設ける必要があったのに対し、本実施形態では、表示部１６に表示される放送局の関連情報は操作釦１９～２２に表示せず、表示部１６に表示されない放送局の局名のみを操作釦１９～２２に表示するようにしたので、N個の操作釦１９～２２によって実質的にN＋１個の放送局を表示することができる。このため、操作釦の数を減らすことが可能となっている。

【００４８】また、表示部１６と操作釦１９～２２によってN＋１個の放送局を同時に表示するので、使用者等は一目で選局可能な複数の放送局を確認することができる。このため、使用者等にとって視認性と操作性の良い表示装置を提供することができる。また、車両運転中の安全確保にも寄与するものである。

【００４９】また、選局のための操作釦の数を減らしても複数の放送局を表示することができることから、操作釦の数が少なくなる分、それぞれの操作釦を大きな形状にすることが可能となる。この結果、使用者等にとって視認性と操作性の良い表示装置を実現することができる。

【００５０】尚、本実施形態では、操作釦１９～２２のいずれか１つが選択的に操作されると、その操作された操作釦に表示されていた放送局に関する情報を表示部１６に表示することで、使用者等が引き続きその放送局の情報を見ることができるようにしたが、本発明はこれに限定されるものではない。すなわち、使用者等が操作釦１９～２２のうちの１つを選局操作すれば、使用者等にとってその目的を達成したことになるため、選局操作された操作釦に表示されていた放送局に関する情報を表示部１６に表示しなくともよい。

【００５１】また、本実施形態では、機械式の操作釦１９～２８を備える場合を説明したが、本発明はこれに限定されるものではない。変形例として、図１２に示すように、操作パネル１５に比較的大型の表示部４６を設け、この表示部４６に、図１に示した表示部１６と操作釦１９～２８に相当する表示（アイコン表示という）を行い、使用者等がそれぞれのアイコン表示に触れることで、機械式の操作釦１９～２８を操作したのと同様の機能を発揮させるようにしてもよい。すなわち、所謂タッチ式の表示部４６を設けてもよい。

【００５２】また、図１１に示したように、本実施形態では、操作釦１９～２２のうちの１個が押されると、その押された操作釦に割り当てられている放送局の局名と周波数等に関する関連情報が表示部１６に切換え表示され、表示部１６に表示されていた放送局の局名がその操作釦に切換え表示される場合を説明したが、本発明は、これに限定されるものではない。例えば、上記の表示部１６に表示されていた放送局の局名を操作釦１９～２２に表示するのはやめて、空いた操作釦に、プリセットデータ記憶部４１に記憶されている他の放送局の局名を表示させてもよい。

【００５３】また、上記の空いた操作釦の右側に位置する操作釦の表示を左側に詰めて表示するようにし、最も右側に位置する操作釦２２に、表示部２に表示されていた放送局の局名を表示させたり、プリセットデータ記憶部４１に記憶されている他の放送局の局名を表示させる等、他の表示配列を行ってもよい。

【００５４】また、使用者等が操作釦１９～２２を押した場合には、表示部１６に表示されていた放送局の情報は、再び操作釦１９～２２のいずれかに割り付けられるが、この割付を、使用者等の使用頻度や、受信強度、周波数の高い順若しくは周波数の低い順に行うようにしてもよい。

【００５５】このディフォルト表示モードで、使用者等が「ＣＤ」の表示がなされた操作釦２１を選択的に押すと、図7に示すように、表示部１６には、ＣＤ再生装置４３中にコンパクトディスクが挿入されていることの有無や、挿入されているコンパクトディスクに記録されている曲名や記録時間、選択トラック等のＣＤ再生に関する関連情報が文字や図形等で表示される。操作釦１９～２６のそれぞれには、再生開始や早送り等のＣＤ再生装置４３を操作するのに必要な操作ボタン表示が行われる。

【００５６】また、本実施形態では、図7において、ＣＤ再生装置４３が選択されると、コンパクトディスクに関する情報を表示部１６に表示して、操作釦１９～２６のそれぞれに、再生開始や早送り等の操作するための表示を行うこととした。しかし、操作釦１９～２６は情報表示が可能であるという多機能性を有していることから、例えば、図7に示した表示状態で、操作釦１９～２６が更に操作されて、ＣＤ再生装置４３に再生動作を行わせた場合に、操作釦１９～２６に、再生操作に関する情報以外の操作情報をこれらの操作釦１９～２６に表示させるようにしてもよい。すなわち、ＣＤ再生装置４３の動作状態に応じて、多様な情報を階層化して各操作釦１９～２６に表示させるようにしてもよい。

【００５７】また、ＭＤ再生装置４４についても、ＭＤ再生装置４４の動作状態に応じて、多様な情報を階層化して各操作釦１９～２６に表示させるようにしてもよい。

【００５８】また、車載用オーディオ装置に設けられる本実施形態の表示装置はあくまでも一例であり、本発明は他の電子機器に広く適用することができるものであ

る。

【００５９】例えば、本発明の表示装置をテレビジョン受像機に設けることにより、テレビジョン放送用周波数のチャンネル切換えとチャンネル表示を、少ない操作釦で実現することができる。また、本発明の表示装置をマイクロウェーブオーブン等の調理機器に設けることにより、複数種類のレシピの設定とその表示を少ない操作釦で実現することができる。このように、本発明の表示装置は、極めて広い技術分野に応用することができると共に、いずれの場合にも、本実施形態で説明したのと同様の優れた効果が得られる。

【００６０】

【発明の効果】以上説明したように本発明によれば、表示部を有する複数の表示部付き操作手段を備え、表示部付き操作手段のうちの１つが操作されると、その表示部付き操作手段に表示されていた情報以外の情報を複数の表示部付き操作手段に割り当てて表示するようにしたので、表示部付き操作手段の数よりも多くの情報を効率良く表示させることができる。この結果、表示すべき情報に比べて表示部付き操作手段の数を減らすことができる。

【００６１】また、表示手段を更に備え、表示部付き操作手段のうちの１つが操作されると、その操作手段の情報を表示手段に切換て表示させて、その情報以外の情報を複数の表示部付き操作手段に割り当てて表示させるようにしたので、使用者等に対して引き続き、操作前に操作手段に表示されていた情報を提示することができる。この結果、使用者等にとって視認性や操作性の良い表示装置を提供することができる。

【００６２】また、表示部付き操作手段の数より表示すべき情報の数が多い場合には、それらの情報を表示部付き操作手段の数づつの組に区分けし、それぞれ区分けされた情報毎に表示部付き操作手段に表示させるようにしたので、各組に区分けされた複数の情報を表示部付き操作手段によって同時に表示することができると共に、多くの情報を複数組に分けて表示することができる。

【図面の簡単な説明】

【図１】本実施の形態に係る表示装置の構成を模式的に示した平面図である。

【図２】本実施の形態に係る表示装置に設けられた操作釦の構造を示す縦断面図である。

【図３】本実施の形態に係る表示装置に設けられた制御回路の構成を示すブロック図である。

【図４】選局データ記憶部のデータ記憶構成を示す説明図である。

【図５】プリセットデータ記憶部のデータ記憶構成を示す説明図である。

【図６】本実施の形態に係る表示装置におけるデフォルト表示を示す説明図である。

【図７】本実施の形態に係る表示装置における表示例を示す説明図である。

【図８】本実施の形態に係る表示装置における他の表示例を示す説明図である。

【図９】本実施の形態に係る表示装置における更に他の表示例を示す説明図である。

【図１０】本実施の形態に係る表示装置における更に他の表示例を示す説明図である。

【図１１】本実施の形態に係る表示装置における更に他の表示例を示す説明図である。

【図１２】本実施の形態に係る表示装置の変形例の構成を模式的に示した平面図である。

【図１３】従来の表示装置の構成を模式的に示した平面図である。

【符号の説明】

１５…操作パネル

１６，４６…表示部

１９～２８…操作釦

３０…窓部材

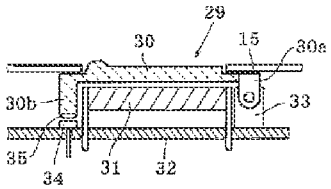
３１…エレクトロルミネッセンス

３７…中央制御部

４１…プリセットデータ記憶部

４２…受信機

【図２】

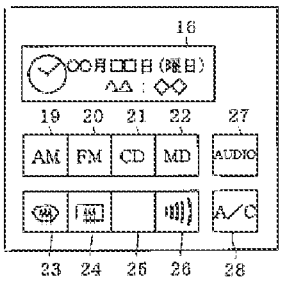


【図４】

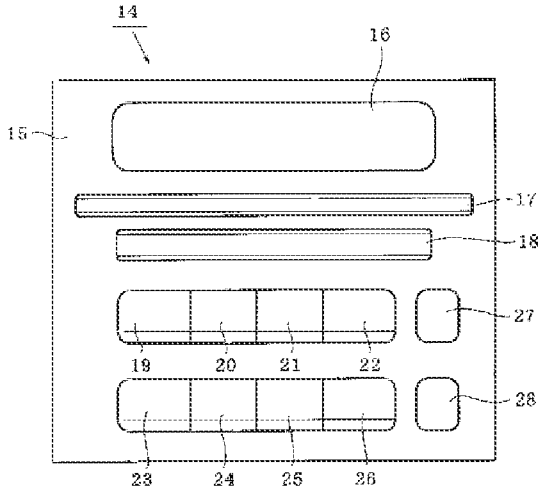
	周波数			
放送局(B1)	$f_{1,1}$	$f_{1,2}$	$f_{1,3}$	…….
放送局(B2)	$f_{2,1}$	$f_{2,2}$	$f_{2,3}$	…….
放送局(B3)	$f_{3,1}$	…….	…….	…….
放送局(B4)	$f_{4,1}$	$f_{4,2}$	…….	…….
放送局(B5)	$f_{5,1}$	$f_{5,2}$	…….	…….
放送局(B6)	$f_{6,1}$	…….	…….	…….
放送局(B7)	$f_{7,1}$	…….	…….	…….
放送局(B8)	$f_{8,1}$	$f_{8,2}$	…….	…….
放送局(B9)	$f_{9,1}$	$f_{9,2}$	$f_{9,3}$	…….
：	：	：	：	：
放送局(Bn)	$f_{n,1}$	…….	…….	…….

(選局データ記憶部40の構成)

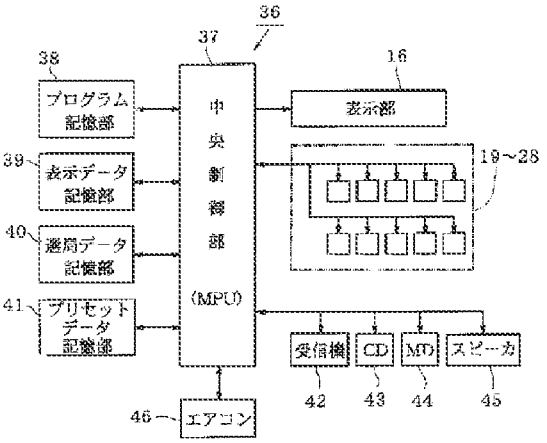
【図６】



【図1】

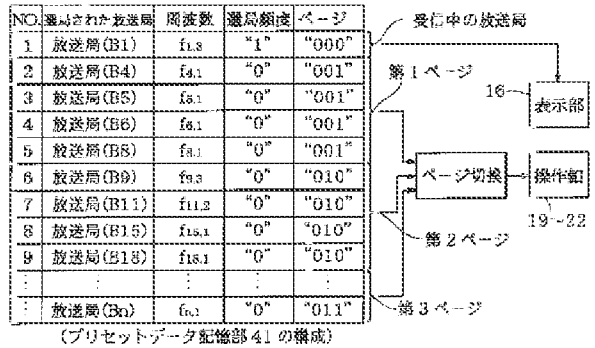


【図3】



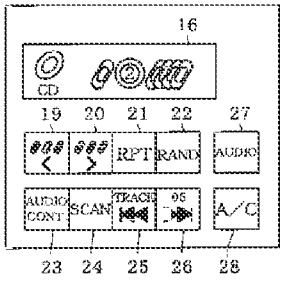
【図5】

NO.	選ばれた放送局	周波数	選局頻度	ページ
1	放送局(B1)	$f_{1.3}$	"1"	"000"
2	放送局(B4)	$f_{4.1}$	"0"	"001"
3	放送局(B5)	$f_{5.1}$	"0"	"001"
4	放送局(B6)	$f_{6.1}$	"0"	"001"
5	放送局(B8)	$f_{8.1}$	"0"	"001"
6	放送局(B9)	$f_{9.3}$	"0"	"010"
7	放送局(B11)	$f_{11.2}$	"0"	"010"
8	放送局(B15)	$f_{15.1}$	"0"	"010"
9	放送局(B18)	$f_{18.1}$	"0"	"010"
:	:	:	:	:
:	放送局(Bn)	$f_{n.2}$	"0"	"011"

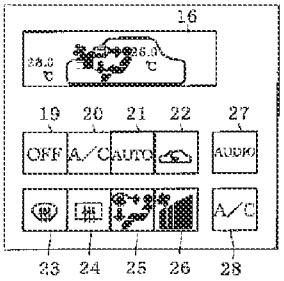


(プリセットデータ記憶部41の構成)

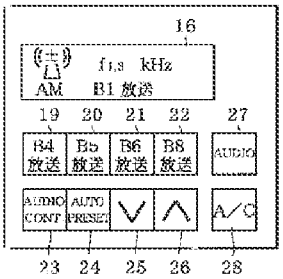
【図7】



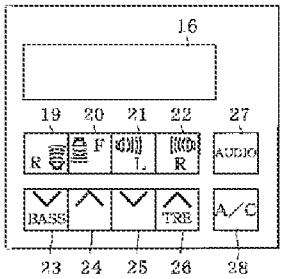
【図8】



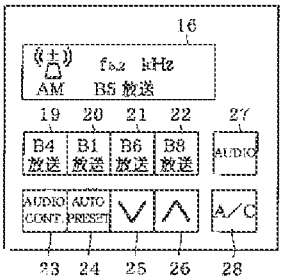
【図9】



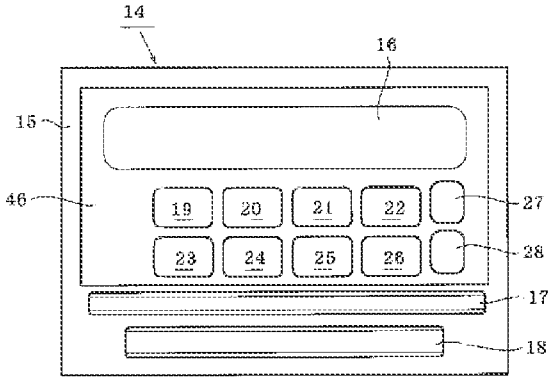
【図10】



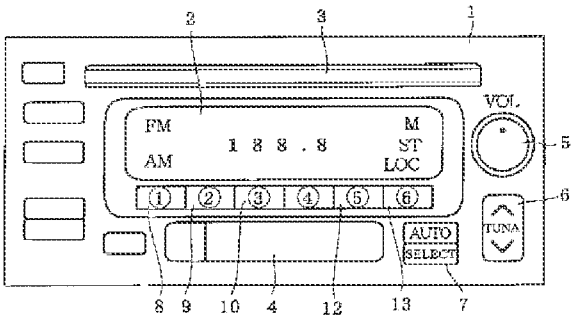
【図11】



【図12】



【図13】



フロントページの続き

(72)発明者　三宅　孝
埼玉県川越市大字山田字西町25番地１　パイオニア株式会社川越工場内

(72)発明者　金子　幸弘
埼玉県川越市大字山田字西町25番地１　パイオニア株式会社川越工場内

Fターム(参考)　5C082 AA21 BA02 CB06 DA87 MM05

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USER INTERFACE APPARATUS, REMOTE OPERATION APPARATUS, AND USER INTERFACE METHOD

Inventor(s): WATANABE KAZUNARI ± (WATANABE KAZUNARI)

Applicant(s): CANON KK ± (CANON INC)

Classification: **- international:** ***G06F13/00; G06F3/00; G06F3/023; G06F3/0487; G06F3/0489; H03M11/04; H04N5/00; H04Q9/00;*** (IPC1-7): G06F3/00; G06F3/023; H03M11/04; H04N5/00; H04Q9/00

- cooperative:

Application number: JP20020004630 20020111

Priority number(s): JP20020004630 20020111

Abstract of JP2003209710 (A)

PROBLEM TO BE SOLVED: To provide a user interface apparatus by which a user can easily implement input operation using keys. ;SOLUTION: Upon receipt of a control signal issued through depression of a key 202 instructing start of remote control operations from a remote control device 102 (step S701), a digital information storage device 101 generates menu configuration information to select functions on the basis of the received control signal and transmits the information to a television receiver 103. Thus, the television receiver 103 displays a menu for function selection and also displays a key layout of the remote control device 102 on a television screen. The television receiver 103 displays the key layout while attaching a function name corresponding to the function selection to each key (step S702). ;COPYRIGHT: (C)2003,JPO

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特開2003－209710
（P2003－209710A）
(43)公開日　平成15年７月25日(2003.7.25)

(51)Int.Cl.[7]	識別記号	ＦＩ		テーマコード（参考）
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3/023		Ｈ０４Ｑ　9/00	３０１Ｅ	５Ｅ５０１
Ｈ０３Ｍ　11/04		Ｇ０６Ｆ　3/023	３１０Ｌ	５Ｋ０４８
Ｈ０４Ｑ　9/00	３０１			

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(71)出願人　000001007
キヤノン株式会社
東京都大田区下丸子３丁目30番２号

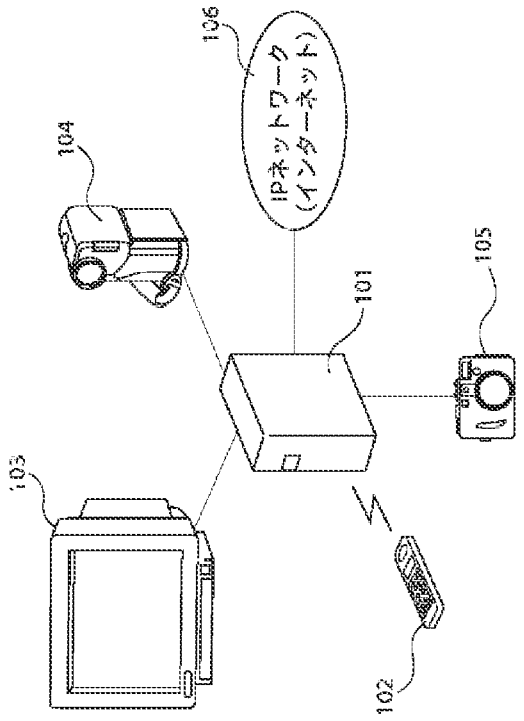
(72)発明者　渡辺　一成
東京都大田区下丸子３丁目30番２号　キヤノン株式会社内

(74)代理人　100081880
弁理士　渡部　敏彦

最終頁に続く

(54)【発明の名称】　ユーザインタフェース装置、遠隔操作装置およびユーザインタフェース方法

(57)【要約】
【課題】　キーを用いた入力操作を容易に行うことができるユーザインタフェース装置を提供する。
【解決手段】　デジタル情報記憶装置１０１は、リモコン１０２からリモコン操作の開始を指示するキー２０２の押下により発行される制御信号を受信すると（ステップＳ７０１）、受信した制御信号に基づき機能を選択するためのメニュー画面構成情報を生成し、テレビ１０３に送出する。これにより、テレビ画面には、機能を選択するためのメニュー画面が表示されるとともに、リモコン１０２のキーレイアウトが表示される。表示されたキーレイアウトの各キーには機能選択に対応する機能名称が付されて表示される（ステップＳ７０２）。



【特許請求の範囲】

【請求項１】　映像を表示するための表示装置と接続可能な装置を遠隔操作するためのユーザインタフェース装置であって、
複数のキーを有し、該複数のキー操作に応じて対応する制御信号を送信する遠隔操作手段と、
前記遠隔操作手段から発行された制御信号を受信するための受信手段と、
前記受信手段により受信された制御信号に応じて対応する前記装置の操作を行う制御手段とを備え、
前記制御手段は、前記受信手段により前記遠隔操作手段の特定のキー操作によって発行された制御信号が受信されると、前記複数のキーのキー配列を示すキーレイアウト映像を前記表示装置に表示することを特徴とするユーザインタフェース装置。

【請求項２】　前記制御手段は、前記キーレイアウト映像とともに、前記遠隔操作手段の各キーの機能名称を示すキー名称映像を前記表示装置に表示することを特徴とする請求項１記載のユーザインタフェース装置。

【請求項３】　前記装置は、映像の再生モードおよびインターネット閲覧モードを含む複数のモードを設定する設定手段と、前記設定されたモードを実行するモード実行手段とを有し、
前記制御手段は、前記設定されたモードの種別に応じて前記遠隔操作手段の各キーの機能名称を変更し、該変更された機能名称を示すキー名称映像を前記表示装置に表示することを特徴とする請求項２記載のユーザインタフェース装置。

【請求項４】　前記制御手段は、前記受信手段が前記遠隔操作手段から前記複数のキーのいずれかの操作によって発行された制御信号を受信すると、前記表示装置に表示されているキーレイアウト映像中の前記操作されたキーに相当するキー部分の表示形態を変更することを特徴とする請求項２または３記載のユーザインタフェース装置。

【請求項５】　前記制御手段は、前記キーレイアウト映像の表示中に、前記受信手段が前記遠隔操作手段から特定のキー操作によって発行された遠隔操作信号を受信すると、該受信された制御信号により前記キーレイアウト映像の表示を停止することを特徴とする請求項４記載のユーザインタフェース装置。

【請求項６】　前記制御手段は、前記キーレイアウト映像の表示中に、前記受信手段が前記遠隔操作手段からの制御信号を所定期間継続して受信しないときには、前記キーレイアウト映像の表示を停止することを特徴とする請求項４記載のユーザインタフェース装置。

【請求項７】　前記遠隔操作手段は、前記複数のキーが配置されているとともに、人の指の感触で認識可能な認識部位が形成されているキーボード面を有し、前記複数のキーは前記認識部位を基準としてその周囲に配置されていることを特徴とする請求項１ないし６のいずれか１つに記載のユーザインタフェース装置。

【請求項８】　前記遠隔操作手段は、キーがそれぞれ設けられている２つのキーボード面を有する第１の部材と、前記第１の部材が折り重ねられるように連結され、キーが設けられている１つのキーボード面を有する第２の部材とを有し、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方が操作可能なように外部に露出しかつ他方のキーボード面が前記第２の部材のキーボード面に対向する状態になり、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方および前記第２のキーボード面が操作可能なように外部に露出する２つ折り構造からなることを特徴とする請求項１ないし７のいずれか１つに記載のユーザインタフェース装置。

【請求項９】　前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方に設けられているキーの操作のみを受け付け、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方、前記第２のキーボード面のそれぞれに設けられているキーの操作のみを受け付けることを特徴とする請求項８記載のユーザインタフェース装置。

【請求項１０】　前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるか前記第１の部材が前記第２の部材に対して開かれている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、前記制御手段は、前記受信手段が前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作受付け可能なキーのキー配列を示すキーレイアウト映像を表示することを特徴とする請求項９記載のユーザインタフェース装置。

【請求項１１】　前記遠隔操作手段は、上面にキーが設けられている本体と、キーが設けられ、前記本体に引出し可能に収納される拡張キーボードとを有し、前記拡張キーボードは、そのキーが操作可能な位置まで前記本体から引き出されることを特徴とする請求項１ないし７のいずれか１つに記載のユーザインタフェース装置。

【請求項１２】　前記遠隔操作手段は、前記拡張キーボードが前記本体から引き出された状態にあるか前記本体に収納されている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、前記制御手段は、前記受信手段が前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作可能なキーのキー配列を示すキーレイアウト映像を表示することを特徴とする請求項１１記載のユーザインタフェース装置。

【請求項１３】　装置を遠隔操作するための遠隔操作装置であって、
複数のキーが配置されているキーボード面を有し、前記複数のキー操作に応じて前記装置を遠隔操作するための制御信号を発行する制御信号発生手段と、
前記発行された制御信号を送信する送信手段とを有し、前記キーボード面には、人の指の感触で認識可能な認識部位が形成され、前記複数のキーは、前記認識部位を基準としてその周囲に配置されていることを特徴とする遠隔操作装置。
【請求項１４】　キーがそれぞれ設けられている２つのキーボード面を有する第１の部材と、前記第１の部材が折り重ねられるように連結され、キーが設けられている１つのキーボード面を有する第２の部材とを有し、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方が操作可能なように外部に露出し、他方のキーボード面が前記第２の部材のキーボード面に対向する状態になり、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方および前記第２のキーボード面が操作可能なように外部に露出する２つ折り構造からなることを特徴とする請求項１３記載の遠隔操作装置。
【請求項１５】　前記制御信号発行手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方に設けられているキーの操作のみを受け付け、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方、前記第２のキーボード面のそれぞれに設けられているキーの操作のみを受け付けることを特徴とする請求項１４記載の遠隔操作装置。
【請求項１６】　前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるか前記第１の部材が前記第２の部材に対して開かれている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する検出信号送信手段とを有することを特徴とする請求項１５記載の遠隔操作装置。
【請求項１７】　上面にキーが設けられている本体と、キーが設けられ、前記本体に引出し可能に収納される拡張キーボードとを有し、前記拡張キーボードは、そのキーが操作可能な位置まで前記本体から引き出されることを特徴とする請求項１３に記載の遠隔操作装置。
【請求項１８】　前記拡張キーボードが前記本体から引き出された状態にあるか前記本体に収納されている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する検出信号送信手段とを有することを特徴とする請求項１７記載の遠隔操作装置。
【請求項１９】　映像を表示するための表示装置と接続可能な装置を遠隔操作するためのユーザインタフェース方法であって、
複数のキーを有する遠隔操作手段により前記複数のキー操作に応じて対応する制御信号を送信する工程と、
前記遠隔操作手段から発行された制御信号を受信する工程と、
前記受信された制御信号に応じて対応する前記装置の操作を行う工程と、前記遠隔操作手段の特定のキー操作によって発行された制御信号が受信されると、前記複数のキーのキー配列を示すキーレイアウト映像を前記表示装置に表示する工程とを有することを特徴とするユーザインタフェース方法。
【請求項２０】　前記キーレイアウト映像とともに、前記遠隔操作手段の各キーの機能名称を示すキー名称映像を前記表示装置に表示する工程を有することを特徴とする請求項１９記載のユーザインタフェース方法。
【請求項２１】　前記装置は、映像の再生モードおよびインターネット閲覧モードを含む複数のモードを設定する設定手段と、前記設定されたモードを実行するモード実行手段とを有し、
前記設定されたモードの種別に応じて前記遠隔操作手段の各キーの機能名称を変更し、該変更された機能名称を示すキー名称映像を前記表示装置に表示することを特徴とする請求項２０記載のユーザインタフェース方法。
【請求項２２】　前記遠隔操作手段から前記複数のキーのいずれかの操作によって発行された制御信号を受信すると、前記表示装置に表示されているキーレイアウト映像中の前記操作されたキーに相当するキー部分の表示形態を変更することを特徴とする請求項１９または１８記載のユーザインタフェース方法。
【請求項２３】　前記キーレイアウト映像の表示中に、前記遠隔操作手段から特定のキー操作によって発行された遠隔操作信号を受信すると、該受信された制御信号により前記キーレイアウト映像の表示を停止する工程を有することを特徴とする請求項２２記載のユーザインタフェース方法。
【請求項２４】　前記キーレイアウト映像の表示中に、前記遠隔操作手段からの制御信号を所定期間継続して受信しないときには、前記キーレイアウト映像の表示を停止することを特徴とする請求項２２記載のユーザインタフェース方法。
【請求項２５】　前記遠隔操作手段は、前記複数のキーが配置されているとともに、人の指の感触で認識可能な認識部位が形成されているキーボード面を有し、前記複数のキーは前記認識部位を基準としてその周囲に配置されていることを特徴とする請求項１９ないし２４のいずれか１つに記載のユーザインタフェース方法。
【請求項２６】　前記遠隔操作手段は、キーがそれぞれ設けられている２つのキーボード面を有する第１の部材と、前記第１の部材が折り重ねられるように連結され、キーが設けられている１つのキーボード面を有する第２

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の部材とを有し、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方が操作可能なように外部に露出しかつ他方のキーボード面が前記第２の部材のキーボード面に対向する状態になり、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方および前記第２のキーボード面が操作可能なように外部に露出する２つ折り構造からなることを特徴とする請求項１９ないし２５のいずれか１つに記載のユーザインタフェース方法。

【請求項２７】　前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方に設けられているキーの操作のみを受け付け、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方、前記第２のキーボード面のそれぞれに設けられているキーの操作のみを受け付けることを特徴とする請求項２６記載のユーザインタフェース方法。

【請求項２８】　前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるか前記第１の部材が前記第２の部材に対して開かれている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、

前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作受付け可能なキーのキー配列を示すキーレイアウト映像を表示する工程を有することを特徴とする請求項２７記載のユーザインタフェース方法。

【請求項２９】　前記遠隔操作手段は、上面にキーが設けられている本体と、キーが設けられ、前記本体に引出し可能に収納される拡張キーボードとを有し、前記拡張キーボードは、そのキーが操作可能な位置まで前記本体から引き出されることを特徴とする請求項１９ないし２５のいずれか１つに記載のユーザインタフェース方法。

【請求項３０】　前記遠隔操作手段は、前記拡張キーボードが前記本体から引き出された状態にあるか前記本体に収納されている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作可能なキーのキー配列を示すキーレイアウト映像を表示する工程を有することを特徴とする請求項２９記載のユーザインタフェース方法。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、ユーザインタフェース装置、遠隔操作装置およびユーザインタフェース方法に関する。

【０００２】

【従来の技術】現在、リモートコントロールが行われる装置の代表的なものとして、テレビジョン受像機（以下、テレビという）がある。このテレビのリモートコントローラ（以下、リモコン）には、テンキー（チャンネル選定用）やカーソルキー（音量用）などが設けられており、リモコンを操作すると、指定したチャンネル番号や音量の大きさを示すバーなどがテレビ画面に表示される。そして、リモコンの操作に従い随時表示内容を更新して利用者が操作状況を認識可能なように構成されている。

【０００３】最近では、テレビ画面を利用してインターネットを閲覧する装置や、テレビ画面に文字情報を表示して電子メールを送受信する装置も出現している。このような装置の場合は、リモコンを用いてアドレスやメール内容などの文字の入力を行うように構成されている。例えば、リモコンにカーソルキーまたはジョグ・スティック・ダイヤル（Jog Stick Dial）を設け、テレビ画面に文字配列で構成する画面キーを表示し、画面キーの必要な文字にカーソルを移動、確定を繰り返しながら文字の入力を行う方式が採用されている。

【０００４】また、他の文字入力の方法として、リモコンにパーソナルコンピュータ（以下、パソコンという）のキーボードのように必要な文字キーを設け、入力したい文字に相当する文字キーを押下して文字の入力を行う方法がある。この方法は、利用者が最初にリモコンを見ながら文字キーの押下を行い、その後テレビ画面を見て文字入力を確認して確定するという操作を繰り返すことによって、文字の入力を行うものである。

【０００５】

【発明が解決しようとする課題】しかしながら、上述した、テレビ画面に画面キーを表示し、リモコンのカーソルキーまたはジョグ・スティック・ダイヤルを操作して文字を入力する方法では、多量の文字入力には長い時間が掛かる。例えば、電子メールの文書を作成する場合は多量の文字入力が想定される。その場合、文字を選択、確定するまで画面キーのカーソル移動を繰り返さなければならない。すなわち、一文字入力するために複数回のリモコン装置のキー操作が必要となる。仮にひらがな一文字入力するのに縦と横にカーソルを平均５回移動させる必要があるとすると、２００文字のひらがな文書を作成するのに、約１０００回のキー操作が必要となる。さらに、日本語入力においては、仮名漢字変換も行う必要があるので、この操作方法では、利用者にとっては大変面倒な操作を行う必要がある。

【０００６】また、文字キーが設けられているリモコンを用いて文字入力を行う場合、リモコン装置が所望の文字を直接入力することができるものであれば、少ないキー操作回数で多量の文字入力を行うことができる。しかしながら、文字キーの数が多くなり、リモコン装置が大型化する。さらに、利用者がキー入力に慣れて指の触感

だけいわゆるブラインドタッチでキーの入力が可能となれば、利用者はリモコン装置上のキーを見ずにテレビ画面を見るだけで所望の入力操作を行うことが可能である。しかしながら、利用者が指の触感だけでキーの入力が可能となるまでには、相当の時間を要する。

【０００７】また、様々な形式の各種オーディオビジュアル情報（ＡＶ情報）を記憶するデジタル記憶装置においては、記憶している情報の形式や方式によっても表示方法やアプリケーションに違いがでてくる。例えば静止画と動画を比較した場合、それぞれのＡＶ情報の利用方法に違いがあり、それぞれのアプリケーションに適した方法の操作が望まれる。そのため、アプリケーションに応じて各種の機能キーを設ける必要があるが、リモコンに機能キーと文字キーとを設けると、リモコンが大型化することになる。この場合、テレビが置かれている部屋では、大きなリモコンを置く場所の選定に困る。

【０００８】本発明の目的は、キーを用いた入力操作を容易に行うことができるユーザインタフェース装置、遠隔操作装置およびユーザインタフェース方法を提供することにある。

【０００９】

【課題を解決するための手段】請求項１記載の発明は、映像を表示するための表示装置と接続可能な装置を遠隔操作するためのユーザインタフェース装置であって、複数のキーを有し、該複数のキー操作に応じて対応する制御信号を送信する遠隔操作手段と、前記遠隔操作手段から発行された制御信号を受信するための受信手段と、前記受信手段により受信された制御信号に応じて対応する前記装置の操作を行う制御手段とを備え、前記制御手段は、前記受信手段により前記遠隔操作手段の特定のキー操作によって発行された制御信号が受信されると、前記複数のキーのキー配列を示すキーレイアウト映像を前記表示装置に表示することを特徴とする。

【００１０】請求項２記載の発明は、請求項１記載のユーザインタフェース装置において、前記制御手段は、前記キーレイアウト映像とともに、前記遠隔操作手段の各キーの機能名称を示すキー名称映像を前記表示装置に表示することを特徴とする。

【００１１】請求項３記載の発明は、請求項２記載のユーザインタフェース装置において、前記装置は、映像の再生モードおよびインターネット閲覧モードを含む複数のモードを設定する設定手段と、前記設定されたモードを実行するモード実行手段とを有し、前記制御手段は、前記設定されたモードの種別に応じて前記遠隔操作手段の各キーの機能名称を変更し、該変更された機能名称を示すキー名称映像を前記表示装置に表示することを特徴とする。

【００１２】請求項４記載の発明は、請求項２または３記載のユーザインタフェース装置において、前記制御手段は、前記受信手段が前記遠隔操作手段から前記複数のキーのいずれかの操作によって発行された制御信号を受信すると、前記表示装置に表示されているキーレイアウト映像中の前記操作されたキーに相当するキー部分の表示形態を変更することを特徴とする。

【００１３】請求項５記載の発明は、請求項４記載のユーザインタフェース装置において、前記制御手段は、前記キーレイアウト映像の表示中に、前記受信手段が前記遠隔操作手段から特定のキー操作によって発行された遠隔操作信号を受信すると、該受信された制御信号により前記キーレイアウト映像の表示を停止することを特徴とする。

【００１４】請求項６記載の発明は、請求項４記載のユーザインタフェース装置において、前記制御手段は、前記キーレイアウト映像の表示中に、前記受信手段が前記遠隔操作手段からの制御信号を所定期間継続して受信しないときには、前記キーレイアウト映像の表示を停止することを特徴とする。

【００１５】請求項７記載の発明は、請求項１ないし６のいずれか１つに記載のユーザインタフェース装置において、前記遠隔操作手段は、前記複数のキーが配置されているとともに、人の指の感触で認識可能な認識部位が形成されているキーボード面を有し、前記複数のキーは前記認識部位を基準としてその周囲に配置されていることを特徴とする。

【００１６】請求項８記載の発明は、請求項１ないし７のいずれか１つに記載のユーザインタフェース装置において、前記遠隔操作手段は、キーがそれぞれ設けられている２つのキーボード面を有する第１の部材と、前記第１の部材が折り重ねられるように連結され、キーが設けられている１つのキーボード面を有する第２の部材とを有し、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方が操作可能なように外部に露出しかつ他方のキーボード面が前記第２の部材のキーボード面に対向する状態になり、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方および前記第２のキーボード面が操作可能なように外部に露出する２つ折り構造からなることを特徴とする。

【００１７】請求項９記載の発明は、請求項８記載のユーザインタフェース装置において、前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方に設けられているキーの操作のみを受け付け、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方、前記第２のキーボード面のそれぞれに設けられているキーの操作のみを受け付けることを特徴とする。

【００１８】請求項１０記載の発明は、請求項９記載の

ユーザインタフェース装置において、前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるか前記第１の部材が前記第２の部材に対して開かれている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、前記制御手段は、前記受信手段が前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作受付け可能なキーのキー配列を示すキーレイアウト映像を表示することを特徴とする。

【００１９】請求項１１記載の発明は、請求項１ないし７のいずれか１つに記載のユーザインタフェース装置において、前記遠隔操作手段は、上面にキーが設けられている本体と、キーが設けられ、前記本体に引出し可能に収納される拡張キーボードとを有し、前記拡張キーボードは、そのキーが操作可能な位置まで前記本体から引き出されることを特徴とする。

【００２０】請求項１２記載の発明は、請求項１１記載のユーザインタフェース装置において、前記遠隔操作手段は、前記拡張キーボードが前記本体から引き出された状態にあるか前記本体に収納されている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、前記制御手段は、前記受信手段が前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作可能なキーのキー配列を示すキーレイアウト映像を表示することを特徴とする。

【００２１】請求項１３記載の発明は、装置を遠隔操作するための遠隔操作装置であって、複数のキーが配置されているキーボード面を有し、前記複数のキー操作に応じて前記装置を遠隔操作するための制御信号を発行する制御信号発生手段と、前記発行された制御信号を送信する送信手段とを有し、前記キーボード面には、人の指の感触で認識可能な認識部位が形成され、前記複数のキーは、前記認識部位を基準としてその周囲に配置されていることを特徴とする。

【００２２】請求項１４記載の発明は、請求項１３記載の遠隔操作装置において、キーがそれぞれ設けられている２つのキーボード面を有する第１の部材と、前記第１の部材が折り重ねられるように連結され、キーが設けられている１つのキーボード面を有する第２の部材とを有し、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方が操作可能なように外部に露出し、他方のキーボード面が前記第２の部材のキーボード面に対向する状態になり、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方および前記第２のキーボード面が操作可能なように外部に露出する２つ折り構造からなることを特徴とする。

【００２３】請求項１５記載の発明は、請求項１４記載の遠隔操作装置において、前記制御信号発行手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方に設けられているキーの操作のみを受け付け、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方、前記第２のキーボード面のそれぞれに設けられているキーの操作のみを受け付けることを特徴とする。

【００２４】請求項１６記載の発明は、請求項１５記載の遠隔操作装置において、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるか前記第１の部材が前記第２の部材に対して開かれている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する検出信号送信手段とを有することを特徴とする。

【００２５】請求項１７記載の発明は、請求項１３記載の遠隔操作装置において、上面にキーが設けられている本体と、キーが設けられ、前記本体に引出し可能に収納される拡張キーボードとを有し、前記拡張キーボードは、そのキーが操作可能な位置まで前記本体から引き出されることを特徴とする。

【００２６】請求項１８記載の発明は、請求項１７記載の遠隔操作装置において、前記拡張キーボードが前記本体から引き出された状態にあるか前記本体に収納されている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する検出信号送信手段とを有することを特徴とする。

【００２７】請求項１９記載の発明は、映像を表示するための表示装置と接続可能な装置を遠隔操作するためのユーザインタフェース方法であって、複数のキーを有する遠隔操作手段により前記複数のキー操作に応じて対応する制御信号を送信する工程と、前記遠隔操作手段から発行された制御信号を受信する工程と、前記受信された制御信号に応じて対応する前記装置の操作を行う工程と、前記遠隔操作手段の特定のキー操作によって発行された制御信号が受信されると、前記複数のキーのキー配列を示すキーレイアウト映像を前記表示装置に表示する工程とを有することを特徴とする。

【００２８】請求項２０記載の発明は、請求項１９記載のユーザインタフェース方法において、前記キーレイアウト映像とともに、前記遠隔操作手段の各キーの機能名称を示すキー名称映像を前記表示装置に表示する工程を有することを特徴とする。

【００２９】請求項２１記載の発明は、請求項２０記載のユーザインタフェース方法において、前記装置は、映像の再生モードおよびインターネット閲覧モードを含む複数のモードを設定する設定手段と、前記設定されたモードを実行するモード実行手段とを有し、前記設定されたモードの種別に応じて前記遠隔操作手段の各キーの機

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能名称を変更し、該変更された機能名称を示すキー名称映像を前記表示装置に表示することを特徴とする。

【００３０】請求項２２記載の発明は、請求項１９または１８記載のユーザインタフェース方法において、前記遠隔操作手段から前記複数のキーのいずれかの操作によって発行された制御信号を受信すると、前記表示装置に表示されているキーレイアウト映像中の前記操作されたキーに相当するキー部分の表示形態を変更することを特徴とする。

【００３１】請求項２３記載の発明は、請求項２２記載のユーザインタフェース方法において、前記キーレイアウト映像の表示中に、前記遠隔操作手段から特定のキー操作によって発行された遠隔操作信号を受信すると、該受信された制御信号により前記キーレイアウト映像の表示を停止する工程を有することを特徴とする。

【００３２】請求項２４記載の発明は、請求項２２記載のユーザインタフェース方法において、前記キーレイアウト映像の表示中に、前記遠隔操作手段からの制御信号を所定期間継続して受信しないときには、前記キーレイアウト映像の表示を停止することを特徴とする。

【００３３】請求項２５記載の発明は、請求項１９ないし２４のいずれか１つに記載のユーザインタフェース方法において、前記遠隔操作手段は、前記複数のキーが配置されているとともに、人の指の感触で認識可能な認識部位が形成されているキーボード面を有し、前記複数のキーは前記認識部位を基準としてその周囲に配置されていることを特徴とする。

【００３４】請求項２６記載の発明は、請求項１９ないし２５のいずれか１つに記載のユーザインタフェース方法において、前記遠隔操作手段は、キーがそれぞれ設けられている２つのキーボード面を有する第１の部材と、前記第１の部材が折り重ねられるように連結され、キーが設けられている１つのキーボード面を有する第２の部材とを有し、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方が操作可能なように外部に露出しかつ他方のキーボード面が前記第２の部材のキーボード面に対向する状態になり、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方および前記第２のキーボード面が操作可能なように外部に露出する２つ折り構造からなることを特徴とする。

【００３５】請求項２７記載の発明は、請求項２６記載のユーザインタフェース方法において、前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるときには、前記第１の部材のキーボード面の一方に設けられているキーの操作のみを受け付け、前記第１の部材が前記第２の部材に対して開かれている状態にあるときには、前記第１の部材のキーボード面の他方、前記第２のキーボード面のそれぞれに設けられているキーの操作のみを受け付けることを特徴とする。

【００３６】請求項２８記載の発明は、請求項２７記載のユーザインタフェース方法において、前記遠隔操作手段は、前記第１の部材が前記第２の部材に対して折り重ねられた状態にあるか前記第１の部材が前記第２の部材に対して開かれている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作受付け可能なキーのキー配列を示すキーレイアウト映像を表示する工程を有することを特徴とする。

【００３７】請求項２９記載の発明は、請求項１９ないし２５のいずれか１つに記載のユーザインタフェース方法において、前記遠隔操作手段は、上面にキーが設けられている本体と、キーが設けられ、前記本体に引出し可能に収納される拡張キーボードとを有し、前記拡張キーボードは、そのキーが操作可能な位置まで前記本体から引き出されることを特徴とする。

【００３８】請求項３０記載の発明は、請求項２９記載のユーザインタフェース方法において、前記遠隔操作手段は、前記拡張キーボードが前記本体から引き出された状態にあるか前記本体に収納されている状態にあるかを検出する検出手段と、前記検出手段の検出結果を示す検出信号を送信する送信手段とを有し、前記検出信号を受信すると、該受信された検出信号が示す状態に応じた前記遠隔操作手段における操作可能なキーのキー配列を示すキーレイアウト映像を表示する工程を有することを特徴とする。

【００３９】

【発明の実施の形態】以下、本発明の実施の形態について図面を参照しながら説明する。

【００４０】（第１実施の形態）図１は本発明に好適な第１実施の形態に係るユーザインタフェース装置を搭載するデジタル情報記憶装置と周辺機器とが接続されている状態を模式的に示す図である。

【００４１】デジタル情報記憶装置１０１は、図１に示すように、例えばデジタルビデオカメラ１０４、デジタルカメラ１０５などのＡＶ（オーディオビジュアル）機器を接続するためのインタフェース、ＩＰネットワーク（インターネット）１０６と接続するためのインタフェース、および表示装置として使用されるテレビ１０３を接続するためのインタフェースを有する。また、デジタル情報記憶装置１０１は、ＡＶ機器により記録された動画や静止画などの各種ＡＶ情報をハードディスクなどの記憶手段に記憶する機能、記憶されているＡＶ情報の検索、選択、閲覧、再生を行う機能、およびテレビ画面を利用して電子メールの送受信やＷｅｂなどの閲覧を行う機能を有する。これらの機能に関する全ての操作はリモートコントローラ（以下、リモコンという）１０２によ

って行われる。リモコン１０２は、例えば赤外線を通信媒体とした無線通信によって制御信号をデジタル情報記憶装置１０１に送信し、デジタル情報記憶装置１０１をリモートコントロールする。

【００４２】次に、リモコン１０２の外観構成について図２を参照しながら説明する。図２は図１のリモコンの外観構成図を示す図である。

【００４３】リモコン１０２においては、図２に示すように、その上面の４ヶ所にそれぞれ指の感触で認識可能な凸状の認識部２０３が形成されており、各認識部２０３の周囲には、それぞれ複数のキー２０１が配置されている。これにより、利用者は各認識部２０３を基点として指を移動させて感触だけでその周囲に配置されているキーの識別、選択を行うことが可能になり、利用者がリモコン１０２を見なくても容易に所望のキー２０１の入力を行うことが可能な入力環境が提供される。また、リモコン１０２の上面には、リモコン操作の開始を指示するためのキー２０２、およびリモコン操作の終了を指示するためのキー２０４が設けられている。

【００４４】次に、デジタル情報記憶装置１０１の各機能の例について図３および図４を参照しながら説明する。図３は図１のデジタル情報記憶装置のＷｅｂ閲覧機能によりテレビに表示される画面例を示す図、図４は図１のデジタル情報記憶装置の再生機能によりテレビに表示される画面例を示す図である。

【００４５】デジタル情報記憶装置１０１は、上述したように、インターネットのＷｅｂ閲覧を行う機能を有する。この機能を実行すると、テレビ１０３には、図３に示すＷｅｂ閲覧のための画面３０１が表示される。この画面３０１においては、画面左下にキーレイアウト３０２が表示される。このキーレイアウト３０２は、リモコン１０２のキー配列を表すものであり、このキーレイアウト３０２上の各キーには、それぞれ対応する機能名称が付されている。この機能名称は、現在実行されている機能に応じてリモコン１０２の各キーに割り当てられている機能名称である。このＷｅｂ閲覧機能の場合、リモコン１０２の各キーは、Ｗｅｂページのアドレスを入力するのに必要な記号、数字、アルファベットのキーや、Ｗｅｂページの画面をスクロールしたりジャンプしたりするためのカーソルキーなどに割り当てられる。

【００４６】利用者は、画面左下のキーレイアウト３０２を見ながら手元のリモコン１０２を指で操作して、例えば画面上のアドレス入力欄３０３にアドレスを入力したり、ＷＥＢ画面３０４に表示されている所望のＷｅｂページをスクロールしたりジャンプしたりしてＷｅｂページの閲覧を行う。このとき、利用者がリモコン１０２に対して行った操作をテレビ画面で随時確認することができるように、リモコン１０２のキーが押下される毎に、テレビ画面に表示されているキーレイアウト３０２中のリモコン１０２の押下されたキーに相当するキー部分は、その色が変更されて表示される。

【００４７】また、デジタル情報記憶装置１０２に記憶されている動画の検索、選択、閲覧、再生を行う機能を実行する場合、テレビ１０３には、図４に示す画面４０１が表示される。この画面４０１においては、画面左下にキーレイアウト４０２が表示され、このキーレイアウト４０２は、リモコン１０２のキー配列を表すものであり、このキーレイアウト３０２上の各キーには、現在実行されている動画の検索、選択、閲覧、再生を行う機能に応じた割り当てられている機能名称が付されている。この場合、リモコン１０２の各キーは、動画ファイル名を入力するのに必要な記号、数字、のキーや、動画を再生、停止、一時停止、先送り、後戻りなどの操作を行うための記号で表記したキーや、動画画面をスクロールしたりズームアップしたりするためのカーソルキーなどに割り当てられている。

【００４８】利用者は、画面左下のキーレイアウト４０２を見ながら手元のリモコン１０２を指で操作して、例えば画面上の動画ファイル名入力欄４０３への入力を行い、所望の動画ファイルを読み出し、動画画面４０４に読み出された動画ファイルを再生、停止、一時停止、先送り、後戻り、または、スクロールしたりズームアップしたりして動画ファイルの閲覧を行う。このとき、利用者がリモコン１０２に対して行った操作をテレビ画面で随時確認することができるように、テレビ画面に表示しているキーレイアウト４０２中のリモコン１２０の押下されたキーに相当するキー部分は、その色が変更されて表示される。

【００４９】次に、デジタル情報記憶装置１０１の機能構成について図５を参照しながら説明する。図５は図１のデジタル情報記憶装置の機能構成を示すブロック図である。ここで、図中の矢印は各信号の流れを表し、太実線は各種の情報を、細実線は制御信号をそれぞれ示す。

【００５０】デジタル情報記憶装置１０１は、図５に示すように、制御部５０１およびリモコン受信Ｉ／Ｆ部５０２を有する。制御部５０１は、ＩＰネットワークＩ／Ｆ部５０３、ＡＶ機器Ｉ／Ｆ部５０４、メモリ部５０５、ＴＶ画生成部５０６、ＴＶ出力Ｉ／Ｆ部５０７の各ブロックを制御する。また、制御部５０１は、時計機能を内蔵しており、この時計機能を利用して各ブロック５０３～５０７に対して時間を通知し、また動作の制御に用いるタイマーを構成する。

【００５１】リモコン受信Ｉ／Ｆ部５０２は、リモコン１０２からの制御信号を受信するインタフェースであり、リモコン１０２から受信した制御信号を制御部５０１に送信する。本実施の形態においては、リモコン１０２からは赤外線通信により制御信号が送信され、リモコン０２から送信された制御信号を受信した後、制御信号を復調して制御部５０１に送出する。リモコン１０２は、利用者によっていずれかのキーが押下された場合、

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この押下されたキーに対応した制御信号を送信する。

【００５２】ＩＰネットワークＩ／Ｆ部５０３は、ＩＰネットワーク（インターネット）１０６と接続するためのインタフェースである。本実施の形態では、ＩＰネットワークＩ／Ｆ部５０３をモデムやターミナルアダプタから構成し、電話回線を介してＩＰネットワーク１０６と接続する形態を用いている。インターネット上のＷｅｂ閲覧や電子メールの送受信を行う際には、ＩＰネットワークＩ／Ｆ部５０３により、所定のプロバイダに対してダイヤルアップ接続を行い、接続完了後はパケット化された情報の送受信を行う。また、ＩＰネットワーク１０６と送受信する情報はすべてメモリ部５０５との間でやり取りされ、このやり取りは制御部５０１の指示により行われる。

【００５３】ＡＶ機器Ｉ／Ｆ部５０４は、デジタル情報記憶装置１０１が各種のＡＶ機器と接続するためのインタフェースである。本実施の形態では、ＡＶ機器Ｉ／Ｆ部５０４として、ＵＳＢ（Universal Serial Bus）やPCMCIA（Personal Computer Memory Card International Association）に準拠したスロットなどを用い、ＡＶ機器Ｉ／Ｆ部５０４は、これらの規格に対応した各種ＡＶ機器を接続してＡＶ情報を受信する機能を有する。また、ＡＶ機器Ｉ／Ｆ部５０４により受信されたＡＶ情報は、すべてメモリ部５０５に送られるように制御部５０１により制御される。

【００５４】メモリ部５０５は、デジタル情報記憶装置１０１で扱う全てのデータや情報を記憶または一時記憶する。本実施の形態においては、このメモリ部５０５をいくつかの格納エリアに分けている。例えば、設定データや各種ＡＶ情報などを常に記憶し、利用者の操作によって新規に追加や削除を行うことができる情報格納エリア、Ｗｅｂ閲覧時などに画像情報を便宜上一時的に記憶する一時格納エリア、機能毎に対応したリモコン１０２のキーの機能名称情報（例えば図3の３０２、図4の４０２）を記憶するエリアなどに分けられている。このメモリ部５０５に記憶されている情報のうちテレビ１０３に出力する情報が制御部５０１の制御で選択され、選択された情報はＴＶ画生成部５０６に入力される。

【００５５】ＴＶ画生成部５０６は、メモリ部５０５から入力された各種の情報を組み合わせて、例えば図3に示す画面３０１や図4に示す画面４０１のような画面構成情報を生成し、テレビ画面に表示可能なビデオ情報に変換してＴＶ出力Ｉ／Ｆ部５０７に送出する。本実施の形態では、テレビの画面構成を変更する際、制御部５０１が利用者のリモコン操作を検出してその操作内容をメモリ部５０５やＴＶ画生成部５０６に反映させることによって、利用者のリモコン操作でテレビ１０３の画面構成を随時更新することを可能とする。また、利用する機能そのものを変更する際は、制御部５０１が利用者のリモコン操作を検出してその操作内容を全ての機能ブロックに反映させることによって、利用者のリモコン操作で利用する機能を随時更新することを可能とする。

【００５６】ＴＶ出力Ｉ／Ｆ部５０７は、ＴＶ画生成部５０６から送出されたビデオ情報をテレビ１０３に出力するインタフェースである。本実施の形態では、デジタル情報記憶装置１０１とテレビ１０３との間を、音声と映像がそれぞれ独立したピンプラグ付きのケーブルで接続するように、ＴＶ出力Ｉ／Ｆ部５０７には音声用と映像用の各ピンジャックに対応した端子が設けられている。

【００５７】次に、リモコン１０２の内部構成について図6を参照しながら説明する。図6は図1のリモコン１０２の内部構成を示すブロック図である。

【００５８】リモコン１０２は、図6に示すように、キーキーパット６０１と、キー入力検出部６０２と、リモコン送信Ｉ／Ｆ部６０３と、リモコン状態検出部６０４とを有する。キーパッド６０１は、図2に示す各キー２０１，２０２，２０４から構成されている。

【００５９】キー入力検出部６０２は、利用者により押下されたキーパット６０１上のキーを検出し、押下されたキーに対応する情報をリモコン送信Ｉ／Ｆ部６０３に送出する。ここで、キー入力検出部６０２では、キーが押下されると電気が流れる、または流れないといった電気的な方法でキーの入力を検出するので、キーが押下されている間はそれを検出し続けるように構成されている。また、複数のキーの押下がされた場合でも、それを検出することができ、その情報も上記と同様にリモコン送信Ｉ／Ｆ部６０３に送出される。また、キー検出入力部６０２は、リモコン状態検出部６０４からの情報をリモコン送信Ｉ／Ｆ部６０３に送出する。

【００６０】リモコン送信Ｉ／Ｆ部６０３は、キー入力検出部６０２から送出されたキー情報、リモコン状態検出部６０４から送出された状態情報を変調し、赤外線を通信媒体として制御信号を送信する。上述したように、リモコン１０２のキーが押下されている間は、キー入力検出部６０２からリモコン送信Ｉ／Ｆ部６０３にキー情報の送出が継続的に行われる。そのため、リモコン送信Ｉ／Ｆ部６０３においては、キー情報の入力が続く限り、デジタル情報記憶装置１０１に対して制御信号の送信が継続される。

【００６１】リモコン状態検出部６０４は、例えば電池が消耗している状態を検出するなどの状態の変化を検出し、この検出結果は、キー入力検出部６０２に入力される。

【００６２】次に、本デジタル情報記憶装置の動作について図7ないし図9を参照しながら説明する。図7ないし図9は図1のデジタル情報記憶装置の動作を示すフローチャートである。ここでは、テレビ画面を利用してデジタル情報記憶装置１０１に記憶されている動画ファイルを検索、再生を行う動作と、デジタル情報記憶装置１

０１がインターネットに接続し、テレビ画面にＷｅｂページを表示、閲覧する動作とを行うものとする。

【００６３】テレビ１０３は、画像、音声の入力がデジタル情報記憶装置１０１側に切り替えられている状態にあり、また、デジタル情報記憶装置１０１は、電源が投入された直後の初期画面をテレビ１０３に対して出力している状態（スタンバイ）にある。この場合、デジタル情報記憶装置１０１のいずれの機能も起動されていないので、テレビ画面にはリモコン１０２のキーレイアウトの表示は行われていない。

【００６４】このような状態においては、図７に示すように、まずステップ７０１で、リモコン操作の開始を指示するキー２０２の押下により発行される制御信号の受信を待ち、このキー２０２に対応する制御信号を受信すると、ステップ７０２で、受信した制御信号に基づき機能を選択するためのメニュー画面構成情報を生成し、テレビ１０３に送出する。これにより、テレビ画面には、機能を選択するためのメニュー画面が表示されるとともに、リモコン１０２のキーレイアウトが表示される。表示されたキーレイアウトの各キーには機能選択に対応する機能名称が付されて表示される。ここで、利用者が所望の機能を選択するためのキーを押下すると、この押下されたキーに対応する制御信号が送信される。

【００６５】次いで、ステップＳ７０３で、リモコン１０２からの制御信号に基づきメニュー画面上で選択可能な機能の１つであるインターネット接続が選択されたか否かを判定する。ここで、インターネット接続が選択されると、後述する図８のステップＳ８０１に進む。これに対し、インターネット接続が接続されていないときには、ステップＳ７０４に進む。

【００６６】ステップ７０４では、リモコン１０２からの制御信号に基づき動画検索再生が選択されたか否かを判定する。ここで、動画検索再生が選択されたときには、後述する図９のステップＳ９０１に進む。これに対し、動画検索再生が選択されていないときには、ステップＳ７０５で、リモコン１０２からの制御信号がリモコン操作の終了を指示するキー２０３の押下により発行された制御信号であるか否かを判定する。ここで、リモコン１０２からの制御信号がキー２０３に対応する制御信号であるときには、リモコン操作を終了すると判断して上記ステップＳ７０１に戻る。これに対し、リモコン１０２からの制御信号がキー２０３に対応する制御信号でないときには、リモコン操作を終了しないと判断して上記ステップＳ７０３に戻り、利用者によりリモコン１０２のキーが押下されるまで処理を繰り返す。

【００６７】上記ステップＳ７０３においてインターネット接続が選択されたと判定されると、図８に示すように、まずステップＳ８０１において、ＩＰネットワークＩ／Ｆ部５０３を介してダイヤルアップ接続を行い、インターネット１０６に接続する。そして、ステップＳ８０２で、予め設定されているＷｅｂページに接続し、このＷｅｂページの情報を取得してテレビ１０３に送出する。これにより、テレビ画面には、図３に示すような画面３０１が表示される。この画面３０１上ではキーレイアウト３０２が表示される。ここで、リモコン１０２の各キー２０１は、アドレス入力やＷｅｂページのジャンプや移動を操作するためのアルファベットキーやカーソルキーなどとしてそれぞれ割り当てられるので、キーレイアウト３０２上の各キーには、それぞれ対応するキーに割り当てられている機能の名称が付されて表示される。

【００６８】次いで、ステップＳ８０３において、現在表示中のＷｅｂページから他のＷｅｂページへと移動するために、画面３０１上のアドレス入力欄３０３への入力が選択されたか否かを判定する。ここでは、上記アドレス入力欄３０３の位置へカーソルが移動されると、アドレス入力が選択されたと判定し、ステップＳ８０４に進む。ステップＳ８０４では、上記アドレス入力欄３０３へアドレスを入力するために押下されたキー（英数字が表示されているキーに相当する）に対応する英数字をアドレス入力欄３０３に入力するとともに、キーレイアウト３０２内の押下されたキーに対応するキーの表示色を変更する。例えば、英数字の“ｃ”を入力する場合、キーレイアウト３０２上の“ａｂｃ”の名称が付されているキーに対応するリモコン１０２上のキーを３回押下することによって、英数字の“ｃ”が選択されて入力される。このとき、アドレス入力欄３０３においては、上記キーが押下される毎に、“a”→“b”→“c”と文字表示が変化する。また、キーレイアウト３０２上の“ａｂｃ”の名称が付されているキーの表示色は、対応するリモコンのキーが押下される毎に異なる色に変化するので、リモコン１０２のキー操作状態が認識し易くなる。

【００６９】次いで、ステップＳ８０５において、アドレス入力欄３０３に入力された文字をクリアするか否かを判定する。ここでは、例えば上記ステップＳ８０４で文字の入力が行われた後でキーレイアウト３０２上の“←”の記号が付されたキーに相当するリモコン１０２のキーが押下された場合、文字のクリアが指示されたと判定し、ステップＳ８０７に進む。これに対し、上記ステップＳ８０４で文字の入力が行われた後でキーレイアウト３０２上の“→”の記号が付されたキーに相当するリモコン１０２のキーが押下された場合、入力された文字のっかう定が指示されたと判定し、ステップＳ８０６に進む。ステップＳ８０７では、上記ステップＳ８０４で入力した文字を消去し、上記ステップＳ８０３に戻る。これにより、再度文字の入力を行うことが可能となる。ステップＳ８０６では、入力された文字を確定し、上記ステップＳ８０３に戻る。これにより、再度文字の入力を行うことが可能となる。

【００７０】上記ステップＳ８０３でアドレス入力でな

いと判定されると、ステップＳ８０８で、現在表示中のＷｅｂページをスクロールしたり、一つ前のページに戻ったりするようなリモコン操作が行われたか否かを判定する。ここで、このようなリモコン操作が行われると、ステップＳ８０９で、上記リモコン操作に応じて表示内容を更新する。例えば、テレビ画面３０１上のカーソルをＷＥＢ画面３０４の位置に移動してキーレイアウト３０２上のカーソルを表すキーに相当するリモコン１０２のキーが押下されると、ＷＥＢ画面３０４をスクロールする処理が行われる。例えばキーレイアウト３０２にある“↓”の記号が付されているキーに相当するリモコン１０２のキーが押下されると、ＷＥＢ画面３０４は下方へスクロールする。また、逆にキーレイアウト３０２にある“↑”の記号が付されているキーに相当するリモコン１０２のキーが押下された場合、ＷＥＢ画面は上方へスクロールする。そして、ステップＳ８１０に進む。

【００７１】これに対し、現在表示中のＷｅｂページをスクロールしたり、一つ前のページに戻ったりするようなリモコン操作が行われないときには、上記ステップＳ８０９をスキップしてステップＳ８１０に進む。

【００７２】ステップＳ８１０では、インターネット接続（Ｗｅｂ閲覧）を終了するか否かを判定する。ここでは、例えばキーレイアウト３０２にある“↑”、“↓”の記号が付されているキーのそれぞれに相当するリモコン１０２のキーが同時に押下されると、インターネット接続（Ｗｅｂ閲覧）を終了すると判定し、ステップＳ８１１おいて、インターネット接続を切断するためにダイヤルアップ接続を切断する処理を行う。そして、図7のステップＳ７０２に戻り、テレビ画面がメニュー画面に切り替えられる。これに対し、“↑”、“↓”の記号が付されているキーのそれぞれに相当するリモコン１０２のキーが同時に操作されない限り、Ｗｅｂページの閲覧を継続すると判定し、上記ステップＳ８０３に戻る。

【００７３】上記ステップＳ７０４において動画検索再生が選択されたと判定されたときには、図9に示すように、まずステップＳ９０１において、メモリ部５０５に記憶されている動画ファイルを検索、再生するための画面４０１（図4に示す）をテレビ１０３に表示する。この画面４０１においては、キーレイアウト４０２が表示される。ここでは、リモコン１０２の各キーは、動画ファイルを検索するためのファイル名入力や読み出した動画ファイルを再生、停止、一時停止、先送り、後戻り、または、スクロールしたりズームアップしたりするキーとして割り当てられ、そのことを表すように、キーレイアウト４０２上の各キーには、対応する記号キーなどが付されて表示される。

【００７４】次いで、ステップＳ９０２に進み、動画ファイルを検索するために、検索する動画ファイルのファイル名の入力が終了したか否かを判定する。ここで、例えばテレビ画面上のカーソルがファイル名入力欄４０３の位置に移動されてキーレイアウト４０２上の数字が付されているキーに相当するリモコン１０２のキーが押下されると、ファイル名入力欄４０３に押下されたキーに対応する数字が入力され、キーレイアウト４０２における押下されたリモコン１０２のキーに相当するキーの表示色が変更される。そして、ファイル名の入力が終了していないときには、ステップＳ９０３に進み、入力した文字の確定や消去を行い、上記ステップＳ９０２に戻る。このようにして、文字の入力、その確定、消去が繰り返され、動画ファイルのファイル名が入力される。なお、詳細なファイル名の入力方法は上記ステップＳ８０４～Ｓ８０７に示す手順に準じて行われるものとする。

【００７５】動画ファイルのファイル名の入力が終了すると、ステップＳ９０４において、確定されたファイル名をキーワードとしてメモリ部５０５に記憶されている動画ファイルの検索を行う。この検索開始は、例えばキーレイアウト４０２にある“<”、“>”の記号が付されているそれぞれのキーに相当するリモコン１０２のキーを同時に押下することによって指示されるものである。

【００７６】次いで、ステップＳ９０５において、キーレイアウト４０２にある“△”の記号が付されているキーに相当するリモコン１０２のキー（動画再生キー）が押下されたか否かに応じて検索されて読み出された動画ファイルを再生するか否かを判定する。このとき、画面４０１の動画画面４０４には、読み出された動画ファイルの最初の映像が静止画として表示されている。そして、上記動画再生キーが押下された場合、ステップＳ９０６で、動画画面４０４に表示されている静止画からそのまま動画の再生を開始する。

【００７７】次いで、ステップＳ９０７において、キーレイアウト４０２やファイル名入力欄４０３の表示を消し、動画画面４０４をテレビ画面上にフルスクリーン表示する指示があるか否かを判定する。このときの指示は、例えばキーレイアウト４０２にある“←”、“→”の記号が付されているそれぞれにキーに相当するリモコン１０２のキーを同時に押下することによって発行されるものである。ここで、上記指示があると、ステップＳ９０９において、キーレイアウト４０２やファイル名入力欄４０３の表示を消し、動画画面４０４をテレビ画面上にフルスクリーン表示する。そして、ステップＳ９１０に進む。

【００７８】これに対し、上記指示がないと、ステップＳ９０８において、動画の再生が開始されるのと同時に起動されたタイマーの時間が予め設定されている時間を経過したか否かを判定する。このタイマーは、任意の時間を設定することが可能なものである。ここで、タイマーの時間が予め設定されている時間を経過したときには、ステップＳ９０９で、キーレイアウト４０２やファイル名入力欄４０３の表示を消し、動画画面４０４をテレビ画面上にフルスクリーン表示する。そして、ステッ

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プS９１０に進む。これに対し、タイマーの時間が予め設定されている時間を経過していないときには、ステップS９１０において、動画ファイルの再生を停止する指示があるか否かを判定する。ここでは、キーレイアウト４０２にある“■”の符号が付されているキーに相当するリモコン１０２のキーが押下された場合、再生を停止する指示が発行される。

【００７９】上記キーの押下により再生の停止が指示されると、ステップＳ９１１で、動画の再生を停止し、図４に示すキーレイアウト４０２を含む画面４０１を表示し、動画画面４０４に再生していた動画ファイルの最初の映像を静止画として表示する状態に移行する。そして、ステップＳ９１２において、動画再生を終了するか否かを判定する。ここでは、例えばキーレイアウト４０２にある“↑”、“↓”の記号が付されているそれぞれのキーに相当するリモコン１０２のキーが同時に押下された場合、動画ファイルの検索、再生を終了すると判定し、上記ステップＳ７０２に戻り、テレビ画面をメニュー画面に切り替える。逆に上記のキー操作が行われない限り、動画ファイルの検索、再生を継続すると判定し、上記ステップＳ９０２に戻る。

【００８０】上記ステップＳ９０５において上記動画再生キーが押下されていないと判定された場合、ステップＳ９１２において、動画ファイルの検索、再生を終了するか否かを判定する。

【００８１】このように、本実施の形態では、テレビ画面にリモコン１０２のキーレイアウトが表示され、各動作モードに応じたキーの機能名称がテレビ画面のキーレイアウト内の各キーに付され、リモコン１０２のキーを押下した場合に、テレビ画面に表示されているキーレイアウト内の相当するキー部分が色を変えて表示されるので、利用者はテレビ画面を見ながらリモコン１０２のキー操作を行うことができる。また、リモコン１０２には、人の指の感触で認識可能な認識部が設けられ、その認識部の周囲にキーが配置されているので、利用者はリモコン上のキーを見ることなく、指の感覚だけでキー配置を認識することができるようになり、容易に所望のキーを選択して操作することができる。特に、電子メールを作成する場合など大量の文字入力が必要となる場合、本実施の形態の方法は、リモコンのカーソルキーやジョグ・スティック・ダイヤルを使用してテレビ画面に表示された画面キーのカーソルを移動させて文字を入力する従来の比して、リモコン１０２からのキー操作を格段に少なくすることができ、時間的にも操作性の上でも優れている。

【００８２】さらに、必要に応じてテレビ画面にキーレイアウトの表示／非表示をリモコン１０２の操作で選択することができるので、例えば動画再生時などテレビ画面に動画情報をフルスクリーン表示する場合は、効果を発揮する。

【００８３】さらに、デジタル情報記憶装置１０１の内部にタイマー機能を設けることによって、キーレイアウトの表示／非表示を時間的に切り替えることができる。

【００８４】なお、本実施の形態では、リモコン１０２に設けた認識部の形状を凸状にしているが、これに限定されることはなく、例えば凹状の形状など、人の指の感触で認識可能な形状であればどのような形状にしてもよい。

【００８５】（第２実施の形態）次に、本発明に好適な第２実施の形態について図１０を参照しながら説明する。図１０は本発明に好適な第２実施の形態に係るユーザインタフェース装置に用いられるリモコンの外観および開いた状態を示す図である。

【００８６】本実施の形態においては、図１０に示すように、２つ折り構造のリモコン１０２が用いられている。リモコン１０２は、上板１０２ａと、下板１０２ｂとを有し、上板１０２ａは下板１０２ｂに対し折り返し可能なように連結されている。上板１０２ａの上面には、指の感触で認識可能な２つの認識部１００３が形成されており、各認識部１００３の周囲には、それぞれ複数のキー１００１が配置されている。また、上板１０２ａの上面には、リモコン操作開始を指示するためのキー１００２、およびリモコン操作終了を指示するためのキー１００４が設けられている。また、上板１０２ａの下面には、上面と同様に、２つの認識部１０１０と、各認識部１０１０の周囲にそれぞれ配置された複数のキー１００９とが設けられている。

【００８７】下板１０２ｂの上記上板１０２ａとの対向面には、２つの認識部１００７と、各認識部１００５の周囲にそれぞれ配置された複数のキー１００５と、リモコン操作開始を指示するためのキー１００６と、リモコン操作終了を指示するためのキー１００８とが設けられている。

【００８８】リモコン１０２において、上板１０２ａが下板１０２ｂに対して折りたたまれている状態（図１０中の左図）にあるときには、上板１０２ａの上面に設けられている各キー１００１，１００２，１００４の操作を受付可能な状態にある。

【００８９】これに対し、上板１０２ａが下板１０２ｂに対して開かれている状態（図１０中の右図）にあるときには、上板１０２ａの下面に設けられている各キー１００９の操作、および下板１０２ｂに設けられている各キー１００５，１００６，１００８の操作が可能な状態になり、これらのキーの操作が受け付けられる。この状態においては、上板１０２ａの上面に設けられている各キー１００１，１００２，１００４の操作は受け付けられない。このように、上板１０２ａが下板１０２ｂに対して開かれると、操作可能なキーの数が、上板１０２ａが下板１０２ｂに対して折りたたまれている場合に比して、倍の数になる。

【００９０】また、リモコン１０２においては、リモコン状態検出部６０４により、上板１０２ａが下板１０２ｂに対して折りたたまれているか開かれているかを検出し、その検出信号を送信するように構成されている。デジタル情報記憶装置１０１側では、リモコン１０２から送信された上記検出信号を受信し、この検出信号に基づきリモコン１０２の状態を認識する。そして、このリモコン１０２の状態（上板１０２ａが下板１０２ｂに対して折りたたまれているか開かれているかの状態）に応じて、操作可能なキーの配列を示すキーレイアウトがテレビ画面に表示される。

【００９１】このように、本実施の形態では、リモコン１０２の形状を二つ折り構造とすることによって、例えばインターネットでＷｅｂページの閲覧を行っているときは、リモコン１０２を折りたたんだ状態で使用し、Ｗｅｂページのアドレスを入力するときには、リモコン１０２を開けるなど、入力操作の内容に応じてキーの数を増すことができ、キーを用いた入力操作環境を向上させることができる。例えば、Ｗｅｂページの閲覧時はリモコン操作に必要なキーの数は少なくて済み、またキーの数を少なくすることによって、誤操作の可能性もより少なくなる。これに対し、Ｗｅｂページのアドレス入力など文字入力においては、キーの数が増し、文字入力の操作性を向上させることができる。

【００９２】（第３実施の形態）次に、本発明に好適な第３実施の形態について図１１を参照しながら説明する。図１１は本発明に好適な第３実施の形態に係るユーザインタフェース装置に用いられるリモコンの外観構成図を示す図である。

【００９３】本実施の形態においては、図１１に示すように、引出し可能に構成されている拡張キーボード１１００を有するリモコン１０２が用いられている。リモコン１０２においては、本体上面に、指の感触で認識可能な２つの認識部１１０３が形成されており、各認識部１１０３の周囲には、それぞれ複数のキー１１０１が配置されている。拡張キーボード１１００は、上記本体に引出し可能に収納され、拡張キーボード１１００には、２つの認識部１１０６と、各認識部１１０６の周囲にそれぞれ配置された複数のキー１１０５とが設けられている（図１１の右図を参照）。

【００９４】本リモコン１０２においては、拡張キーボード１１００が本体から引き出された状態にあると、拡張キーボード１１００に設けられている各キー１１０５が操作可能な状態になり、操作可能なキーの数が拡張キーボード１１００が収納されている状態に比して、倍の数になる。

【００９５】また、リモコン１０２においては、リモコン状態検出部６０４により、拡張キーボード１１０が引き出されているか収納されているかを検出し、その検出信号を送信するように構成されている。デジタル情報記憶装置側では、リモコン１０２から送信された上記検出信号を受信し、この検出信号に基づきリモコン１０２の状態を認識する。そして、このリモコン１０２の状態（拡張キーボード１１０が引き出されているか収納されているかの状態）に応じて、操作可能なキーの配列を示すキーレイアウトがテレビ画面に表示される。

【００９６】よって、本実施の形態では、上述の第２実施の形態と同様な効果を得ることができる。

【００９７】

【発明の効果】以上説明したように、本発明のユーザインタフェース装置および方法によれば、遠隔操作手段の特定のキー操作によって発行された制御信号が受信されると、複数のキーのキー配列を示すキーレイアウト映像を表示装置に表示するので、キーを用いた入力操作を容易に行うことができる。

【００９８】また、本発明の遠隔操作装置によれば、複数のキーが配置されているとともに、人の指の感触で認識可能な認識部位が形成されているキーボード面を有し、複数のキーは認識部位を基準としてその周囲に配置されているので、利用者は遠隔操作手段上のキーを見ることなく、指の感覚だけでキー配置を認識することができるようになり、容易に所望のキーを選択して操作することができる。

【図面の簡単な説明】

【図１】本発明に好適な第１実施の形態に係るユーザインタフェース装置を搭載するデジタル情報記憶装置と周辺機器とが接続されている状態を模式的に示す図である。

【図２】図１のリモコンの外観構成図を示す図である。

【図３】図１のデジタル情報記憶装置のＷｅｂ閲覧機能によりテレビに表示される画面例を示す図である。

【図４】図１のデジタル情報記憶装置の再生機能によりテレビに表示される画面例を示す図である。

【図５】図１のデジタル情報記憶装置の機能構成を示すブロック図である。

【図６】図１のリモコン１０２の内部構成を示すブロック図である。

【図７】図１のデジタル情報記憶装置の動作を示すフローチャートである。

【図８】図１のデジタル情報記憶装置の動作を示すフローチャートである。

【図９】図１のデジタル情報記憶装置の動作を示すフローチャートである。

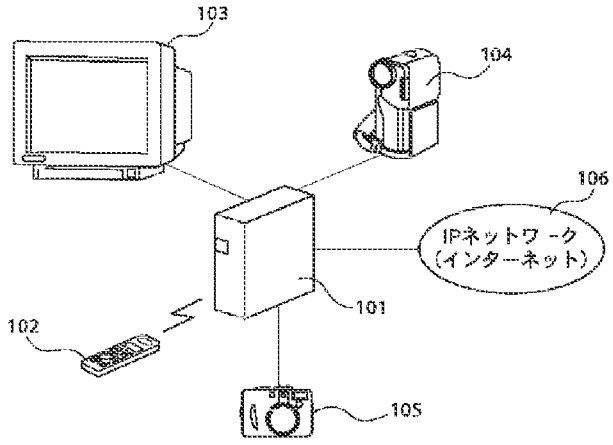
【図１０】本発明に好適な第２実施の形態に係るユーザインタフェース装置に用いられるリモコンの外観および開いた状態を示す図である。

【図１１】本発明に好適な第３実施の形態に係るユーザインタフェース装置に用いられるリモコンの外観構成図を示す図である。

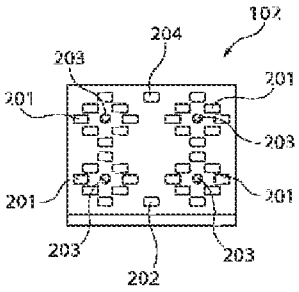
【符号の説明】

101　デジタル情報記憶装置
102　リモコン
103　テレビ
201，202，204，1001，1002，1004，1005，1006，1008，1101、1102，1104　キー
202，1003，1007，1103　認識
302，402　キーレイアウト
501　制御部
502　リモコン受信Ｉ／Ｆ部
503　ＩＰネットワークＩ／Ｆ部
504　ＡＶ機器Ｉ／Ｆ部
505　メモリ部
506　ＴＶ画生成部
507　ＴＶ出力Ｉ／Ｆ部
602　キー入力検出部
603　リモコン送信Ｉ／Ｆ部
604　リモコン状態検出部

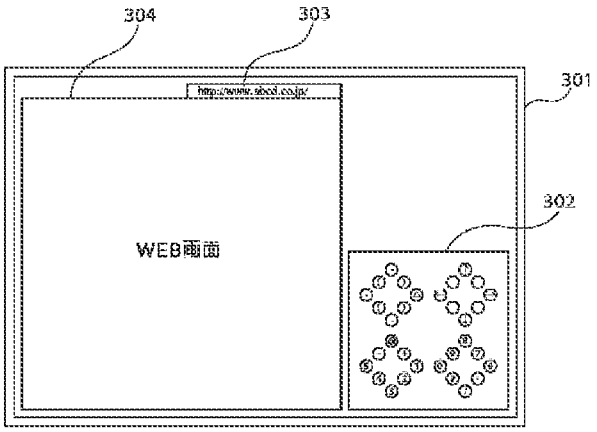
【図1】



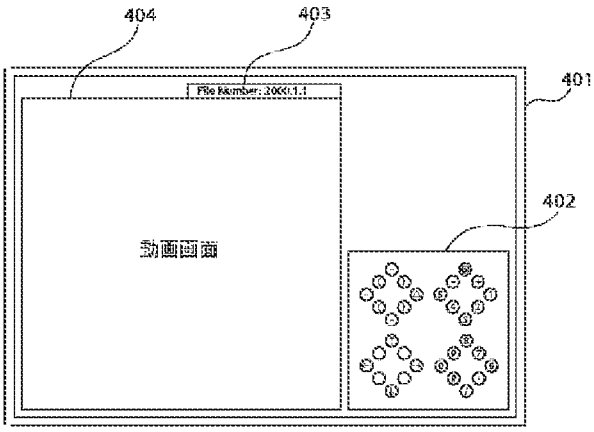
【図2】



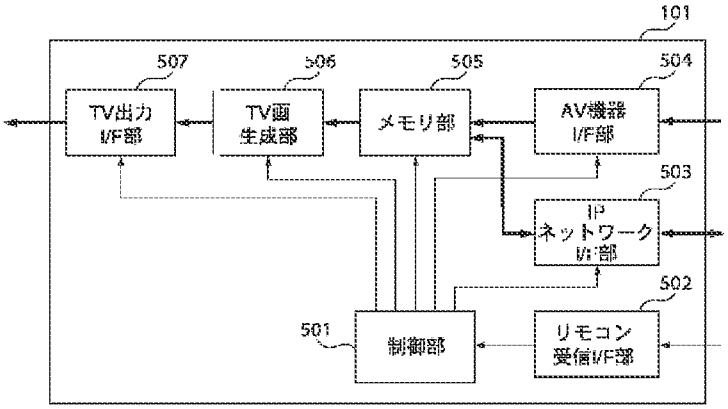
【図3】



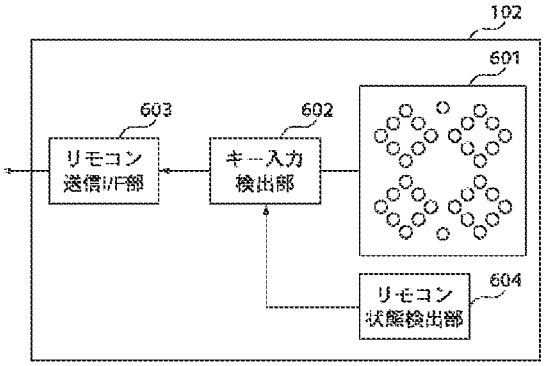
【図4】



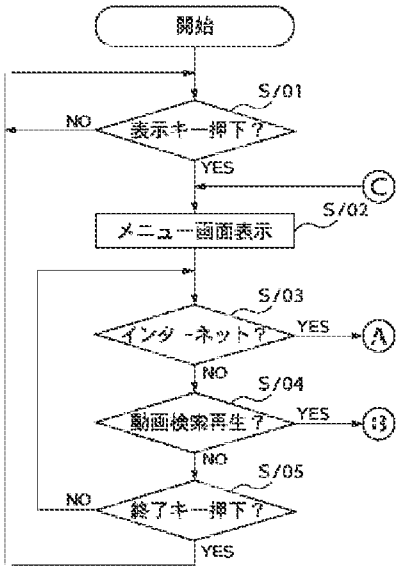
【図5】


101
507
TV出力 I/F部
506
TV画 生成部
505
メモリ部
504
AV機器 I/F部
503
IP ネットワーク I/F部
502
リモコン 受信I/F部
501
制御部

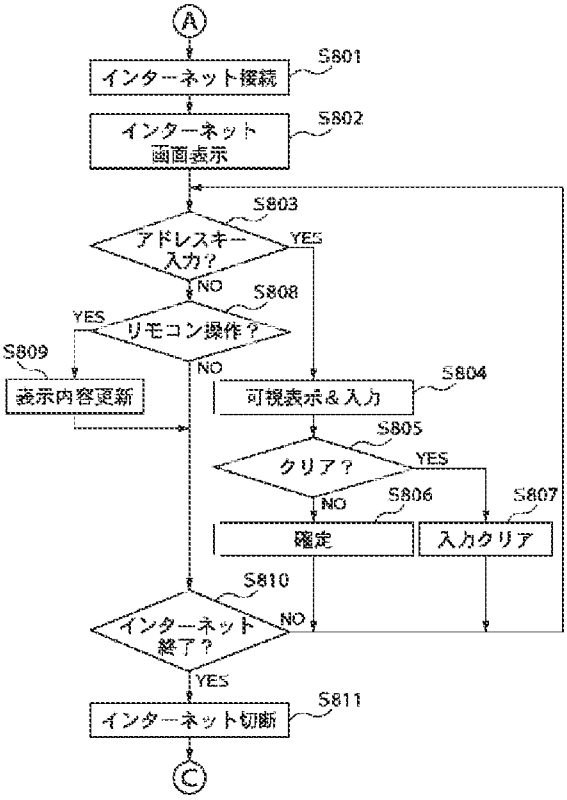
【図6】


102
601
603
リモコン 送信I/F部
602
キー入力 検出部
604
リモコン 状態検出部

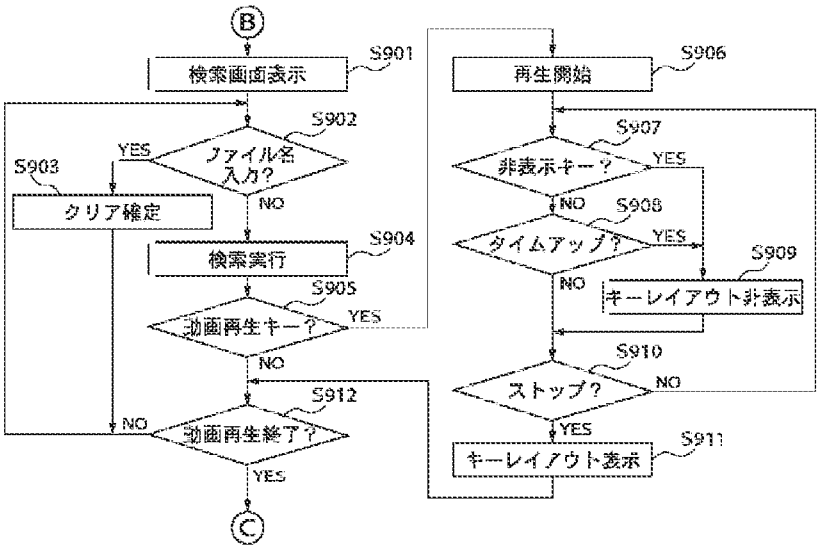
【図7】


開始
S/01
表示キー押下？
NO
YES
C
S/02
メニュー画面表示
S/03
インター -ネット？
YES
A
NO
S/04
動画検索再生？
YES
B
NO
S/05
終了キー押下？
NO
YES

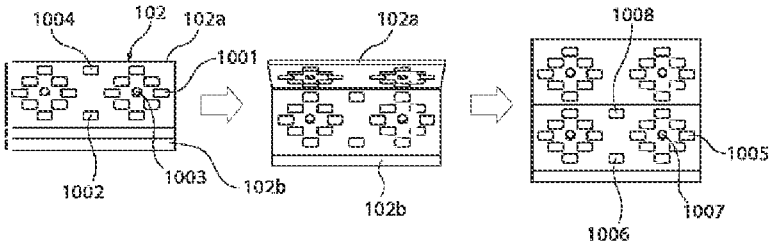
【図8】


A
S801
インターネット接続
S802
インターネット 画面表示
S803
アドレスキー 入力？
YES
NO
S808
リモコン操作？
YES
S809
表示内容更新
NO
S804
可視表示＆入力
S805
クリア？
YES
NO
S806
確定
S807
入力クリア
S810
インターネット 終了？
NO
YES
S811
インターネット切断
C

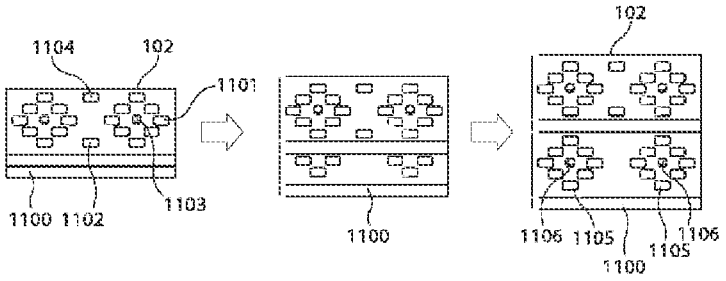
【図9】


Ⓑ
検索画面表示
S901
ファイル名入力?
S902
YES
NO
S903
クリア確定
検索実行
S904
動画再生キー?
S905
YES
NO
動画再生終了?
S912
NO
YES
Ⓒ
再生開始
S906
非表示キー?
S907
YES
NO
タイムアップ?
S908
YES
NO
S909
キーレイアウト非表示
ストップ?
S910
NO
YES
キーレイアウト表示
S911

【図10】


1004
102
102a
1001
1002
1003
102b
102a
102b
1008
1005
1006
1007

【図11】


1104
102
1101
1100
1102
1103
1100
102
1106
1105
1100
1105
1106

フロントページの続き

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CC06
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EB06 EB07 EB11 EB12 EB15
FA07 FB10 FB15 FB16 FC03
HA01 HA13 HA21

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(71) Applicant: **META TV, INC.** [US/US]; Two Belvedere Place, Mill Valley, CA 94941 (US).

(72) Inventors: **CHANE, Lena, D.**; 461 2nd Street #118, San Francisco, CA 94107 (US). **MARENGHI, Matt**; 523 Day Street, San Francisco, CA 94131 (US). **AHMAD-TAYLOR, Ty**; 200 W, 26th Street, #17-H, New York, NY 1001 (US). **CHUNG, Alex**; 15 Herman Street, #105, San Francisco, CA 94102 (US). **HEGDE, Prakash**; 1 Weatherly Drive, #307, Mill Valley, CA 94941 (US). **MOREAU, Samuel**; 161 Lindeen Lane, Mill Valley, CA 94941 (US). **HABER, Darrel**; 310 Shadowfaus Circle, Martinez, CA 94553 (US).

(74) Agents: **FAHMI, Tarek, N.** et al.; Blakely, Sokoloff, Taylor & Zafman LLP, 12400 Wilshire Boulevard, 7th floor, Los Angeles, CA 90025 (US).

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(54) Title: INTERACTIVE USER INTERFACE FOR TELEVISION APPLICATIONS

(57) Abstract: An iTV user interface includes a navigable menu area through which a user can select from among a variety of services and a content display area in which formatted data associated with a selected menu service are displayed to the user. The formatted data is displayed in a rotating or ticker fashion having both a passive mode, in which the formatted data is displayed in a sequence independent of any selection operations by a television viewer, and active mode, in which the formatted data is displayed in a sequence that depends on selection operations by the television viewer. Advertisements and/or promotions may be interspersed among the content items. The navigable menu area and the content display area may be displayed to the viewer at the same time as television programming is displayed on the television.

INTERACTIVE USER INTERFACE FOR TELEVISION APPLICATIONS

RELATED APPLICATIONS

[0001] The present application is related to, incorporates by reference and hereby claims the priority benefit of:

a. U.S. Provisional Patent Application No. 60/323,658, entitled "Interactive User Interface for Television Applications", filed September 19, 2001 and assigned to the assignee of the present invention.

b. U.S. Provisional Patent Application No. 60/395,277, entitled "Programming Contextual Interactive User Interface for Television", filed July 11, 2002 and assigned to the assignee of the present invention.

FIELD OF THE INVENTION

[0002] The present invention relates to a user interface for use with video systems, and in particular interactive television (iTV) systems, that provides for both information display and navigation.

BACKGROUND

[0003] In the past few years, home entertainment has evolved from purely one-way radio and television (TV) broadcasts to include two-way communication that encompasses interactive games, video on demand (VOD), educational fare and consumer-oriented services (e.g., interactive shopping). For the most part, these services have been offered through familiar cable and satellite television distribution systems.

[0004] Broadly speaking, there are two paradigms for using cable and satellite systems in this fashion. One is computer-centric: using an installed satellite or cable feed (perhaps with a cable or telephone network back channel) as a high-bandwidth conduit to bring online computing services, such as Internet access, into the home. The second is television-centric: adding interactive functions to TV programming.

[0005] In general, systems deployed using the television-centric model have been grouped under the label interactive television or iTV. iTV services are usually delivered to subscribers' homes through an existing cable system, along with other, free and pay-for content. One example of available iTV services is a series of interactive TV portal screens, collectively called a "walled garden". A walled garden is a collection of user content targeted toward a specific viewing audience. Delivered to the television via a local decoder system (sometimes called a set-top box), viewers navigate the walled garden using a remote control,

exploring and interacting with offerings such as banking services, news, sports, weather, entertainment, and shopping. Network operators typically gain revenue from walled gardens by taking a percentage of the transactions or charging for space in TV malls. Walled gardens extend the network operator's brand identity while maintaining the well-known names that provide the content. Thus, the service provider can create a cohesive set of up-to-date content to provide viewers with a rich interactive experience through their television set. These walled garden services can be enhanced through the provision of on-demand video services being made available related to the walled garden content. In this manner various special interest 'virtual' channels that include on-demand video services, such as home and garden, travel, history, geography, sports, educational and news channels can be made available to the home viewer.

[0006] As indicated above, accessing iTV services sometimes requires the installation of a special decoder system (a set-top box) that may include a dedicated remote control unit. Other systems incorporate the iTV decoder system in a set-top box that is also used to decode and/or decrypt the television signals. In either case, the set-top box and its associated remote control provide an interface for the user to access the iTV services, usually through some form of on-screen menu that is displayed in response to user command inputs. The on-screen menu may or may not be overlaid on top of the television picture. Common examples of on-screen menus include audio/video program guides, electronic catalogs, and advertising information.

[0007] Clearly, an important component of any walled garden or other iTV service is the interactivity provided through the combination of the set-top box and its remote control and the on-screen menu. Collectively, the set-top box, the remote control and the visual information display make up the user interface for the iTV services. To date, however, these user interfaces have not been satisfactory.

SUMMARY OF THE INVENTION

[0008] The present invention relates to user interfaces for interactive television (iTV) and other applications, which in one embodiment serves as an information presentation architecture for enabling users of iTV services to access a range of broadcast, on-demand programming and other content (which may or may not be related to a current broadcast and/or channel context of the television viewer), offered through an iTV network and made available via applications that may execute on a receiver such as a set-top box. The interactive user interface can be displayed at the same time as television programming, either as an overlay to television programming or with the television programming displayed in a scaled window.

[0009] In one embodiment, the present invention provides a content collection, distribution and display system that includes a server component configured to capture content for display to a television viewer by harvesting data from multiple data sources according to content collection rules specified in a configuration file that identifies locations from which the content can be harvested, and to produce a set of data files that include the harvested data, business rules and display rules for such data. The system also includes a distribution component coupled to receive the data files produced by the server component and to transmit the data files to a receiver utilizing a transmission channel (e.g., an in-band or out-of-band component of a satellite and/or cable television distribution network). Finally, the system includes a client component configured to receive the data files via the transmission channel and to populate a user interface, displayable to the television viewer simultaneously with other television programming via the receiver, with the harvested data as formatted data subject to the business rules and display rules.

[0010] The user interface may include a navigable menu area through which a user can select from among a variety of interactive television services. That is, the menu area provides access to a variety of services (e.g., video on demand services, game services, television programming related content services, managed content services, special interest services, self-provisioning services, chat services, email services, and television programming guide services) into which the content can be categorized. The user interface may also include a content display area in which those portions of the formatted data associated with a selected menu service are displayed to the television viewer. In some cases, this content is displayed in a rotating or ticker fashion (having both a passive mode, in which the formatted data is displayed in a sequence independent of any selection operations by a television viewer, and active mode, in which the formatted data is displayed in a sequence that depends on selection operations by the television viewer), with advertisements and/or promotions interspersed among the content items. In this way individual content items are displayed for configurable periods of time and then automatically replaced with new content items. The navigable menu area and the content display area may be displayed to the viewer at the same time as television programming is displayed on the television.

[0011] Within the user interface display, the displayed categories (e.g., news, weather, sports, entertainment, travel, special interest, demographic, world, national, regional, channel and program information, and local information) and services may change dynamically as new services are introduced and/or new business rules are defined by a network operator. The user interface may also include a content user interface component (referred to below as a content bar) that displays designated content (e.g., date/time/temperature information) regardless of

what information is displayed in the content display area. Some embodiments of the present invention also provide for the display of communication alerts (such as e-mail alerts) via the user interface.

[0012] The content pieces, advertising and promotions may be organized and/or delivered according to configurable business rules defining content distribution across an iTV network. In this way, the content pieces, advertising and promotions, and preferred placement of elements of content, including tiles, within displayed categories may be dynamically controlled. The advertisements and/or promotions may be linked to services within the iTV network, and/or to an interactive capability to self-provision a related service. The business rules may be configured according to time of day, television channel, channel content, preferred placement, viewer demographic, viewer behavior, navigation context, and/or content category.

[0013] BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The present invention is illustrated by way of example, and not limitation, in the figures of the accompanying drawings in which:

[0015] **Figures 1A and 1B** illustrate examples of on-screen menu and ticker portions of user interfaces for iTV services configured in accordance with embodiments of the present invention.

[0016] **Figure 2** illustrates one example of a content collection, distribution and display system having server and client components configured in accordance with an embodiment of the present invention.

[0017] **Figure 3** illustrates another example of a content collection, distribution and display system having server and client components configured in accordance with an embodiment of the present invention.

[0018] **Figure 4A** illustrates a further example of an on-screen menu portion of a user interface for iTV services configured in accordance with an embodiment of the present invention in which a menu overlay is used.

[0019] **Figure 4B** illustrates a further example of an on-screen menu portion of a user interface for iTV services configured in accordance with an embodiment of the present invention in which scaled television video is used.

[0020] **Figure 4C** illustrates yet another example of an on-screen menu portion of a user interface for iTV services configured in accordance with an embodiment of the present invention in which ticker state has changed from that shown in **Figure 4A**.

[0021] Figures 5A and 5B illustrate an example of a TV Assistant configured in accordance with an embodiment of the present invention, and which becomes populated by content that is specific to a currently tuned broadcast TV channel.

[0022] Figure 6 illustrates an example of a client component of a TV Assistant configured in accordance with an embodiment of the present invention.

[0023] Figure 7 illustrates an example of a client data package component of a TV Assistant client configured in accordance with an embodiment of the present invention.

[0024] Figure 8 illustrates an example of a business rules component TV Assistant client configured in accordance with an embodiment of the present invention.

[0025] Figure 9 illustrates an example of a template layout component of a TV Assistant client configured in accordance with an embodiment of the present invention.

[0026] Figure 10 illustrates an example of a client display engine of a TV Assistant client configured in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION

[0027] Described herein is a user interface for iTV applications. The present user interface may be embodied as a television application that provides navigation, information and communication services together, over full-screen television or embedded/scaled television programming. The application serves as a user interface to iTV services (e.g., walled garden services) and content and may be accessed through operation of a remote control device or other operator controls of a set-top box. In one embodiment, the remote control device may have a dedicated input mechanism (e.g., a physical or virtual button or a programmable set of keystrokes, etc.) to allow for rapid access to the on-screen menu portion of the user interface. The present application interface uniquely combines information and navigation features. For example, a subset of offered services and content may be provided directly through an on-screen or other menu and links may be provided to allow the user access to expanded information and services in the context defined by the subset.

[0028] As indicated, the on-screen menu may be presented as an overlay over full-screen broadcast television. In other cases, the menu may be presented as part of a special screen (e.g., allowing for scaled television video presentation) or as a separate picture-in-picture. Regardless of the format of presentation, the menu acts as a user interface to provide access to network operator services (e.g., iTV and/or MSO services), timely pieces of information, promotional or advertising material, and in some cases will still allow a user to view regular television programming while the menu is being displayed.

[0029] Figures 1A and 1B illustrate examples of user interfaces configured in accordance with the present invention. The user interfaces depicted in these examples include an overlay menu referred to as a TV Assistant 10. In other embodiments, TV Assistant 10 is displayed together with a scaled version of the television program video. As indicated above, the TV Assistant 10 may appear on a television screen (not shown in detail in this view) whenever a user inputs an appropriate command sequence using an associated remote control unit. In one embodiment, the appearance/disappearance of the TV Assistant 10 is associated with user commands applied through a MENU button (or some other designated button or command input device) of a TV or set-top box remote control while watching television.

[0030] As shown in the illustration, key pieces of information (e.g., weather information, news headlines, sports scores, stock quotes, etc.) are displayed through TV Assistant 10. Components of TV Assistant 10 include a main menu 12, which serves as the main menu to various interactive services (e.g., walled garden content, VOD, games, etc.); and an information content area 14, which displays updated content pieces including but not limited to news headlines, sports scores, stock information, etc.

[0031] TV Assistant 10 can also provide access to extended content. That is, additional information related to the content pieces displayed in content area 14 can be seamlessly accessed by allowing the user to navigate from the TV Assistant 10 to any other iTV service including but not limited to walled gardens / portal application (e.g., retrieving the full story for a headline that appears in the TV Assistant's content area 14 can be accomplished by selecting an appropriate link using the remote control). Such access may be provided through a navigation feature such as "GO" button 16 or other graphical element.

[0032] Network operator branding may be provided through a graphical element 18. Alternatively or in addition, content provider branding may be provided in a similar fashion. Further, a Time/Date/Current Temperature display may be incorporated in a content bar 20. Navigation items that provide an exit back to regular television programming and/or to further information or assistance (Help) may also be provided as separate selection elements or as part of the content bar 20. Preferably, content and other items displayed in the content bar 20 are invariant with respect to the content displayed in the information content area 14. As shown, the TV Assistant 10 occupies only a portion of the total available television screen, leaving room for the regular television picture 22 to be displayed for user enjoyment.

[0033] In addition to these features, other information or services may be displayed / accessed through TV Assistant 10. For example, basic advertising through interstitial or persistent advertisements can be made available. Advanced advertising providing a receptacle 23 for targeted ads can also be accommodated, as shown in **Figure 1B**. Communication services

such as instant messaging or chat capabilities can be accessed through appropriate menu options and, of course, the TV Assistant 10 can be customized (e.g., through a set-up option 25) for particular content display. For example, the TV Assistant 10 provides a service operator and / or a user with the ability to customize the content types that populate the TV Assistant's content area 14 and / or lower content bar 20, such as selected stock quotes, weather forecasts for specific cities, etc.

[0034] In addition, alerts may be set, providing the ability to notify a user of incoming mail (e.g., e-mail or instant messages) or pre-selected content alerts such as stock price targets, etc. The TV Assistant 10 also provides a vehicle for promotions: That is, a network operator has the opportunity to promote various services, offers, etc., through this interface. Self-provisioning is also provided for through an interface for adding interactive services or programming packages.

[0035] Broadcast partner integration that is context sensitive to the broadcast channel to which the television is tuned provides the ability for the TV Assistant 10 to be populated by content that is specific to the currently tuned broadcast TV channel. The TV Assistant 10 also provides an interface for commerce services, allowing uses the ability to complete simple transactions. Of course, the TV Assistant 10 also acts as an interface for displaying program specific information synchronized to the broadcast TV program.

[0036] The menu choices on both the main menu 12 and ticker menu 24 may be configured subject to service provider requirements and the following is only intended to illustrate one possible implementation. In the example shown, the Interactive option (labeled ITV) provides access to the walled garden home (e.g., a Web Browser). The Games option provides access to various interactive games services. The Guide option provides access to an Electronic Program Guide and the VOD option launches video on demand service.

[0037] As indicated above, the Help button 26 provides access to a Help page in the walled garden. The Back to TV option 28 allows a user to exit from the TV Assistant 10 to full screen TV viewing. The lower content bar 20 may display Date/Time/Current Temperature, and in one embodiment the time is updated every 5 seconds at the same time a new ticker item is displayed in content area 14.

[0038] The ticker menu 24 acts to highlight the information provided in content area 14. That is, the ticker menu 24 provides a quick visual indication of the type of content currently being accessed / displayed. The ticker rotates through content items within the designated menu categories every 5 seconds (or other predetermined time period). For example, when accessing sports content, the ticker may cause new scores from different sporting events to be displayed in the content area 14 every 5 seconds. By default the ticker component always

begins by cycling through the News items (or other user programmed menu selection) and then moves on to the other menu options.

[0039] If the user does not select any of the items in the ticker menu 24 he/she remains in what is referred to as "passive" ticker mode. In the passive ticker mode, the ticker cycles through all of the News items first, displaying associated content in content area 14, then automatically moves to the next category when all (or a subset of the) current News items have been displayed. The ticker continues in this fashion, cycling through all (or a network operator defined subset) of the content items in each ticker category until all categories have been exhausted and then repeats the procedure. The currently selected ticker category may be graphically represented with a background color matching the background color of the ticker menu 24. Therefore, when the ticker automatically changes from News to Local, the background color of the navigation button (shown as a highlighted portion of the ticker menu 24) changes automatically to reflect this category change.

[0040] In addition to the passive mode, TV Assistant 10 also provides an "active" ticker mode. The user has the option of selecting any of the ticker menu items using the remote control and entering active ticker mode. At that point, the user is presented with the ticker content for the selected category (e.g., the user may be presented with local news items or community messages when he / she selects the Local ticker category) and these content items will continue to repeat within content area 14 (e.g., changing every 5 seconds or other predetermined time period) until the user selects another ticker menu category. The active ticker category navigation button may be graphically represented with a background color matching the background color of the ticker. Additionally, the navigation button is also complemented with a graphic icon (a diamond in this example) to indicate that the user is in the active ticker state.

[0041] Text or graphic based ads / promotions can be presented in an interstitial type display as content rotates through the TV Assistant's content area 14. One display point for text-based promotions would be as an additional content ticker item in-between category changes when in passive ticker mode. In active mode, a promotion could appear as the first or last (or other) ticker item in the rotation.

[0042] When selected, the GO button 16 will link the user to the appropriate page in the walled garden that corresponds to the current content item displayed in the content area 14. For example, selecting "GO" while a news headline is being displayed will take the user to the story page for that headline in the walled garden. Of course, other selection mechanisms may be used.

[0043] The various buttons and other graphical items in this interface may change color to reflect state. For example:

a. Unselected: White text on top of a background color.
b. Selected: White text on top of a different background color which matches the color of the ticker content area 14, thus drawing a visual connection between the category button and the ticker contents.
c. Selection Focus: White text on top of a unique background color representing the element with current focus. The user will be able to navigate to any selectable element. This may be represented by the background color of the element changing from the "unselected" background color to the "selection focus" color upon key press.

[0044] As shown in **Figure 2**, the TV Assistant application utilizes both a server-side component and a client-side component. The server-side component is responsible for delivering data on a scheduled basis. Data delivery mechanisms may include, but are not limited to, one or more of the following: Internet Protocol (IP) messages, such as through in-band or out-of-band data pathways, or though an IP gateway product; or in-band or out-of-band carousel data. Such data may also be encapsulated within MPEG2 packets for transmission through the in-band broadcast system. The server-side component provides data from multiple disparate sources using a TV Assistant server 30. The server 30 extracts, collects, integrates, and deploys content and commerce from a variety of sources 32 such as web servers, raw television feeds, data sources (such as file servers, etc.) into new rich television-centric services. It allows existing Internet brands, content, and commerce services to be introduced to a new audience of viewers. Content is dynamically harvested, re-purposed and enriched for the television without affecting the existing technology infrastructure or publishing resources of the content provider.

[0045] As shown, content from the various sources 32 is retrieved by the TV Assistant server 30 and formatted according to instructions provided via a configuration file TVAConfig.xml. This configuration file (which can specify "business rules" for content collection, update, etc.) is created by the network or content service provider using a TV Assistant Administrator component 34. In this example, the file is an extensible markup language (XML) file, however, any convenient programming language may be used. TVAConfig.xml is used to create the selected contents and the delivery location of the TVAContents.txt file (discussed below). It allows the operator of a given head-end, through a web interface or other command interface, to specify information regarding content such as location, syndication sources, number of items displayed per source, etc. It also allows the operator to indicate where the

TVAContents.txt file 36 is to be deployed, including, where appropriate, the IP address of an Applet Verification Server (AVS) 42 in the head-end and associated attributes such as start/end time, interval, and refresh rate. An example of the TVAConfig.xml file is:

```
<TVA_ServletConfig>
 <City>
  <Name>San Francisco</Name>
  <State>CA</State>
  <Zip>94111</Zip>
  <WorldNews_Url> (insert local URL for world news) </WorldNews_Url>
  <LocalNews_Url> (insert local URL for local news) </LocalNews_Url>
  <Sports_Url> (insert local URL for sports) </Sports_Url>
  <Weather_Url> (insert local URL for weather) </Weather_Url>
  <WorldNews_Count>5</WorldNews_Count>
  <LocalNews_Count>10</LocalNews_Count>
  <Sports_Count>8</Sports_Count>
  <Weather_Count>3</Weather_Count>
  <AVS_IP> (insert IP address of applet verification server) <AVS_IP>
 </City>
</TVA_ServletConfig>
```

[0046] In one embodiment of the present invention, a server-side servlet named TVAGenerator.java resident at the TV Assistant server 30 is responsible for capturing content by harvesting data from the multiple data sources 32 via a syndication server (not shown in detail) as specified in the TVAConfig file. One example of a syndication server suitable for this purpose is described in detail in U.S. Patent Application 09/841,017, entitled "METHOD AND SYSTEM FOR TRANSFORMING CONTENT FOR EXECUTION ON MULTIPLE PLATFORMS", filed April 23, 2001 and assigned to the assignee of the present invention, the complete disclosure of which is hereby incorporated by reference. In addition, the TVAGenerator file formats the captured contents into a data file, TVAContents.txt, 36 uploads TVAContents.txt to an appropriate broadcast file server (BFS) 38 (e.g., as specified in the TVAConfig file), by using a TVAFileUploader utility 46 to transfer the file through a verification system (if necessary) such as Liberate's AVS 42.

[0047] In this example, TVAFileUploader 46 is a Java utility that uses HTTP POSTs to upload the data file 36. This file uploader is executed each time the TVAContents.txt file is

updated and generated. The file uploader reads the TVAContents.txt file 36 into a byte array and delivers it over TCP/IP to the broadcast file server 38.

[0048] TVAContents.txt is the data file 36 that contains the content to be displayed in the TV Assistant 10. This file gets generated on a schedule, typically every 30 minutes but this time period is configurable by the network operator, to acquire the latest data, and is stored in the local file system of the server 30 where TVAGenerator.java runs. The broadcast server 38 is responsible for delivering data file 36 (TVAContents.txt) to the client-side application using the selected delivery mechanism (e.g., TCP/IP over an existing signaling channel or via a data carousel channel, etc.). The TV Assistant server 30 thus creates a file (TVAContents) 36 for distribution to a set-top box 40 via a network operator's existing content delivery platform. In this example, the file 36 is a text file but this is a design choice that may vary depending upon the system configuration and implementation.

[0049] After receiving the data file 36, the set-top box 40 is responsible for reading the file contents and displaying the corresponding content in the manner described above. In the present example of the client – server architecture of the TV assistant application, the client application is programmed in Java (TVA.java) and is utilized in conjunction with a commercially available broadcast file server 38, e.g., the Liberate Compact platform, and a Motorola DCT2000 set-top box 40. Other systems configured in accordance with the present invention may be implemented using other languages such as C, C++, etc. on other set-top boxes 40 and / or TV middleware platforms 38.

[0050] The client-side component is an application that can be accessed in one of several ways depending on the set-top platform being used. For example, the client application (i.e., the actual client-side computer software) may be flashed onto the set-top box 40 as a stand-alone application or as an extension (or customization) of some set-top box resident application, or TV middleware system; or a broadcast application that is carouseled to the set-top box 40 over an in-band or out-of-band data channel from the broadcast server 38. Advantages of deploying the TV Assistant as a resident application or an extension / customization of a resident application of a set-top box 40 include:

a. Instant access via the MENU (or other) button on the remote control;
b. Accessibility over any broadcast TV channel;
c. No latency in load time as a result of being resident in the set-top box memory;
d. Ability to launch other services such as VOD, Walled Garden, Mail, Self-provisioning, etc.

[0051] The TVA.java file instantiates itself in the set-top box 40 and specifies the user interface menu's on-screen size and location. This allows the TV assistant 10 to position

itself in a specific region of the TV screen, for example as specified by x-y coordinates. Upon receipt of the TVAContents.txt file 36, the TVA.java file reads the data contained in that file 36 to populate the TV Assistant 10. In some cases, this involves reading in the latest information from TVAContents.txt based on a schedule through a timer event. TVA.java formats the information and displays the content for each timer event. This may include examining sports score strings to determine game status and, if the game is final, displaying winning team/score in a different color. Refreshing of content is accomplished by periodically looking for new TVAContents.txt files transmitted by the data carousel server 44 associated with broadcast server 38. The TVA.java file also enables navigation to any selectable element in the TV Assistant 10 (including other applications such as VOD, etc.) and displays the following button states: unselected, selected, and selected/focus.

[0052] As shown in **Figure 6**, the TV Assistant client component 81 itself includes four components (a data package component 82, a business rules component 84, a template layout component 86 and a client display engine 88), which cooperate to render the TV Assistant 10 as seen by the television viewer. That is, these four components accept, interpret and present the content delivered by the broadcast server 38 to the television viewer.

[0053] The client data package component 82 is shown in detail in **Figure 7** and is responsible for receiving and parsing data elements and preparing them for display. The data package component 82 communicates with the distribution system to retrieve data packages (including set-top data 83, server data 85 and middleware data 87) as they are received, or as demanded by the client display engine 88. The data package component 82 includes a deserializer 89 and data parser 90, which together deserialize and interpret any optimized XML and binary data received from the server-side packaging component. Data package component 82 communicates with the client display engine 88 that creates and manages the data objects representing the data that is received in packages. Business rules metadata and template layouts are deserialized and reconstructed into objects for the business rules and template layout components 84 and 86, respectively. The data package component 82 communicates with the set-top box operating system interfaces to resolve references to set-top related data 83, such as time and date; and communicates with the resident middleware system to resolve references and requests for middleware data 87, such as current channel information. Other data (such as images, content for the ticker and content bar, VOD metadata and the like) is treated as server data 85 for the TV Assistant 10.

[0054] The business rules component 84 is shown in detail in **Figure 8** and is responsible for constructing business rules objects and applying these business rules to template objects as directed by the template layout component 86. In one embodiment, business rules are

described in XML format and define placement or other objectives that may be based on criteria such as: time of day, current channel, current broadcast content, viewer demographic, viewer behavior, navigation context and/or current content category.

[0055] As shown in the illustration, the business rules themselves may, in one embodiment, comprise rules associated with the following data categories 85:

i. Advertising and Promotional rules
ii. TV channel association rules
iii. Timing rules (for rotation of content, ads and promotions)
iv. Category placement rules
v. Preferred placement rules
vi. VOD metadata rules
vii. Self provisioning rules

[0056] The business rules component 84 receives the business rules data from the data package component 82, interprets them, and provides instructions that will eventually be applied to layout objects by the template layout component 86 and the client display engine 88. The business rules component 84 determines what interface elements 87 (data, images, ads, menu choices, etc.) are shown and when, and in what order and sequence those elements should be displayed. In one embodiment this may include displaying an advertisement for a sports product when the viewer is tuned to a sports channel. In another embodiment this may include providing links to a specific video when a user is on a specific channel at a specific time.

[0057] An example that illustrates the business rules metadata that is authored and/or generated by the server to control these display parameters is given below:

```
<?xml version="1.0" encoding="UTF-8"?>
<meta-business-rules>
    <ad-location-list start="1" end="9">
        <location id="1">
            <campaign id="1" start="1" end="4"/>
            <campaign id="11" start="5" end="7"/>
            <campaign id="1" start="8" end="9"/>
        </location>
        <location id="2">
            <campaign id="12" start="1" end="3"/>
            <campaign id="3" start="3" end="5"/>
```

```
                <campaign id="12" start="6" end="9"/>
        </location>
        <location id="3">
                <campaign id="5" start="1" end="3"/>
                <campaign id="15" start="4" end="7"/>
        </location>
</ad-location-list>

<ad-campaign-list start="1" end="9">
        <campaign id="1" displayrule="1">
                <ad id="1" adtype="1" href="String" src="String"
displayruledata="1"/>
                <ad id="7" adtype="1" href="String" src="String"
displayruledata="2"/>
                <ad id="4" adtype="1" href="String" src="String"
displayruledata="3"/>
        </campaign>
        <campaign id="3" displayrule="2">
                <ad id="8" adtype="2" href="String" src="String"
displayruledata="1"/>
                <ad id="2" adtype="2" href="String" src="String"
displayruledata="2"/>
                <ad id="5" adtype="2" href="String" src="String"
displayruledata="3"/>
        </campaign>
</ad-campaign-list>

<channel-association-list start="1" end="9">
        <content-type id="1">
                <channel id="3" start="1" end="4" />
                <channel id="4" start="1" end="5" />
                <channel id="11" start="3" end="9"/>
                <channel id="13" start="1" end="9"/>
        </content-type >
        <content-type id="2">
```

```
                <channel id="3" start="1" end="3"/>
                <channel id="5" start="2" end="9"/>
        </content-type >
</channel-association-list>

<link-association-list start="1" end="9">
        <content-link-type id="1">
                <channel-type id=”3” start=”1” end=”4” >
                        <application id=21233 />
                </channel-type>
                <channel-type id=”3” start=”5” end=”9” >
                        <application id=21244 />
                </channel-type>
                <channel-type id=”4” start=”1” end=”9” >
                        <application id=21413 />
                </channel-type>
        </content-link-type >
        <content-link-type id="2">
                <channel-type id="3" start="1" end="3">
                        <service id=11233 />
                </channel-type>
                <channel-type id="3" start="4" end="9">
                        <service id=11222 />
                </channel-type>
                <channel-type id="7" start="3" end="9">
                        <application id=21255 />
                </channel-type>
                <channel-type id="11" start="1" end="9">
                        <service id=21215 />
                </channel-type>
        </content-link-type >
</link-association-list>

<content-rotation-list start="1" end="9">
        <content-type id="1">
```

```
                <channel-type id="2" start="1" end="9">
                        <rotation displayrule="2" displayruledata="7" />
                </channel-type>
                <channel-type id="3" start="1" end="3">
                        <rotation displayrule="1" displayruledata="5" />
                </channel-type>
                <channel-type id="3" start="4" end="7">
                        <rotation displayrule="0" />
                </channel-type>
                <channel-type id="3" start="8" end="9">
                        <rotation nodisplay="true" />
                </channel-type>
                <channel-type id="4" start="5" end="9">
                        <rotation displayrule="1" displayruledata="5" />
                </channel-type>
                <channel-type id="0" start="1" end="9">
                        <rotation displayrule="2" displayruledata="4" />
                </channel-type>
        </content-type >
        <content-type id="2">
                <channel-type id="2" start="1" end="9">
                        <rotation displayrule="1" displayruledata="3" />
                </channel-type>
                <channel-type id="3" start="1" end="9">
                        <rotation displayrule="1" displayruledata="5" />
                </channel-type>
        </content-type >
</content-rotation-list>

<preferred-placement-list start="1" end="9">
        <provider id="1233">
                <channel id="2" start="1" end="9">
                        <placement displayrule="2" displayruledata="1" />
                </channel >
                <channel id="3" start="1" end="4">
```

```
                    <placement displayrule="1" displayruledata="1" />
                </channel >
            </provider>
            <provider id="1453">
                <channel id="4" start="1" end="9">
                    <placement displayrule="1" displayruledata="4" />
                </channel >
                <channel id="7" start="3" end="6">
                    <placement displayrule="1" displayruledata="4" />
                </channel >
            </provider>
            <service id="3253">
                <channel id="4" start="1" end="9">
                    <placement displayrule="2" displayruledata="4" />
                </channel >
            </service>
            <provider-type id="1">
                <channel-type id="2" start="1" end="9">
                    <placement displayrule="3" displayruledata="4" />
                </channel-type>
                <channel-type id="3" start="1" end="3">
                    <placement displayrule="2" displayruledata="2" />
                </channel-type>
                <channel-type id="1" start="1" end="9">
                    <placement nodisplay="true" />
                </channel-type>
                <channel-type id="0" start="1" end="9">
                    <placement displayrule="2" displayruledata="4" />
                </channel-type>
            </provider-type >
        </preferred-placement-list>
</meta-business-rules>
```

[0058] The template layout component 86 is shown in detail in **Figure 9** and receives template definitions and data (content, ads, promotions, and VOD metadata) from the data package component 82, layout factors and rules from the business rules component 84 (which

collectively are organized as content placement information 89 and object components 91) and prepares the interface for display by the client display engine 88. The template layout component 86 identifies all the aspects of the TV Assistant interface and orders them into a viewable user interface. It is responsible for creating a logical navigation structure for each screen, positioning of defined objects on a screen, and communicating information between objects and screen using the client display engine interfaces.

[0059] The client display engine 88 is shown in detail in **Figure 10** and constructs and manages the objects (via object manager 91) that are used throughout the TV Assistant client 81. The client display engine 88 provides a set of interfaces for the other components of the client to manipulate these objects. It receives data and instructions from the data package component 82, the business rules component 84 and the template layout component 86 and generates the interface display on the set top box 40 for the viewer. The client display engine 88 manages the layout and navigation elements of the user interface via layout manager 93 and can provide links to other applications. It is responsible for monitoring user activity and generating the appropriate response. It includes a scripting and event model 97, which in one embodiment may be similar to Javascript, that provides a procedural language that a template author may use to program the display object model and business rules object model, and to respond programmatically to user events. It also includes a run-time cache object (page manager 95) that stores information about objects and pages and forthcoming pages for faster performance and reduced latency during page transitions. Other modules include a VOD sessions manager 99 and an application manager 100.

[0060] The client component, TVA.java, thus includes java classes and utilities for image manipulation, swapping, button functionality and text control. All of these assets along with all image assets, which in one embodiment are optimized through Liberate's VQ compression tool, are packaged into a file, TVA.jar, and either uploaded to the BFS 38 on a schedule or, ideally, flashed to the set-top box 40 a master application for best performance and ease of access.

[0061] In operation, the data file 36 (TVAContents.txt) is continuously broadcast to the set-top box 40 over either an in-band or out-of-band data channel. On the Liberate Compact platform, the data file 36 is delivered in an out-of-band channel in order for TV Assistant 10 to work over any analog or digital broadcast channel. A typical out-of-band channel provides approximate bandwidths of 2Mb/sec downstream and 300K/sec upstream.

[0062] The size of the data file 36 is entirely dependent upon the amount of information that populates the TV Assistant 10. Below are a few potential scenarios:

Scenario 1 (approximately 3K file size)

- 5 news headlines
- 5 sports headlines/scores
- 5 local headlines
- 15 sports scores
- 1 city weather forecast (3 day)
- 5 promotional headlines

Scenario 2 (approximately 5K file size)

- 10 news headlines
- 10 sports headlines
- 5 local headlines
- 5 entertainment headlines
- 20 sports scores
- 20 stock quotes
- 5 city weather forecast
- 5 promotional headlines

[0063] Having thus described the individual components of the present content collection, distribution and display system, it is helpful to discuss an example of how this architecture is used. In the following example, specific details are provided for the creation, optimization, and automation of a TV Assistant specific to a platform configuration comprising Liberate's Compact 3.2.47 with MAC-J "Elmo" running on a Motorola DCT 2000 set-top box. These details are provided so that those of ordinary skill in the art can more fully appreciate certain implementations of the materials discussed above, however, this example should not be read as limiting the broader scope of the present invention to these implementation details.

[0064] Using authoring tools provided, for example, in the TV Assistant Administrator component 34, the application author 48 (e.g., an iTV network operator) generates the necessary layout and data templates for the TV Assistant application, and deploys them to the application server 30. The layout templates (TVA.xml) 50 may be bundled with any bitmap images used for buttons, user interface controls, etc. This allows the network operator to customize the look and feel of the TV Assistant 10 as it will ultimately be displayed to the television viewer.

[0065] The business rules and configuration data file (TVAConfig.xml) are also authored and specify the rules for organizing and placing content, promotions and advertising within the TV

Assistant. In this example, dynamic data generation templates (used to generate dynamic text data, image and video references) are created as Java Server Pages (DATA[N].jsp) 54 that conform to the Application Frameworks XML language developed by the assignee of the present invention, which provides a set of executable tags to access dynamic data harvested by a catalog engine 56. When executed, these templates 54 create a set of named data packages (TVA.dat) 58. Further details regarding this process may be found in the above-cited U.S. Patent Application No. 09/841,017.

[0066] The TVA.xml file 50 is run through a packager component 60 of the TV Assistant server 30, which uses extensible stylesheet language transformations (XSLT) to transform the XML information to a highly optimized, binary XML format file (TVA.mac) 62. These templates reference the contents of data packages via predetermined hierarchical package name references. The packager 60 then transports the TVA.mac file 62 directly to the Liberate broadcast server 38, where the Liberate Mediacast server 44 carousels TVA.mac to the set-top box 40 via an in-band channel. This process only needs to occur once, or as often as the application designer wishes to make changes to the layout and application behavior.

[0067] With data templates already residing on the TV Assistant server 30, processes need to occur to execute and create the dynamic data packages with their text data, image and video reference information. This process is initiated by specifying the data generation business rules within the TV Assistant Admin component 34 for scheduling data packages. In some cases, this may be done through a web-type interface (Admin Manager) 78 associated with server 30. According to the specified schedules, the packager 60 will initiate execution of the data templates (DATA[N].jsp) 54 via an Application Frameworks component 64 of server 30.

[0068] The DATA[N].jsp pages are broken into separate file types: those containing text data, including video url references, and those containing the image assets related to that data (backgrounds, photos, ads, etc.). When the DATA[N].jsp files are executed by the Application Frameworks component 64, the latest text, video references and image data are retrieved from the catalog engine 56. Independently, the catalog engine 56 is configured to harvest, process and store related data and metadata from content feeds 32, asset distribution interface (ADI) packages, and/or the Internet. If desired, an advertising server 66 may be invoked to resolve any advertising and/or promotion resources that are being provisioned for the given period as configured by the TV Assistant Admin 34. Dynamic business rules defined by the network service provider to be applied by the TV Assistant application client are retrieved and packaged with the data.

[0069] The DATA[N].jsp pages are processed by the Application Frameworks component 64 and the dynamic data sets returned to the packager 60. The packager transforms the text and

video reference portion of the data into a binary format file (TVA.dat) 66. The packager then generates TVA.html files 68 for the image portion of the data, and these files refer back to the image data. Finally, the packager generates an TVA.cdf file 70 containing references to the TVA.dat and TVA.html files 58 and 60 and posts this to the data carousel (DC) server 44.

[0070] The DC server 44 parses the TVA.cdf file 70 and downloads all the necessary data files referenced therein. It will also render the images referenced by the TVA.html files 68 into MPEG I-Frames and P-Frames, as required. The DC server 44 creates objects in Mediacast Signaling Protocol (MSP – a protocol for data broadcasting to set top boxes that allows any number of clients to access a carousel without increasing the downstream bandwidth required) format and sends them to the multimedia streamer (MMS) component 72 of broadcast server 38 for transport to set-top box 40 via the distribution network 74. At this point the necessary data and transport stream files will be spinning continuously on the carousel over an in-band channel. Additionally, the application client, which provides the execution platform and APIs used to implement the TV Assistant application, could itself be included in this carousel if it has not already been flashed onto the set-top box 40.

[0071] A system administrator for the network service provider can access the Admin Manager web interface 78 for the TV Assistant server 30 at any time to complete a number of tasks, including the ability to: modify configurations for the TV Assistant application, modify advertising and promotion campaign settings, change ticker settings, change business rules settings, change content harvesting sources, specify schedules and business rules for creating data packages, and a host of other activities.

[0072] Having examined the content collection and distribution architecture, some further examples of the on-screen menu portion of the present user interface may be described. As indicated above, the TV Assistant may be displayed as an overlay menu simultaneously with television video. **Figure 4A** provides an example of such a display. In this example, the TV Assistant 10 is displayed over regular television program video 22, but that video is still viewable. Components of the TV Assistant 10 have been organized in a different fashion than was the case in Figure 1, for example the content bar 20 now appears at the upper left of TV Assistant 10 and the number and types of main menu 12 categories and ticker categories 24 have changed, but the functionality provided by TV assistant 10 has not changed.

[0073] Referring now to **Figure 4B**, the same features, functionality and layout for TV Assistant 10 are presented as was the case for the Figure 4A embodiment, with the exception that the television video 22 is now displayed in a scaled fashion. That is, the television video 22 is displayed in a window framed by TV Assistant 22, but the image so displayed is a scaled representation of what would otherwise occupy the entire television screen if the TV Assistant

10 were not displayed. Such image scaling may be accomplished using conventional picture-in-picture or split screen image presentation technology as exists in many television receives and/or set-top box units.

[0074] **Figure 4C** illustrates an example of TV Assistant 10 when the ticker state has changed. Compare the illustration set forth in Figure 4A to that in **Figure 4C**. Notice that the ticker state has changed from "Spotlight" to "Weather" and the corresponding content in content area 14 has changed to reflect current weather conditions. This is one example of how content is rotated within the content area 14. The ticker menu 24 now has the "Weather" menu highlighted to reflect the ticker state, as described above. Similar state changes could be reflected if the scaled television video representation was used.

[0075] Earlier it was noted that the TV Assistant provided a mechanism for broadcast partner integration that is context sensitive to the broadcast channel to which the television is tuned. That is, the TV Assistant may be populated by content that is specific to the currently tuned broadcast TV channel. An example of such functionality is shown in **Figures 5A and 5B**.

[0076] **Figure 5A** illustrates an example of the TV Assistant 10, this time shown without any television video. This example illustrates one configuration of TV Assistant 10 as might be displayed in connection with a television channel for which there is no corresponding context sensitive information which the broadcaster or network operator wishes to provide access. In other words, the TV Assistant 10 is displayed in a basic form as an informational overly with basic information about the current channel (e.g., channel number, broadcaster call letters, etc.) and the lower content bar 20.

[0077] When the viewer changes channels to a channel for which there is context sensitive information which the broadcaster or network operator wishes to provide access to, however, the content displayed within TV Assistant 10 changes, as shown in **Figure 5B**. In this example, a more advanced interface is presented with broadcaster specific content displayed in the content area 14. For example, news and weather interactive content services may be made available to the viewer via the TV Assistant user interface. Rather than being presented as text highlights as in the previous examples, in this case such interactive content is signaled using graphical elements such as tiles 80, which can be selected by a viewer using a remote control similar to the way in which one might use a computer's cursor control device to select a hyperlink displayed in a web browser. In this way, the TV Assistant user interface may extend the television broadcast content by presenting an interactive content area that includes time or context sensitive messages or other items (e.g., in the form of a tiled grid or as textual references) based on business rules such as time of day, channel selected, and so on. This

presents viewers with additional opportunities to select on-demand content supplemental to the broadcast or promoted by the broadcaster, programmer, advertiser or network operator.

[0078] Thus, an interactive user interface for television applications has been described. Content for display through the TV Assistant application is retrieved and packaged for delivery using the TV Assistant server 30. The data package is delivered via various protocols including TCP/IP or out-of-band broadcast to populate the content area 14 of the on-screen menu. Selecting any sub category, e.g., News, Sports, Weather, of main menu 12 changes the displayed content to that topic. Selecting the "GO" button 16 drives the user to the related page in the walled garden for more information on that particular headline / item.

CLAIMS

What is claimed is:

1. A content collection, distribution and display system, comprising:

a server component configured to (i) capture content for display to a television viewer by harvesting data from multiple data sources according to content collection rules specified in a configuration file that identifies locations from which the content can be harvested, and (ii) produce a set of data files that include the harvested data, business rules and display rules for such data;

a distribution component coupled to receive the data files produced by the server component and to transmit the data files to a receiver utilizing a transmission channel; and

a client component configured to receive the data files via the transmission channel and to populate a user interface, displayable to the television viewer simultaneously with other television programming via the receiver, with the harvested data as formatted data subject to the business rules and display rules.

2. A content collection, distribution and display system as in claim 1, wherein the user interface includes a menu area that provides access to a variety of services into which the content can be categorized and a content display area in which those portions of the formatted data associated with a selected menu service are displayed to the television viewer.

3. A content collection, distribution and display system as in claim 2, wherein content otherwise not associated with the selected menu service is displayed in the content display area.

4. A content collection, distribution and display system as in claim 3, wherein one or more of the individual content items displayed in the content display area of the user interface comprise advertisements and/or promotions.

5. A content collection, distribution and display system as in claim 4, wherein the individual content items and/or advertisements and/or promotions are linked to other applications.

6. A content collection, distribution and display system as in claim 5, wherein the advertisements and/or promotions are displayed prior to a linked application being executed.

7. A content collection, distribution and display system as in claim 4, wherein at least one of the advertisements and/or promotions is displayed in the content display area after all individual content items of a selected menu service have been so displayed and before other individual content items of another of the menu services are displayed.

8. A content collection, distribution and display system as in claim 4, wherein one or more of the advertisements are linked to a service within an interactive television service.

9. A content collection, distribution and display system as in claim 4, wherein one or more of the promotions are linked to an interactive capability to self-provision a service related to the one or more promotions.

10. A content collection, distribution and display system as in claim 2, wherein the portions of the formatted data associated with a selected menu service are displayed in the content display area of the user interface in a rotating fashion such that individual content items are displayed for configurable periods of time and then automatically replaced with new content items.

11. A content collection, distribution and display system as in claim 2, wherein the variety of services include one or more of: video on demand services, game services, television programming related content services, managed content services, special interest services, self-provisioning services, chat services, email services, and television programming guide services.

12. A content collection, distribution and display system as in claim 11, wherein displayed categories and services change dynamically as new services are introduced and/or new business rules are defined by a network operator.

13. A content collection, distribution and display system as in claim 2, wherein the user interface further includes a content user interface component that displays designated content regardless of what information is displayed in the content display area.

14. A content collection, distribution and display system as in claim 13, wherein the designated content comprises date, time, temperature, channel, and/or program information.

15. A content collection, distribution and display system as in claim 2, wherein the services are navigable via a control path associated with the receiver.

16. A content collection, distribution and display system as in claim 15, wherein the receiver comprises a set-top box unit and the control path comprises a remote control unit for the set-top box unit.

17. A content collection, distribution and display system as in claim 1, wherein the formatted data is displayable via the user interface in both a passive mode, in which the formatted data is displayed in a sequence independent of any selection operations by the television viewer, and active mode, in which the formatted data is displayed in a sequence that depends on selection operations by the television viewer.

18. A content collection, distribution and display system as in claim 1, wherein the formatted data is displayable via the user interface according to categories into which the formatted data is organized.

19. A content collection, distribution and display system as in claim 18, wherein the categories include one or more of: news, weather, sports, entertainment, money/finance, travel, special interest, demographic, world, national, regional, and local information.

20. A content collection, distribution and display system as in claim 18, wherein the formatted data is displayable as individual content items within each of the categories for a configurable period of time on a rotating basis.

21. A content collection, distribution and display system as in claim 20, wherein each individual content item of a category is displayed prior to content items of other categories being displayed.

22. A content collection, distribution and display system as in claim 21, wherein interstitial advertising and/or promotional content items are displayed between content items of different categories.

23. A user interface for interactive television services, comprising:

a navigable menu area through which a user can select from among a variety of interactive television services; and

an information content area through which content pieces delivered to a television on which the user interface is displayed are displayed in ticker fashion, with advertisements and/or promotions interspersed among the content items.

24. A user interface for interactive television services as in claim 23, wherein the navigable menu area and the information content area are displayed at the same time as television programming is displayed on the television.

25. A user interface for interactive television services as in claim 24, wherein the content pieces are organized into categories and one or more of the advertisements and/or promotions are displayed between content pieces of different categories.

26. A user interface for interactive television services as in claim 25, wherein the categories include news, sports, weather, entertainment, money/finance, travel, special interest, demographic, world, national, regional, and local information.

27. A user interface for interactive television services as in claim 25, wherein the content pieces are displayed according to user selection of one of the categories.

28. A user interface for interactive television services as in claim 24, wherein the content pieces, advertising and promotions comprise text, graphics and/or video organized in the form of tiles.

29. A user interface for interactive television services as in claim 24, wherein the content pieces are displayed as individual content items within each of a number of categories for a configurable period of time on a rotating basis.

30. A user interface for interactive television services as in claim 29, wherein each individual content piece of a category is displayed prior to content pieces of other categories being displayed.

31. A user interface for interactive television services as in claim 30, wherein interstitial advertising and/or promotional content items are displayed between content pieces of different categories.

32. A user interface for interactive television services as in claim 23, wherein the content pieces and/or advertisements and/or promotions are linked to other applications.

33. A user interface for interactive television services as in claim 32, wherein the advertisements and/or promotions are displayed prior to a linked application being executed.

34. A user interface for interactive television services as in claim 24, wherein the navigable menu areas include one or more of: video on demand services, game services, television programming related content services, managed content services, special interest services, self-provisioning services, chat services, email services, and television programming guide services.

35. A user interface for interactive television services as in claim 34, wherein communication alerts are displayed via the user interface.

36. A user interface for interactive television services as in claim 24, wherein the communication alerts comprise e-mail alerts.

37. A user interface for interactive television services as in claim 24, further comprising a designated content display area in which selected content is continually displayed regardless of the information displayed in the information content area.

38. A user interface for interactive television services as in claim 37, wherein the selected content comprises time, date, temperature, channel and/or program information.

39. A user interface for interactive television services as in claim 24, wherein the navigable menu area is automatically updateable according to interactive television services offered by a network operator.

40. A user interface for interactive television services as in claim 24, wherein the content pieces, advertising and promotions are delivered according to configurable business rules defining content distribution across a network.

41. A user interface for interactive television services as in claim 24, wherein the content pieces, advertising and promotions are organized according to configurable business rules to dynamically control the content and preferred placement of elements of content, including tiles, within displayed categories

42. A user interface for interactive television services as in claim 41, wherein the business rules are configured according to time of day, television channel, channel content, preferred placement, viewer demographic, viewer behavior, navigation context and/or content category.

43. A user interface for interactive television services as in claim 24, further comprising a network operator branding area through which network operator specified content is displayable.

44. A method, comprising:

receiving television programming and formatted data representing content items; and

displaying simultaneously (i) an interactive menu through which the content items are displayed in ticker fashion and interactive television services can be accessed, and (ii) the television programming.

45. A method as in claim 44, wherein the television programming is displayed in a scaled or overlay format.

46. A method as in claim 44, wherein the content items are categorized and all content items of a first of the categories are displayed before content items of a second of the categories.

47. A method as in claim 44, wherein the content items are categorized and each category is user selectable.

48. A method as in claim 47, wherein the categories include one or more of: news, weather, sports, entertainment, money/finance, travel, special interest, demographic, world, national, regional, and local information.

49. A method as in claim 44, wherein one or more of the content items comprise advertisements and/or promotions.

50. A method as in claim 49, wherein the content items are displayed by category and at least one of the advertisements and/or promotions is displayed after all content items of a first category have been displayed and before content items of another category are displayed.

51. A method as in claim 49, wherein interstitial advertising and/or promotional content items are displayed between content items of different categories.

52. A method as in claim 49, wherein the individual content pieces and/or advertising and/or promotional content items are linked to other applications.

53. A method as in claim 52, wherein interstitial advertising and/or promotional content items are displayed prior to the linked applications being executed.

54. A method as in claim 44, wherein the interactive television services include one or more of: video on demand services, game services, television programming related content services, managed content services, special interest services, self-provisioning services, chat services, email services, and television programming guide services.

55. A method as in claim 54, wherein the interactive menu further displays date, time, temperature, channel and/or program information.

56. A method as in claim 44, wherein the ticker fashion includes a passive mode, in which the formatted data is displayed in a sequence independent of any selection operations by a television viewer, and active mode, in which the formatted data is displayed in a sequence that depends on selection operations by the television viewer.

57. A method as in claim 44, wherein the formatted data is periodically updated.


NetOp
ITV
Games
Guide
VOD
News
Local
Sports
Weather
American League
Boston 8
New York 2
F
GO
HELP
Back to TV
01:50p Sat 17 Jul | 68F
18
12
14
16
26
22
10
28
24
20

Fig. 1A

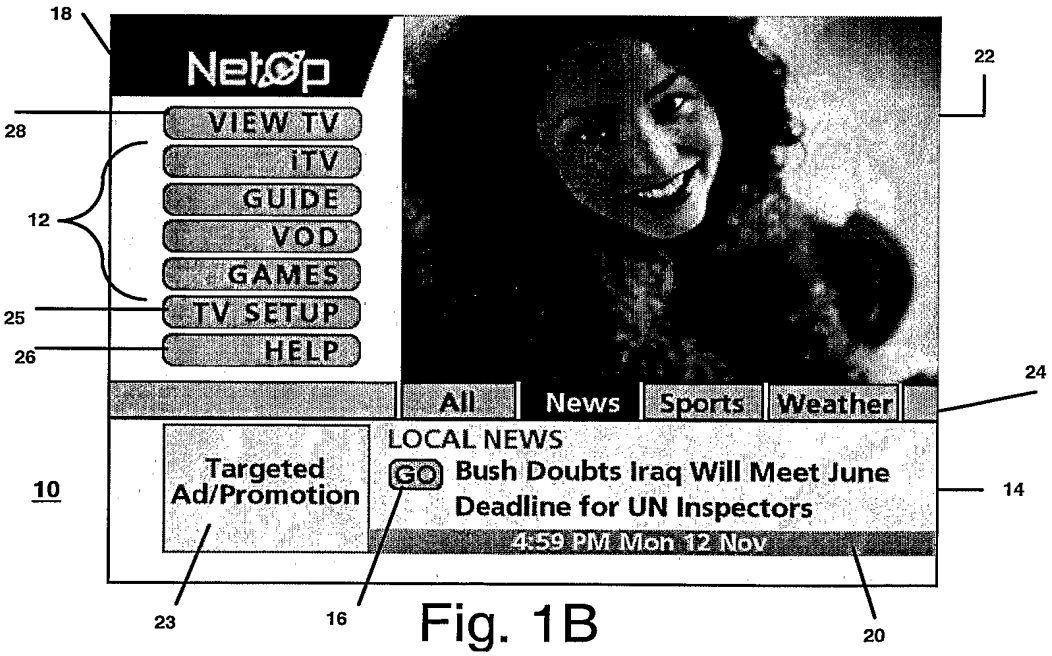

NetOp
VIEW TV
iTV
GUIDE
VOD
GAMES
TV SETUP
HELP
All
News
Sports
Weather
Targeted Ad/Promotion
LOCAL NEWS
GO
Bush Doubts Iraq Will Meet June Deadline for UN Inspectors
4:59 PM Mon 12 Nov
18
22
28
12
25
26
24
10
14
23
16
20

Fig. 1B

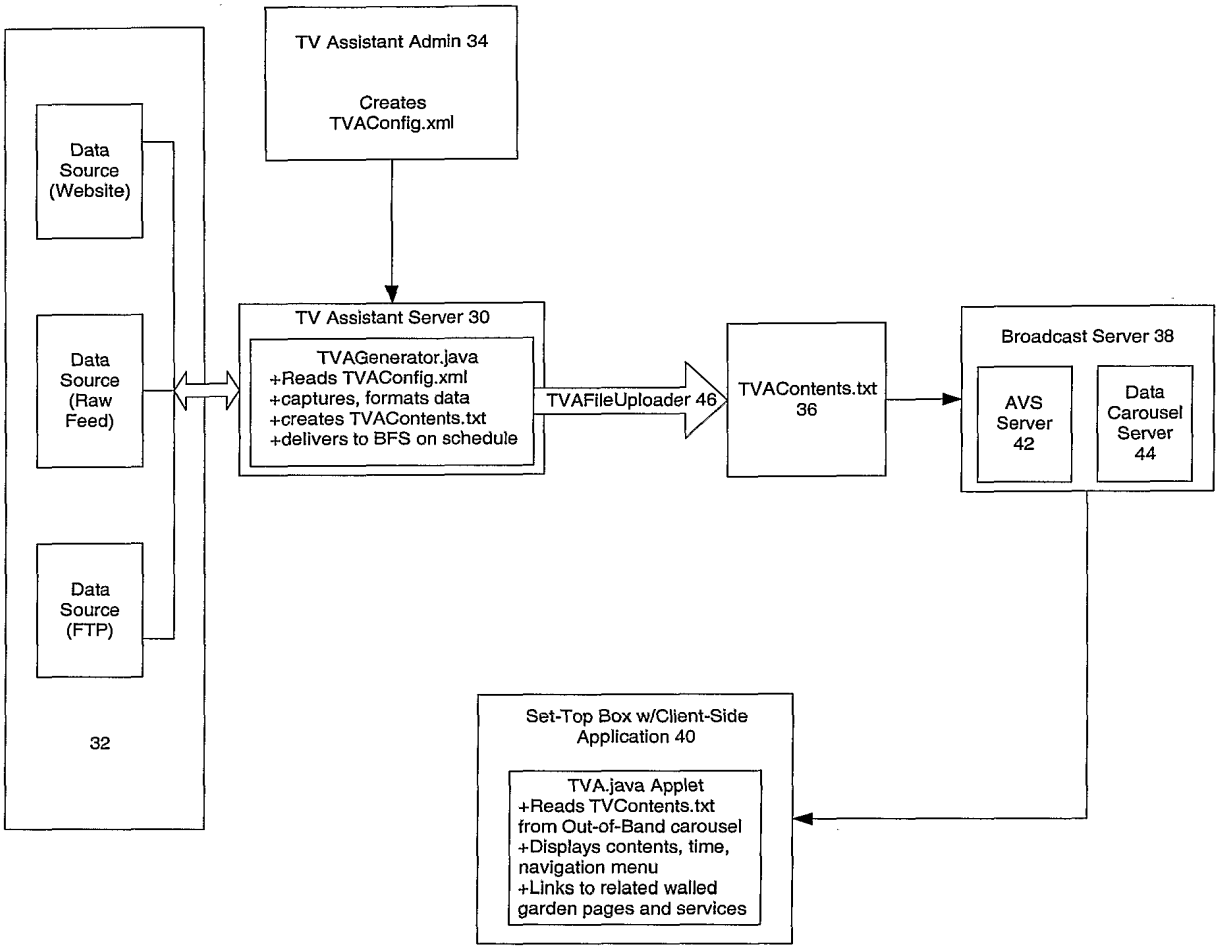

TV Assistant Admin 34
Creates TVAConfig.xml
Data Source (Website)
Data Source (Raw Feed)
Data Source (FTP)
32
TV Assistant Server 30
TVAGenerator.java
+Reads TVAConfig.xml
+captures, formats data
+creates TVAContents.txt
+delivers to BFS on schedule
TVAFileUploader 46
TVAContents.txt 36
Broadcast Server 38
AVS Server 42
Data Carousel Server 44
Set-Top Box w/Client-Side Application 40
TVA.java Applet
+Reads TVContents.txt from Out-of-Band carousel
+Displays contents, time, navigation menu
+Links to related walled garden pages and services

Fig. 2

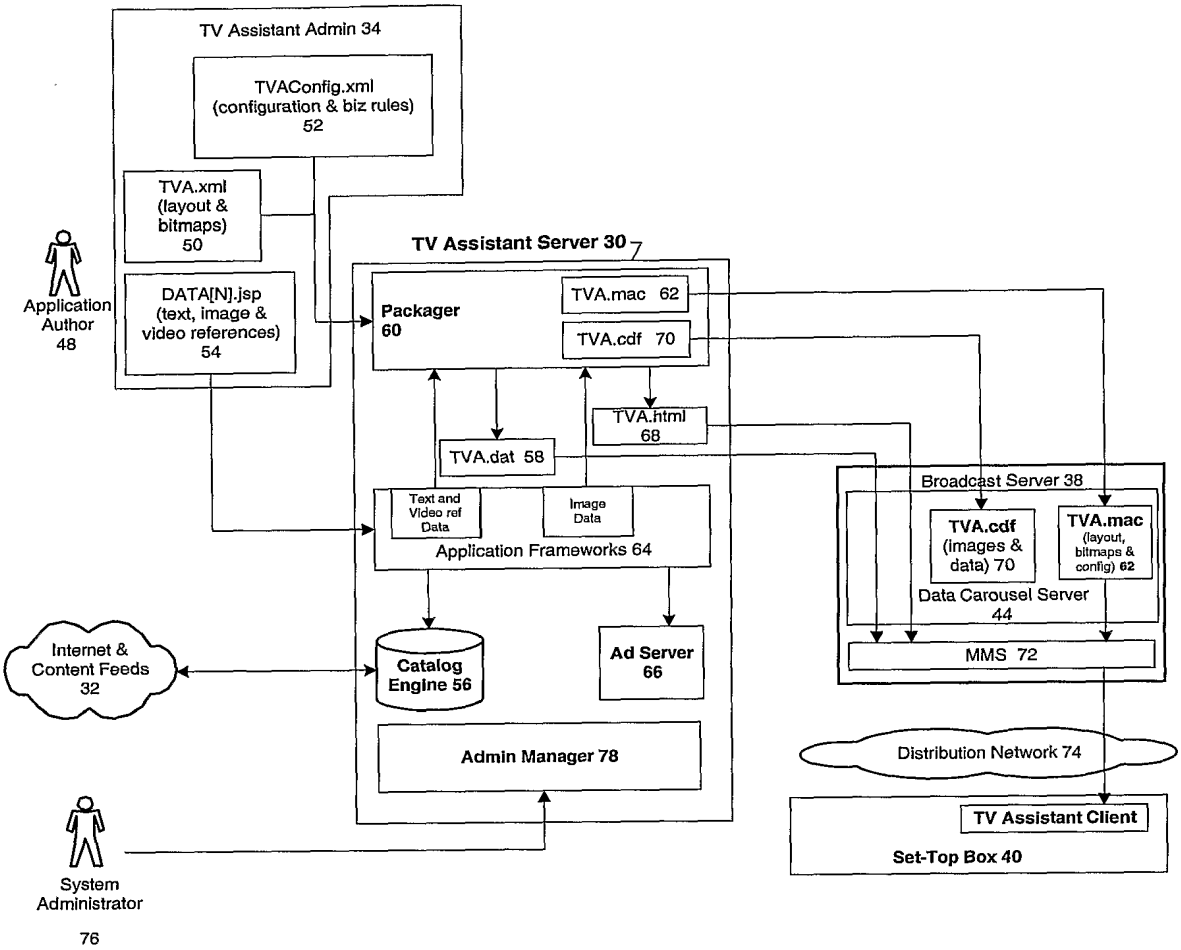

TV Assistant Admin 34
TVAConfig.xml (configuration & biz rules) 52
TVA.xml (layout & bitmaps) 50
DATA[N].jsp (text, image & video references) 54
Application Author 48
TV Assistant Server 30
Packager 60
TVA.mac 62
TVA.cdf 70
TVA.html 68
TVA.dat 58
Text and Video ref Data
Image Data
Application Frameworks 64
Catalog Engine 56
Ad Server 66
Admin Manager 78
Internet & Content Feeds 32
System Administrator 76
Broadcast Server 38
TVA.cdf (images & data) 70
TVA.mac (layout, bitmaps & config) 62
Data Carousel Server 44
MMS 72
Distribution Network 74
TV Assistant Client
Set-Top Box 40

Fig. 3

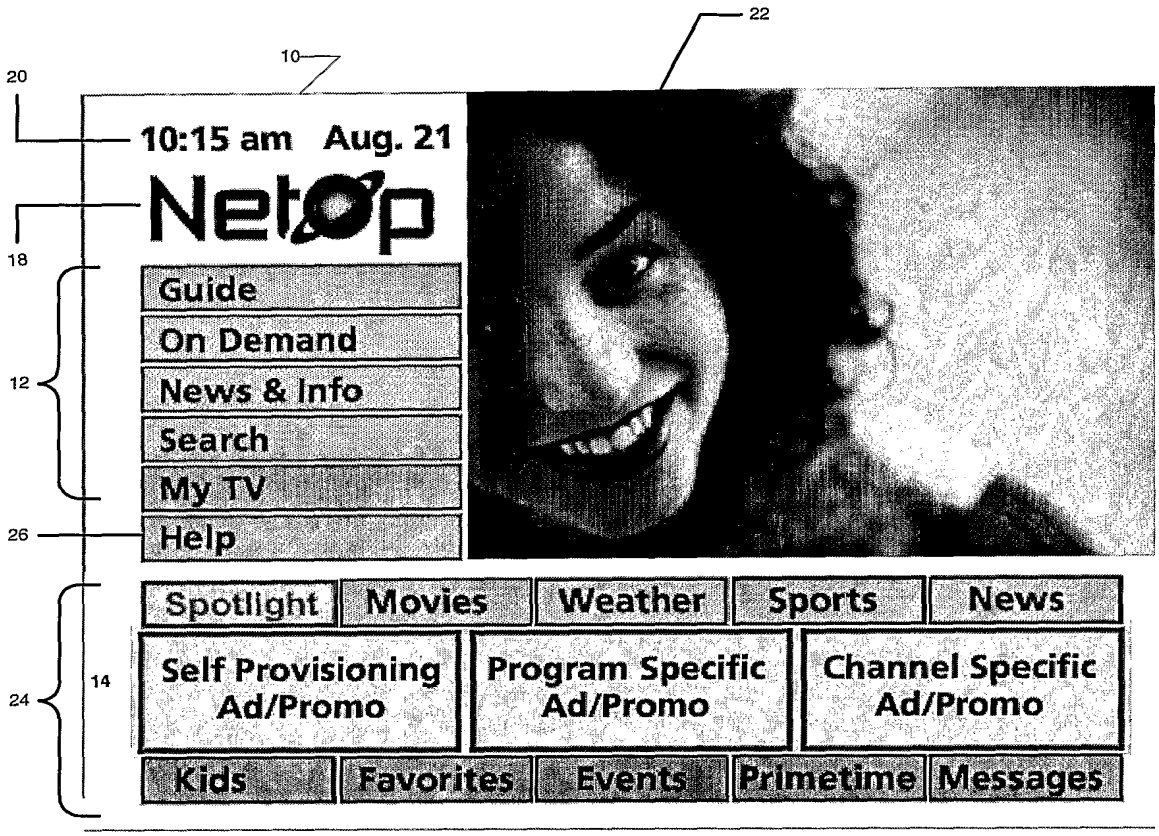

22
10
20
10:15 am Aug. 21
NetOp
18
Guide
On Demand
News & Info
12
Search
My TV
26
Help
Spotlight
Movies
Weather
Sports
News
Self Provisioning Ad/Promo
Program Specific Ad/Promo
Channel Specific Ad/Promo
24
14
Kids
Favorites
Events
Primetime
Messages

Fig. 4A

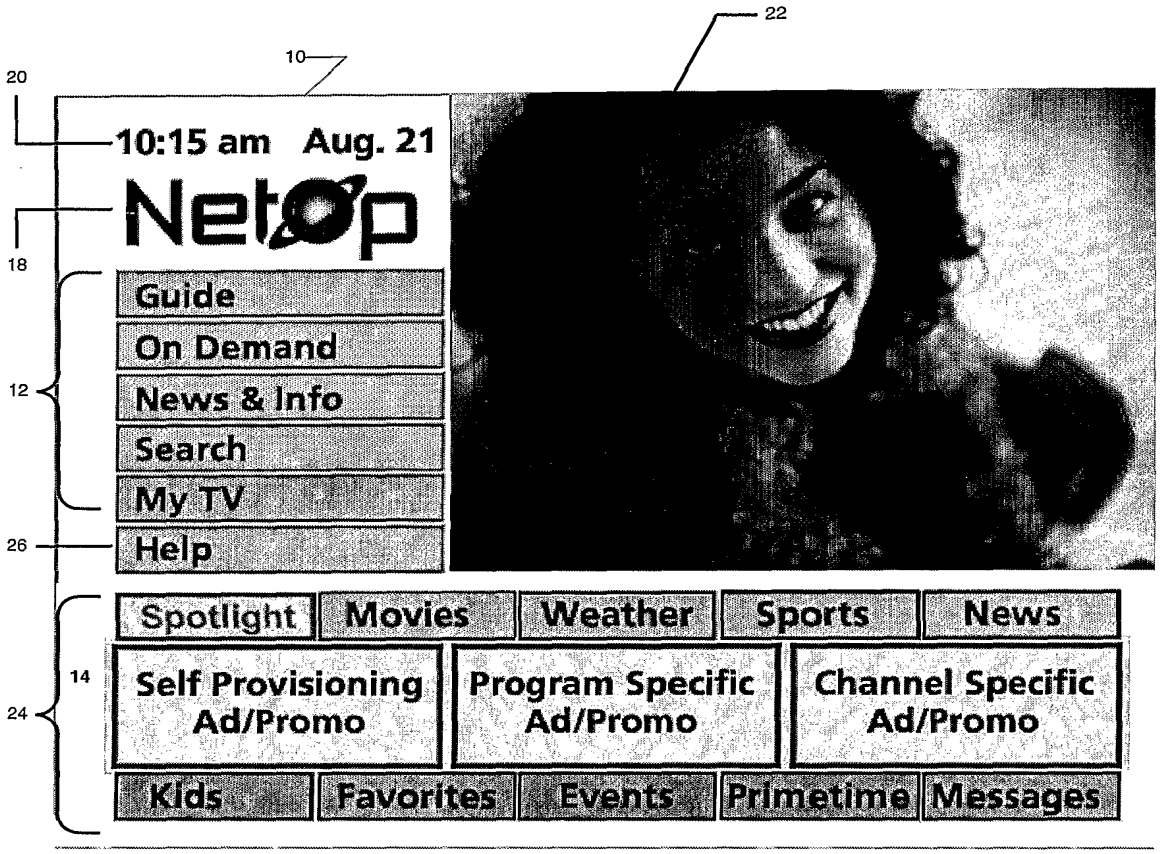

22
10
20
10:15 am Aug. 21
NetOp
18
Guide
On Demand
12
News & Info
Search
My TV
26
Help
Spotlight
Movies
Weather
Sports
News
14
Self Provisioning Ad/Promo
Program Specific Ad/Promo
Channel Specific Ad/Promo
24
Kids
Favorites
Events
Primetime
Messages

Fig. 4B

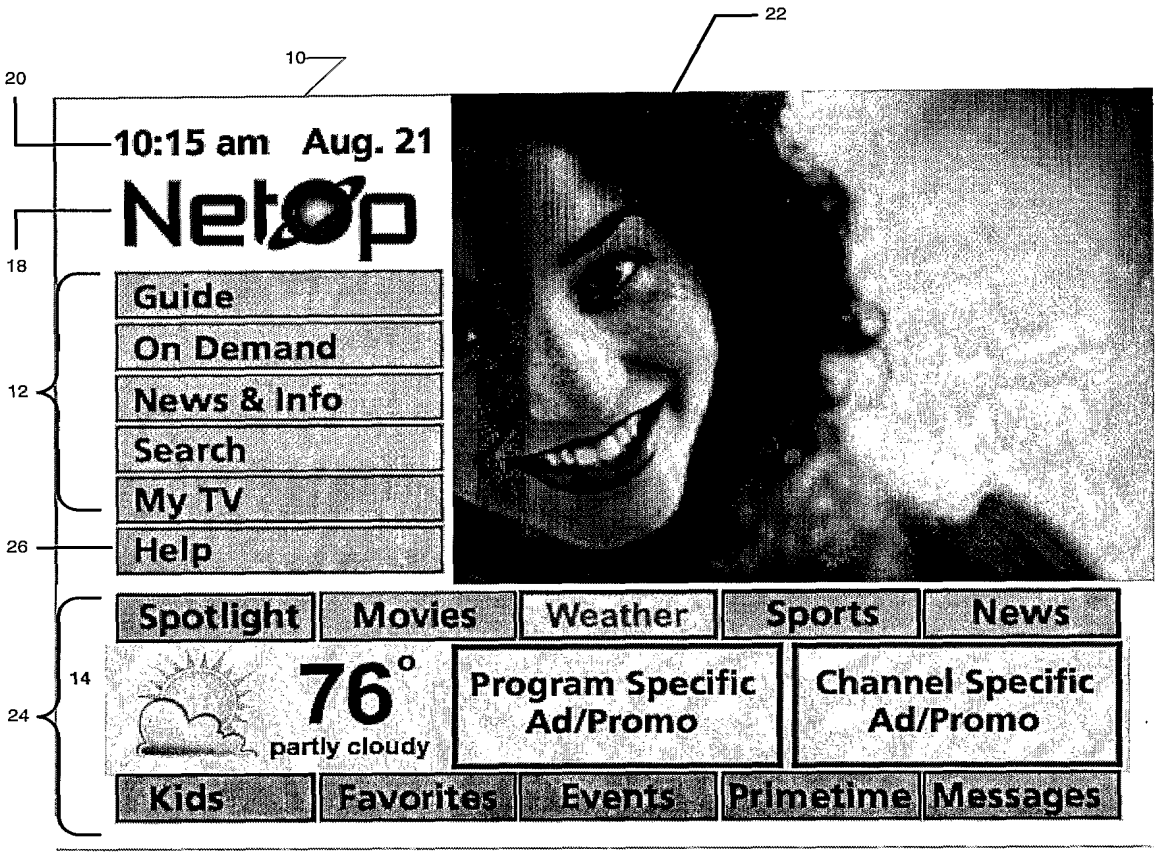

22
10
20
10:15 am Aug. 21
NetOp
18
Guide
On Demand
12
News & Info
Search
My TV
26
Help
Spotlight
Movies
Weather
Sports
News
14
76°
partly cloudy
Program Specific Ad/Promo
Channel Specific Ad/Promo
24
Kids
Favorites
Events
Primetime
Messages

Fig. 4C

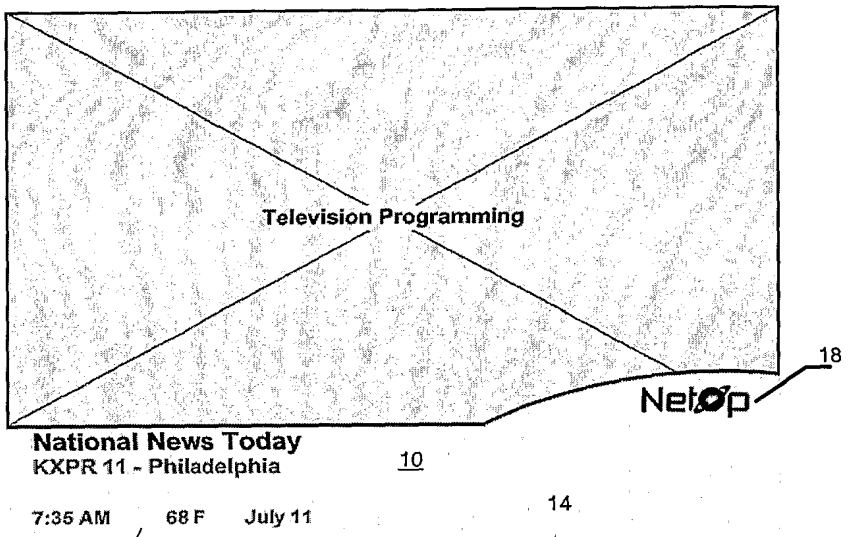

Television Programming
18
NetOp
National News Today
KXPR 11 - Philadelphia
10
7:35 AM
68 F
July 11
14
20

Fig. 5A

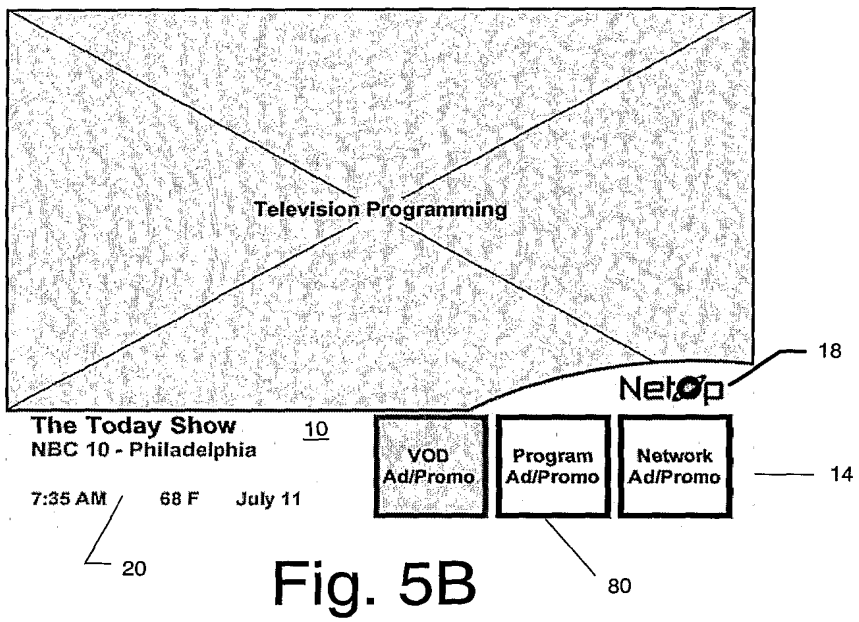

Television Programming
18
NetOp
The Today Show
NBC 10 - Philadelphia
10
VOD Ad/Promo
Program Ad/Promo
Network Ad/Promo
14
7:35 AM
68 F
July 11
20
80

Fig. 5B

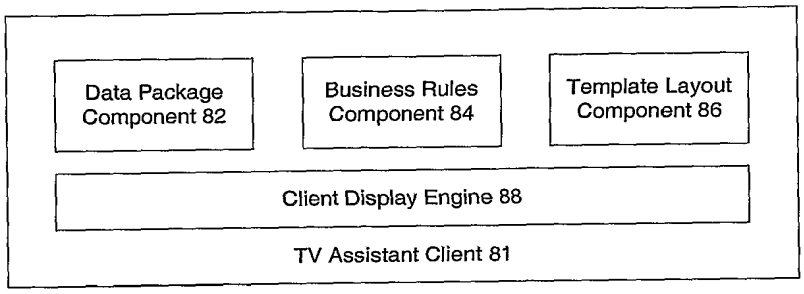

Data Package Component 82
Business Rules Component 84
Template Layout Component 86
Client Display Engine 88
TV Assistant Client 81

Fig. 6

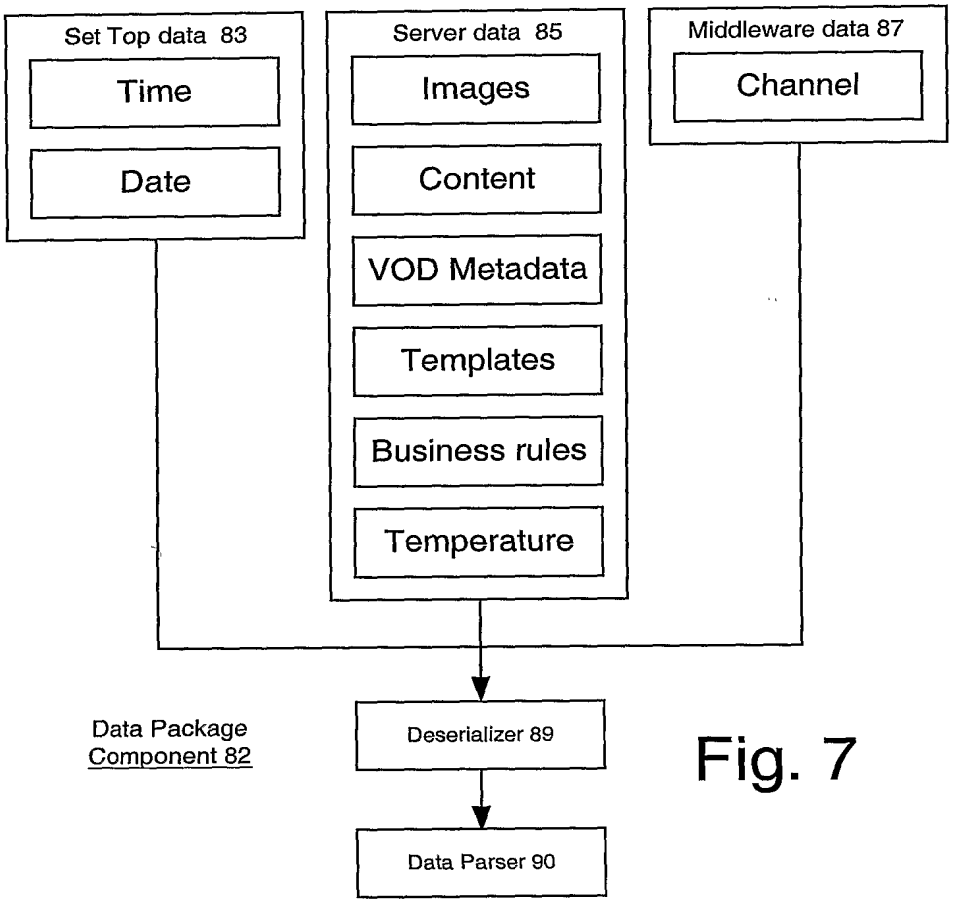

Set Top data 83
Time
Date
Server data 85
Images
Content
VOD Metadata
Templates
Business rules
Temperature
Middleware data 87
Channel
Data Package Component 82
Deserializer 89
Data Parser 90

Fig. 7

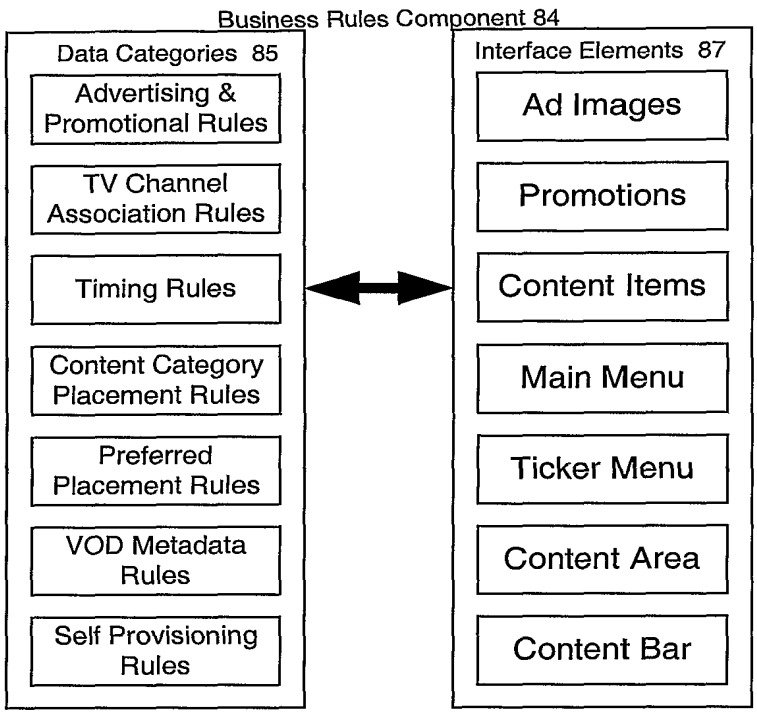

Business Rules Component 84
Data Categories 85
Advertising & Promotional Rules
TV Channel Association Rules
Timing Rules
Content Category Placement Rules
Preferred Placement Rules
VOD Metadata Rules
Self Provisioning Rules
Interface Elements 87
Ad Images
Promotions
Content Items
Main Menu
Ticker Menu
Content Area
Content Bar

Fig. 8

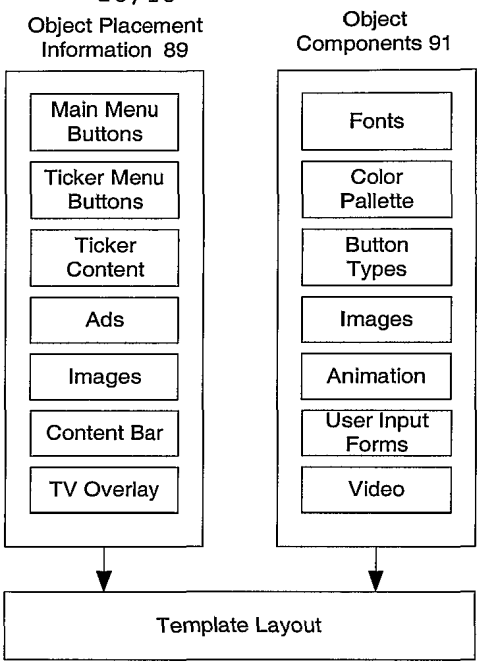

Object Placement Information 89
Main Menu Buttons
Ticker Menu Buttons
Ticker Content
Ads
Images
Content Bar
TV Overlay
Object Components 91
Fonts
Color Pallette
Button Types
Images
Animation
User Input Forms
Video
Template Layout

Fig. 9

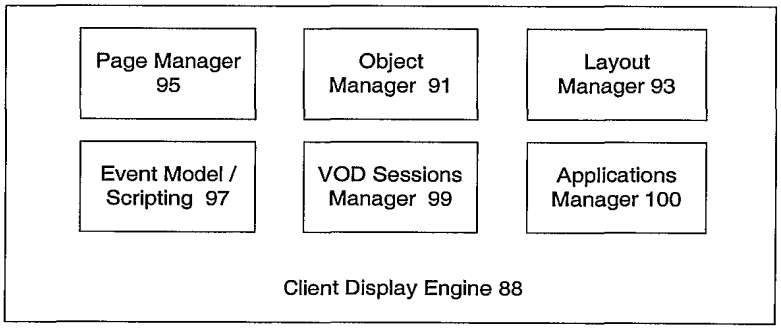

Page Manager 95
Object Manager 91
Layout Manager 93
Event Model / Scripting 97
VOD Sessions Manager 99
Applications Manager 100
Client Display Engine 88

Fig. 10

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(71) Applicant *(for all designated States except US)*: **INTERACTUAL TECHNOLOGIES, INC.** [US/US]; 100 Century Center Court #200, San Jose, CA 95112 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **LAMKIN, Allan** [US/US]; 4282 Farley Lane, San Diego, CA 92122 (US). **GEWICKEY, Greg** [US/US]; 820 McKinley Street, Silver City, NM 88061 (US). **COLLART, Todd** [US/US]; 206 Arbuelo Way, Los Altos, CA 94022 (US).

(74) Agents: **SAMPLES, Kenneth, H.** et al.; Fitch, Even, Tabin & Flannery, Suite 1600, 120 South LaSalle Street, Chicago, IL 60603 (US).

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(54) Title: PERSONALIZATION SERVICES FOR ENTITIES FROM MULTIPLE SOURCES

(57) Abstract: A method comprising receiving a request for content; searching for a plurality of entities in response to the received request, the plurality of entities each having entity metadata associated therewith; and creating a collection, the collection comprises the plurality of entities and collection metadata. A data structure embodied on a computer readable medium comprising a plurality of entities; entity metadata describing each of the plurality of entities; a collection containing each of the plurality of entities; and collection metadata describing the collection.

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PERSONALIZATION SERVICES FOR ENTITIES FROM MULTIPLE SOURCES

FIELD OF THE INVENTION

The present invention relates to the presentation of multimedia entities, and more particularly to the presentation of locally stored media entities and/or with remotely obtained network media entities, that is modified according to a viewer's preferences or entities owner's criteria. In addition the present invention relates to the process of acquiring new multimedia entities for playback.

BACKGROUND OF THE INVENTION

In marketing, many things have been long recognized as aiding success, such as increasing customer satisfaction through such devices as providing personalized service, fast service, access to related or updated information, etc. Traditional marketing has made use of such things as notice of promotional offers for related products such as providing coupons, for related products etc. Additionally, some studies have shown that simple repeated brand exposure, such as by advertisement, increases recognition and sales.

One of the largest marketing industries today is the entertainment industry and related industries. Digital versatile disks (DVDs) are poised to dominate as the delivery media of choice for the consumer sales market of the home entertainment industry, business computer industry, home computer industry, and the business information industry with a single digital format, eventually replacing audio CDs, videotapes, laserdiscs, CD-ROMs, and video game cartridges. To this end, DVD has widespread support from all major electronics companies, all major computer hardware companies,

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and all major movie and music studios. In addition, new computer readable medium formats and disc formats such as High Definition DVD (HD-DVD), Advanced Optical Discs (AOD), and Blu-Ray Disc (BD), as well as new mediums such as Personal Video Recorders (PVR) and Digital Video Recorders (DVR) are just some of the future mediums under development. The integration of computers, the release of new operating systems including the Microsoft Media Center Edition of Windows XP, the upcoming release of the next Microsoft operating system due in 2005 and codenamed "Longhorn" and many other computer platforms that interface with entertainment systems are also entering into this market as well.

Currently, the fastest growing marketing and informational access avenue is the Internet. The share of households with Internet access in the U.S. soared by 58% in two years, rising from 26.2% in December 1998 to 41.5% in August 2000 (Source: Falling Through the Net: Toward Digital Inclusion by the National Telecommunications and Information Administration, October 2000).

However, in the DVD-video arena, little has been done to utilize the vast power for up-to-date, new, and promotional information accessibility to further the aims of improving marketability and customer satisfaction

Additionally, content is generally developed for use on a particular type of system. If a person wishes to view the content but does not have the correct system, the content may be displayed poorly or may not be able to be displayed at all. Accordingly, improvements are needed in a way that content is stored, located, distributed, presented and categorized.

SUMMARY OF THE INVENTION

One present embodiment advantageously addresses the needs mentioned previously as well as other needs by providing

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services that facilitates the access and use of related or updated content to provide augmented or improved content with playback of content. Another embodiment additionally provides for the access and use of entities for the creation, modification and playback of collections.

One embodiment can include a method comprising receiving a request for content; searching for a plurality of entities in response to the received request, the plurality of entities each having entity metadata associated therewith; and creating a collection, the collection comprising the plurality of entities and collection metadata. Alternatively, the method can further include locating the plurality of entities; analyzing the entity metadata associated with each of the plurality of entities; and downloading only the entities that meet a set of criteria.

An alternative embodiment can include a data structure embodied on a computer readable medium comprising a plurality of entities; entity metadata associated with each of the plurality of entities; and a collection containing each of the plurality of entities, the collection comprising collection metadata for playback of the plurality of entities.

Yet another embodiment can include a method comprising receiving a request for content; creating a collection comprising a plurality of entities meant for display with a first system and at least one entity meant for display on a second system; and outputting the collection comprising the plurality of entities meant for display on the first system and the at least one entity meant for display on the second system to the first system.

Another alternative embodiment can include a method comprising receiving a request for content; searching for a plurality of entities in response to the received request, the plurality of entities each having entity metadata associated

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therewith; and creating a collection comprising the plurality of entities, the collection having collection metadata.

Still another embodiment can include a method for searching for content comprising the steps of receiving at least one search parameter; translating the search parameter into a media identifier; and locating the content associated with the media identifier. Optionally, the content is a collection comprising a plurality of entities, the method further comprising determining one of the plurality of entities can not be viewed; and locating an entity for replacing the one of the plurality of entities that can not be viewed.

One optional embodiment includes a system for locating content comprising a playback runtime engine for constructing a request from a set of search parameters; a collection name service for translating the request into a collection identifier; and a content search engine for searching for content associated with the collection identifier.

Another embodiment can be characterized as a method comprising receiving a request for content; searching for a plurality of entities in response to the received request, the plurality of entities each having entity metadata associated therewith; creating a first group of entities that meet the received request, each entity within the first group of entities having entity metadata associated therewith; comparing the first group of entities that meet the received request or the associated entity metadata to a user profile; and creating a collection comprising at least one entity from the first group of entities.

Yet another embodiment can be characterized as a system comprising a plurality of devices connected via a network; a plurality of shared entities located on at least one of the plurality of devices; and a content management

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system located on at least one of the plurality of devices for creating a collection using at least two of the plurality of shared entities.

Still another embodiment can be characterized as a method of modifying a collection comprising analyzing metadata associated with the collection; and adding at least one new entity to the collection based upon a set of presentation rules.

Another preferred embodiment can be characterized as a method of displaying content comprising providing a request to a content manager, the request including a set of criteria; searching for a collection that at least partially fulfills the request, the collection including a plurality of entities; determining which of the plurality of entities within the collection do not meet the set of criteria; and searching for a replacement entity to replace one of the plurality of entities within the collection that do not meet the set of criteria.

Another embodiment includes a method of modifying an entity, the entity having entity metadata associated therewith, comprising the steps of comparing the entity or the entity metadata with a set of presentation rules; determining a portion of the entity that does not meet the set of presentation rules; and removing the portion of the entity that does not meet the set of presentation rules.

Yet another embodiment can be characterized as a collection embodied on a computer readable medium comprising a digital video entity; an audio entity, for providing an associated audio for the digital video; a menu entity, for providing interactivity points within or associated with the digital video; and collection metadata for defining the playback of the digital video entity, the audio entity, and the menu entity.

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Still another embodiment can be characterized as a method of downloading streaming content comprising downloading a first portion of the streaming content; downloading a second portion of the steaming content while the first portion of the streaming content is also downloading; outputting the first portion of the steaming content for display on a presentation device; and outputting the second portion of the steaming content for display on a presentation device after outputting the first portion of the steaming content; wherein a third portion of the steaming content originally positioned in between the first portion of the steaming content and the second portion of the steaming content is not output for display on a presentation device.

In one embodiment, the invention can be characterized as an integrated system for combining web or network content and local content (either on disc or cached) comprising a display; a computing device operably coupled to a local media, a network and the display, the computing device at least once accessing data on the network, the computing device comprising: a storage device, a presentation rendering device such as a browser having a presentation engine displaying content on the display, an application programming interface residing in the storage device, a decoder at least occasionally processing content received from the local media and producing media content substantially suitable for display on the display, and a navigator coupled to the decoder and the application programming interface, the navigator facilitating user or network-originated control of the playback of the local media, the computing device receiving network content from the network and combining the network content with the media content, the presentation engine displaying the combined network content and media content on the display.

In one exemplary embodiment, the network content may be transferred over a network that supports Universal Plug and

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Play (UPnP) or other methodology for connecting devices on a network. The UPnP standard brings the PC peripheral Plug and Play concept to the home network. Devices that are plugged into the network are automatically detected and configured. In this way new devices such as an Internet gateway or media server containing content can be added to the network and provide additional access to content to the system. The UPnP architecture is based on standards such as TCP/IP, HTTP, and XML. UPnP can also run over different networks such as IP stack based networks, phone lines, power lines, Ethernet, Wireless (RF), and IEEE 1394 Firewire. UPnP devices may also be used as the presentation device as well. Given this technology and others such as Bluetooth, Wifi 802.11a/b/g etc. the various blocks in the systems do not need to be contained in one device, but are optionally spread out across a network of various devices each performing a specific function.

In another embodiment, using REBOL (Relative Expression-Based Object Language) and IOS creates a distributed network where systems can share media. REBOL is not a traditional computer language like C, BASIC, or Java. Instead, REBOL was designed to solve one of the fundamental problems in computing: the exchange and interpretation of information between distributed computer systems. REBOL accomplishes this through the concept of relative expressions. Relative expressions, also called "dialects", provide greater efficiency for representing code as well as data, and are REBOL's greatest strength. The ultimate goal of REBOL is to provide a new architecture for how information is stored, exchanged, and processed between all devices connected over the Internet. IOS provides a better approach to group communications. IOS goes beyond email, the web, and Instant Messaging (IM) to provide real-time electronic interaction, collaboration, and sharing. IOS opens a private, noise-free channel to other nodes on the network.

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In another embodiment, the invention can be characterized as a method comprising: a) receiving a removable media; b) checking if said removable media supports media source integration; c) checking if said removable media source is a specific type (such as DVD) responsive to said removable media supporting source integration; d) checking whether said device is in a movie mode or a system mode responsive to said removable media being a DVD; e) launching standard playback and thereafter returning to said step (a) responsive to said device being in said movie mode; f) checking if said device has a default player mode of source integration when said device is in said system mode; g) launching standard playback and thereafter returning to said step (a) responsive to said device not having a default player mode of source integration; h) checking if said removable media contains a device-specific executable program when said device having a default player mode of source integration; i) executing said device-specific executable program when said device has said device-specific executable program and thereafter returning to said step (a); j) checking whether said device has a connection to a remote media source; k) launching a default file (or other specific portion) from said removable media when said device does not have a remote media source connection and thereafter returning to said step (a); l) checking whether said remote media source has content relevant to said removable media; m) displaying said relevant content when said relevant content exists and thereafter returning to said step (a); n) otherwise launching a default file (or other specific portion) from said removable media and thereafter returning to said step (a); o) returning to said step (f).

One embodiment of the present invention can be characterized as a method comprising receiving a request for content; searching for a plurality of entities in response to the received request, the plurality of entities each having

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entity metadata associated therewith; and creating a collection, the collection comprising the plurality of entities and collection metadata. These requests can be to local devices, to peripherals to the device, or to devices on a local/remote network, or the Internet. In addition, metadata can be optionally encrypted requiring specific decryption keys to unlock them for use.

Another embodiment of the present invention can be characterized as a data structure embodied on a computer readable medium comprising a plurality of entities; entity metadata describing each of the plurality of entities; a collection containing each of the plurality of entities; and collection metadata describing the collection.

Yet another embodiment of present invention can be characterized as a system comprising receiving a request for content; creating a collection comprising a plurality of entities meant for display on a first type of presentation device; adding at least one entity meant for display on a second type of presentation device to the collection; and outputting the collection comprising the plurality of entities meant for display on the first type of presentation device and the at least one entity meant for display on the second type of presentation device to the first type of presentation device.

An alternative embodiment of the present invention can be characterized as a method comprising receiving a request for content; searching for a plurality of entities in response to the received request; creating a collection comprising the plurality of entities, the collection having collection metadata; and generating presentation rules for the entities base at least upon the collection metadata. This embodiment can further comprise outputting the collection to a presentation device based upon the generated presentation rules.

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Yet another alternative embodiment of the present invention can include a method comprising receiving a request for content; searching for a plurality of entities in response to the received request, the plurality of entities each having entity metadata; comparing a user profile to the entity metadata for each of the plurality of entities; and creating a collection comprising the plurality of entities base at least upon the comparison of the user profile to the entity metadata.

In an alternative embodiment the present invention includes a system comprising a plurality of computers connected via a network; a plurality of shared entities located on at least one of the plurality of computers; and a content management system located on at least one of the plurality of computers for creating a collection using at least two of the plurality of shared entities.

Another alternative embodiment of the present invention includes a method of modifying an existing collection comprising analyzing metadata associated with the existing collection; and adding at least one new entity to the existing collection based upon a system profile. In another embodiment, the method can further comprise removing at least one entity from the existing collection, wherein the added entity takes the place of the removed entity.

Yet another embodiment includes a method of displaying a context sensitive interactive menu comprising the steps of outputting content to a display device; receiving a request to display a menu; deriving the context sensitive menu from the current content being output; and outputting the context sensitive menu to the display device.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and other aspects, features and advantages of the present invention will be more apparent from the

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following more particular description thereof, presented in conjunction with the following drawings wherein:

FIG. 1 is a block diagram illustrating a hardware platform including a playback subsystem, presentation engine, entity decoders, and a content services module;

FIG. 2 is a diagram illustrating a general overview of a media player connected to the Internet according to one embodiment;

FIG. 3 is a block diagram illustrating a plurality of components interfacing with a content management system in accordance with one embodiment;

FIG. 4 is a block diagram illustrating a system diagram of a collection and entity publishing and distribution system connected to the content management system of FIG. 3;

FIG. 5 is a diagram illustrating a media player according to one embodiment;

FIG. 6 is a diagram illustrating a media player according to another embodiment;

FIG. 7 is a diagram illustrating an application programming system in accordance with one embodiment;

FIG. 8 is a conceptual diagram illustrating the relationship between entities, collections, and their associated metadata;

FIG. 9 is a conceptual diagram illustrating one example of metadata fields for one of the various entities;

FIG. 10 is a conceptual diagram illustrating one embodiment of a collection;

FIG. 11 is a diagram illustrating an exemplary collection in relation to a master timeline;

FIG. 12 is a block diagram illustrating a virtual DVD construct in accordance with one embodiment;

FIG. 13 is a diagram illustrating a comparison of a DVD construct as compared to the virtual DVD construct described with reference to FIG. 12;

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FIG. 14 is a block diagram illustrating a content management system locating a pre-define collection in accordance with an embodiment;

FIG. 15 is a block diagram illustrating a search process of the content management system of FIG. 14 for locating a pre-defined collection in accordance with one embodiment;

FIG. 16 is a block diagram illustrating a content management system creating a new collection in accordance with an embodiment;

FIG. 17 is a block diagram illustrating a search process of the content management system of FIG. 16 for locating at least one entity in accordance with one embodiment;

FIG. 18 is a block diagram illustrating a content management system publishing a new collection in accordance with an embodiment;

FIG. 19 is a block diagram illustrating a content management system locating and modifying a pre-define collection in accordance with an embodiment;

FIG. 20 is a block diagram illustrating a search process of the content management system of FIG. 19 for locating a pre-defined collection in accordance with one embodiment;

FIG. 21 is a block diagram illustrating an example of a display device receiving content from local and offsite sources according to one embodiment;

FIG. 22 is a block diagram illustrating an example of a computer receiving content from local and offsite sources according to one embodiment;

FIG. 23 is a block diagram illustrating an example of a television set-top box receiving content from local and offsite sources and according to one embodiment;

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FIG. 24 is a block diagram illustrating media and content integration according to one embodiment;

FIG. 25 is a block diagram illustrating media and content integration according to another embodiment;

FIG. 26 is a block diagram illustrating media and content integration according to yet another embodiment;

FIG. 27 is a block diagram illustrating one example of a client content request and the multiple levels of trust for acquiring the content in accordance with an embodiment;

FIG. 28 shows a general exemplary diagram of synchronous viewing of content according to one embodiment;

FIG. 29 is a block diagram illustrating a user with a smart card accessing content in accordance with an embodiment; and

FIG. 30 is a diagram illustrating an exemplary remote control according to an embodiment.

DETAILED DESCRIPTION OF THE DRAWINGS

The following description is not to be taken in a limiting sense, but is made merely for the purpose of describing the general principles of the invention. The scope of the invention should be determined with reference to the claims.

Metadata generally refers to data about data. A good example is a library catalog card, which contains data about the nature and location of the data in the book referred to by the card. There are several organizations defining metadata for media. These include Publishing Requirements for Industry Standard Metadata (PRISM http://www.prismstandard.org/), the Dublin CORE initiative (http://dublincore.org/), MPEG-7 and others. A system and method for metadata distribution to customize media content

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playback is described in United States Patent Publication No. 20030122966.

Metadata can be important on the web because of the need to find useful information from the mass of information available. Manually created metadata (or metadata created by a software tool where the user defines the points in the timeline of the audio and video and specifies the metadata terms and keywords) adds value because the manually created metadata ensures consistency. In one embodiment, metadata can be generated by the system described herein. Metadata can be used to create a relationship between web-pages about a particular topic. For example, webpage about a topic that contains within its metadata a word or phrase that relates to the topic, can be identified as topically related to other web pages about that topic when all web pages about that topic contain the same word within their metadata. Metadata can also ensure that variations in terminology are overcome. For example, if one topic has two or more names, terms or phrases that refer to the topic, each of these names will be used within the metadata of entities that relate to the topic. For example, an article about sports utility vehicles could also be given the metadata keywords '4 wheel drives', '4WDs' and 'four wheel drives', as this is what sports utility vehicles are known as, for example, in Australia.

As referred to herein, an entity is a piece of data that can be stored on a computer readable medium. For example, an entity can include audio data, video data, graphical data, textual data, or other sensory information. An entity can be stored in any media format, including, multimedia formats, file based formats, or any other format that can contain information whether graphical, textual, audio, or other sensory information. Entities are available on any disk based media, for example, digital versatile disks (DVDs), audio CDs, videotapes, laser-disks, CD-ROMs, or video

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game cartridges. Furthermore, entities are available on any computer readable medium, for example, a hard drive, a memory of a server computer, RAM, ROM, etc. Furthermore, entities are available over any network, for example, the Internet, WAN, LAN, digital home network, etc. In some embodiments, an entity will have entity metadata associated therewith. Examples of entity metadata will be further described herein at least with reference to FIG. 9.

As referred to herein, a collection includes a plurality of entities and collection metadata. The collection metadata defines the properties of the collection and how the plurality of entities are related within the collection. Collection metadata will be further defined herein at least with reference to FIGS. 8-10.

In accordance with one embodiment, a user of a content management system can create and modify existing collections. Different embodiments of the content management system will be described herein at least with reference to FIGS. 1-4 and 6-7. Advantageously, the user of the content management system is able to create new collections from entities that are stored on a local computer readable medium, or generated at a local computer system or other device for providing locally generated content. (A local computer readable medium refers to a computer readable medium that is within or mounted within a local computer system or other device for accessing the local computer readable medium, or that is within or mounted within another computer system that is located within the same room, building or facility as the local computer system and coupled to the local computer system through a data channel, such as a network data channel, e.g., a wired or wireless network data channel, e.g., a local area network (LAN). A local computer readable medium is in contrast to a remote computer readable medium, which is a computer readable medium that is within or mounted within a remote

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computer system or other device for accessing the remote computer readable medium that is not located within the same room, building or facility as the local computer system or the other computer system, and that is coupled to the local computer system through a data channel, such as a data channel, such as a network data channel, e.g., a wired or wireless network data channel, e.g., a wide area network (WAN), such as the Internet.) Alternatively, the user may also be able to retrieve entities stored on a remote computer readable medium or generated at a remote computer system or other device for generating remotely generated content, over a data channel, such as a network data channel, e.g., a wide are network, e.g., the Internet or other network to substitute for entities that are not on a local computer readable medium of locally generated.

In accordance with another embodiment, a search engine is provided that searches for entities and collections located within different trust levels. Trust levels will be further described herein with reference to FIG. 27. In one embodiment, the results of a search are based upon at least upon the trust level where the entity is stored. In another embodiment, the results of the search are based upon metadata associated with an entity. In yet another embodiment, the search results can be based upon a user profile or a specified request.

An application programming interface (API) can be used in one embodiment based on a scripting model, leveraging, e.g., industry standard XML/HTML and JavaScript standards and other proprietary methods for integrating locally stored media content and remote interactively-obtained network media content, e.g., video content in a local interactive application such a web page. The application programming interface (API) enables embedding, e.g., video content in a local interactive application such web pages, and can display

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the video in full screen or sub window format. Commands can be executed to control the playback, search, and overall navigation through the embedded content. The application programming interface will be described in greater detail at least with reference to FIGS. 2 and 5-7. In addition behavioral metadata is used by the application programming interface in some embodiments to provide rules for presentation of entities and collections. Behavioral metadata, which one type of collection metadata, will be described in greater detail herein at least with reference to FIG. 11.

The application programming interface can be queried and/or set using properties. Effects may be applied to playback. Audio Video (AV) sequences have an associated time element during playback, and events are triggered to provide notification of various playback conditions, such as time changes, title changes, and user operation (UOP) changes. Events can be used for use in scripting and synchronizing audio and/or video-based content (AV content) with other media types, such XML/HTML or locally cached content or read only memory (ROM)-based content, external to the AV content. This will be described in greater detail herein with reference to FIGS. 5-7.

In one embodiment the application programming interface (API) enables content developers to create products that seamlessly combine, e.g., content from a network, such as the Internet, e.g. on a remote computer readable medium or remotely generated, with content from other digital versatile disk-read only memory (DVD-ROM), digital versatile disk-audio (DVD-Audio), compact disc-audio (CD-Audio), compact disc-digital audio (CD-DA), high definition discs (Blu-ray, HD-DVD, AOD), e.g., on a local computer readable medium. There are several ways to seamlessly navigate between the AV Video content to the XML/HTML (ROM) content and back. In one

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example, the AV content is authored as to have internal triggers that cause an event that can be received by external media types. Alternatively, the AV content is authored so as to have portions of the AV content that can be associated with triggering an event that can be received by external media types. For example, in DVD-video entry and exit points can be devised using dummy titles and title traps. A dummy title is an actual title within the DVD, however, in one example, there is no corresponding video content associated with the title. For example, the dummy title can have period, e.g., 2 seconds, of black space associated with it. The dummy title is used to trigger an event, thus is referred to as a title trap. During the DVD-Video authoring, the dummy titles are created that, when invoked, display n seconds (where n is any period of time) of a black screen, then return. Additionally, a middleware software layer informs the user interface that a certain title has been called and the user interface can traps on this (in HTML, using a DOM event and JavaScript event handler) and display an alternate user interface instead of the normal AV content. FIG. 7 depicts how these devices have been employed to integrate HTML as the user interface and DVD-Video content as the AV content.

In this example, the introductory AV content usually has user operation control functions, such as UOPs in DVD-Video, for prohibiting forwarding through a FBI warning and the like. As many type of AV content have, there is a scene selection on a main menu. However, in one embodiment, when the middleware layer traps on title number 4 when played on a device such as depicted in FIGS. 1-4, a unique HTML Enhanced Scene Selection menu (web page) is presented. The enhancement can be as simple as showing the scene in an embedded window so the consumer can decide if this is the desired scene before leaving the selection page. After using this enhanced menu, a hyperlink is provided which returns to the Main menu by

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playing title number 2, which is a dummy title (entry point) back into the main DVD-Video menu. Additionally, the JavaScript can load an Internet server page instead of the ROM page upon invocation thereby updating the ROM content with fresher, newer server content. An example of updating of content is described, for example, in U.S. Patent Application No. 09/476,190, entitled A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR UPDATING CONTENT STORED ON A PORTABLE STORAGE MEDIUM.

Hereinafter, by the use of disc, disk, DVD or DVD-Video, it is to be understood that all of these disk/disc media or locally cached content are included. The combination of the Internet with DVD-Video creates a richer, more interactive, and personalized entertainment experience for users.

Further, the application programming interface (API) provides a common programming interface allowing playback of this combined content on multiple playback platforms simultaneously. While the application programming interface (API) allows customized content and functions tailored for specific platforms, the primary benefit of the application programming interface (API) is that content developers can create content once for multi-platform playback, without the need of becoming an expert programmer on specific platforms, such as Windows, Macintosh, Linux, Java, Sony Playstation, Microsoft XBOX, Nintendo, real-time operating systems, and other platforms. As described above, this is accomplished through the use of the events.

Internet connectivity is not a requirement for the use of the application programming interface (API). In addition, audio media such as compact disc-digital audio (CD-DA) can also be enhanced by use of the application programming interface (API). This is also described in the document InterActual Usage Guide for Developers.

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Personal video recorders (PVRs), such as TiVo, RePlay, and digital versatile disk-recordable (DVD-R) devices, allow users to purchase video or audio products (entities or collections) by downloading video or audio products from a satellite, a cable television distribution network, the Internet, another network or other high-bandwidth systems. When so downloaded, the video or audio can be stored to a local disk system or burned onto a recordable media such as DVD-R. In one embodiment, the content stored on the PVR or recordable media can be supplemented with additional content, e.g., from a LAN, the Internet and/or another network and displayed or played on a presentation device, such as a computer screen, a television, and/or an audio and/or video playback device. The combination of the content with the additional content can be burned together onto a recordable media, or stored together on, for example a PVR, computer hard drive, or other storage medium.

Referring now to FIG. 1, a diagram is shown illustrating the interaction between a playback subsystem 102, a presentation engine 104, entity decoders 106 and a content services module 108 according to an embodiment. The system shown in FIG. 1 can be utilized in many embodiments.

Shown are a hardware platform 100, the playback subsystem 102, the content services module 108, the presentation engine 104, and the entity decoders 106. The hardware platform includes the playback subsystem 102, the content services module 108, the presentation engine 104 and the entity decoders 106.

The content services module gathers 108, searches, and publishes entities and collections in accordance with one embodiment. The content services module 108 additionally manages the access rights for entities and collections as well as logging the history of access to the entities and

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collections. These features are described in greater detail herein at least with reference to FIGS. 3 and 4.

The presentation engine 104 determines how and where the entities will be displayed on a presentation device (not shown). The presentation engine utilizes the metadata associated with the entities and presentation rules to determine where and when the entities will be displayed. Again, this will be further described herein at least with reference to FIGS. 3 and 4.

The playback subsystem 102 maintains the synchronization, timing, ordering and transitions of the various entities. This is done in ITX through the event model (described in greater detail below with reference to FIG. 7) triggering a script event handler. In this system, behavioral metadata will specify what actions will take place based upon a time code or media event during playback and the playback subsystem 102 will start the actions at the correct time in playback. The playback subsystem 102 also processes any scripts of the collections and has the overall control of the entities determining when an entity is presented or decoded based upon event synchronization or actions specified in the behavioral metadata. The playback subsystem 102 accepts user input to provide the various playback functions including but not limited to, play, fast-forward, rewind, pause, stop, slow, skip forward, skip backward, and eject. The user inputs can come from, for example, the remote control depicted in FIG. 30. The playback subsystem 102 receives signals from the remote control and executes a corresponding command such as one of the commands listed above. In one embodiment, the synchronization is done using Events. An event is generally the result of a change of state or a change in data. Thus, the playback subsystem monitors events and uses the events to trigger an action (e.g., the display of an entity). See,

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e.g., the event section of FIG. 7 for a DVD-Video example of that uses events.

In one embodiment, the entity decoder 106 allows entities to be displayed on a presentation device. The entity decoder, as will be described in greater detail with reference to FIGS. 3 and 4, is one or more decoders that read different types of data. For example, the entity decoders can include a video decoder, an audio decoder, and a web browser. The video decoder reads video files and prepares the data within the files for display on a presentation device. The audio decoder will read audio files and prepare the audio for output from the presentation device. There are numerous markup languages that optionally are used in the content management system and that can be interpreted by the browser. The browser optionally supports various markup languages including, but not limited to, HTML, XHTML, MSHTML, MHP, SMIL, etc. While HTML is referenced throughout this document virtually any markup language or alternative meta-language or script language can be used.

In one embodiment, the presentation device is a presentation rendering engine that supports virtual machines, scripts, or executable code. Suitable virtual machines, scripts and executable code include, for example, Java, Java Virtual Machine (JVM), MHP, PHP, or some other equivalent engine.

As described herein, by the use of browser, web browser, presentation device or engine, it is to be understood that all of these presentation devices and rendering engines are included.

All of the features of the system in FIG. 1 will be described in greater detail at least with reference to the following description of FIGS. 3 and 4.

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Referring to FIG. 2 a diagram is shown illustrating a general overview of a media player connected to the Internet according to one embodiment.

Shown are a media player 202, a media subsystem 208, a presentation subsystem 206, a content services module 212, a playback runtime engine 214, a presentation layout engine 214, entity decoders 210, and an Internet 204.

In a preferred embodiment, the media player 202 is connected to the Internet 204, for example, though a cable modem, T1 line, DSL or dial-up modem. The media player 202 includes the presentation subsystem 206, the media subsystem 608 and the entity decoders 210. The media subsystem 208 further includes the content services module 212, the playback runtime engine 214 and the presentation layout engine 216. While FIG. 2 shows the content service module 212 as part of the media subsystem 208, alternatively, as shown in FIGS. 3 and 4, the content services module is not part of the media subsystem 208.

The playback runtime engine 214 is coupled to the content services module 212 and provides the content services module 212 with a request for a collection. The request can include, e.g., a word search, metatag search, or an entity or a collection ID. The playback runtime engine 214 also provides the content services module 212 with a playback environment description. The playback environment description includes information about the system capabilities, e.g., the display device, Internet connection speed, number of speakers, etc.

One example of the playback request described in XML can be as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="REQ.xsd">
        <Module>
                <collectionList>
                        <id>123456789</id>
                        <id>223456789</id>
                        <id>323456789</id>
```


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```
                </collectionList>
                <requestedPlayback>
                        <videoDisplay>
                                <videoDisplaytype>01</videoDisplaytype>
                        </videoDisplay>
                        <videoResolutions>
                                <resolution>
                                        <videoXResolution>1024</videoXResolution>
                                        <videoYResolution>768</videoYResolution>
                                </resolution>
                        </videoResolutions>
                        <navigationDevices>
                                <device>03</device>
                        </navigationDevices>
                        <textInputDeviceReqd>01</textInputDeviceReqd>
                </requestedPlayback>
        </Module>
</Metadata>
```

One example of the playback environment description described in XML can be as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="CAP.xsd">
        <Module>
                <Capabilities>
                        <platforms>
                                <platform>01</platform>
                                <platform>02</platform>
                        </platforms>
                        <products>
                                <productID>01</productID>
                                <productID>02</productID>
                        </products>
                        <videoDisplays>
                                <videoDisplaytype>01</videoDisplaytype>
                                <videoDisplaytype>02</videoDisplaytype>
                        </videoDisplays>
                        <videoResolutions>
                                <resolution>
                                        <videoXResolution>1024</videoXResolution>
                                        <videoYResolution>768</videoYResolution>
                                </resolution>
                                <resolution>
                                        <videoXResolution>800</videoXResolution>
                                        <videoYResolution>600</videoYResolution>
                                </resolution>
                        </videoResolutions>
                        <navigationDevices>
                                <device>02</device>
                                <device>03</device>
                        </navigationDevices>
                        <textInputDeviceReqd>01</textInputDeviceReqd>
                        <viewingDistances>
                                <view>01</view>
                                <view>02</view>
                        </viewingDistances>
                </Capabilities>
```


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</Module>
</Metadata>

The presentation layout engine 216 determines where on the presentation device different entities within a collection will be displayed by reading collection metadata and/or entity metadata. As described below, at least with reference to FIGS. 8-10, metadata can be stored, e.g., in an XML file. The presentation layout engine 216 also optionally uses the playback environment description (e.g., the XML example shown above) to determine where on the presentation device the entities will be displayed. The presentation layout engine also reads the playback environment description to determine the type of display device that will be used for displaying the entities or the collection.

In one example, multiple entities within a collection will be displayed at the same time (See FIG. 11, for example). The presentation layout engine 216 determines where on the display device each of the entities will be displayed by reading the collection metadata and the presentation environment description.

The entity decoders 210 include at least an audio and video decoder. Preferably, the entity decoders 210 include a decoder for still images, text and any other type of media that can be displayed upon a presentation device. The entity decoders 210 allow for the many different types of content (entities) that can be included in a collection to be decoded and displayed.

The media player 202 can operate with or without a connection to the Internet 204. When the media player 202 is connected to the Internet 204, entities and collections not locally stored on the media player 202 are available for display. The content services module, as is shown in FIG. 4, includes a content search engine. The content search engine searches the Internet for entities and collections. The entities and collections can be downloaded and stored locally

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and then displayed on a display device. Alternatively, the entities and collections are streamed to the media player 202 and directly displayed on the presentation device. The searching features and locating features will be described in greater detail herein at least with reference to FIGS. 3, 4, and 27.

The Internet 204 is shown as a specific example of the offsite content source 106 shown in FIGS. 28-30.

Thus, in a preferred embodiment, the media subsystem 208 is capable of retrieving, creating, searching for, publishing and modifying collections in accordance with one embodiment. The media subsystem 208 retrieves and searches for entities and collections through the content search engine and new content acquisition agent (both described in greater detail herein at least with reference to FIGS. 4, 14, and 15). The media subsystem publishes entities and collections through the use of an entity name service and collection name service, respectively. The entity name service, the collection name service, and publishing of collections are all described in greater detail at least with reference to FIGS. 4 and 14. The modification of entities and collections will also be described here in greater detail at least with reference to FIGS. 4, 19 and 20. Additionally, the creation on an entity or collection will be described herein in greater detail with reference to FIGS. 4, 16, and 17.

The content services module 212 manages the collections and entities. A content search engine within the content services module 212 acquires new collections and entities. The content services module 212 additionally publishes collections and entities for other media players to acquire. Additionally, the content services module 212 is responsible for managing the access rights to the collections and entities.

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Referring to FIG. 3, a high level diagram is shown of the components that are interfaced with in the various parts of a content management system. Shown are a content management system 300, a media subsystem 302, a content services module 304, an entity decoder module 306, a system controller 308, a presentation device 310, a front panel display module 312, an asset distribution and content publishing module 304, a plurality of storage devices 306, a user remote control 308, a front panel input 320, other input devices 322, and system resources 324.

The content management system 300 includes the media subsystem 302 (also referred to as the playback engine), the content services module 304, the entity decoder module 306 and the system controller 308. Within the content management system 300 the system controller 308 is coupled to the media subsystem 302. The media subsystem 302 is coupled to the content services module 304 and the entity decoder module 306 entity decoder module 306 is coupled to the media subsystem 302 the content services module 304.

The content management system 300 is coupled to the asset distribution and content publishing module 314, the plurality of storage devices 316, the user remote control 318, the front panel input 320, the other input devices 322, and the system resources 324.

The user remote control 318 and the other input devices 320, e.g., a mouse, a keyboard, voice recognition, touch screen, etc., are collectively referred to herein as the input devices.

The system controller 308 manages the input devices. In some embodiments, multiple input devices exist in the system and the system controller uses a set of rules based on the content type whether an input device can be used and/or which input devices are preferred. For example, content that only has on-screen links and no edit boxes, for example, has a

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rule for the system controller to ignore keyboard input. The system controller 308 optionally has a mapping table that maps input signals from input devices and generate events or simulates other input devices. For example, the arrow keys on a keyboard map to a tab between fields or the up/down/left/right cursor movement. Optionally, Remote controls use a mapping table to provide different functionality for the buttons on the remote. Various processes subscribe to input events such as remote control events and receive notification when buttons change state. The input devices are, for example, remote controls, keyboards, mice, trackballs, pen (tablet/palm pilot), T9 or numeric keypad input, body sensors, voice recognition, video or digital cameras doing object movement recognition, and an other known or later to be developed mechanism for inputting commands into a computer system, e.g., the content management system 300. Furthermore, an input device, are, in some embodiments, the presentation devices 310 as well. For example, on-screen controls or a touch screen can change based on the presentation of the content. The system controller 308 arbitrates the various input devices and helps determine the functionality of the input devices.

Additionally, in one embodiment, arbitration occurs between the operations for playback, the behavioral metadata an entity or collection allows, and the specific immediate request of the user. For example, a user may be inputting a play command and the current entity being acted upon is a still picture. The system controller 300 interprets the command and decides what action to take.

The media subsystem 302, also referred to herein as the playback engine, in one embodiment is a state machine for personalized playback of entities through the decoders in the decoder module 306. The media subsystem 302 can be a virtual machine such as a Java Virtual Machine or exist with a browser

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on the device. Alternatively, the media subsystem 302 can be multiple state machines. Furthermore, the media subsystem can be run on the same processor or with different processors to maintain the one or more state machines.

Following is a hierarchy:

HTML/JavaScript layer

Java VM layer (implementing the Content & Media Services)

DVD Navigator

DVD-Video decoder

The hierarchy demonstrates how different application layers can have their own state machine and that the layer above will take action having knowledge of the state of the layer below it. When a JavaScript command is issued to change the playback state of the DVD Navigator, the state machine has to ensure the command will be allowed. The level of arbitration of these state machines can be demonstrated in this manner.

The playback engine 302 interacts with the content services module 304 to provide scripts and entities for playback on the presentation device 310. The content services module 304 utilizes the plurality of storage devices 1416 as well as network accessible entities to provide the input to the playback engine 302. A presentation layout manager, shown in Fig. 4, exists within the playback engine 302 and controls the display of the content on the presentation device 310.

The presentation device 310 comes in various formats or forms. In some cases displays can be in wide screen 16:9 and full screen 4:3 formats. Optionally, the displays types are of various technologies including, TFT, Plasma, LCD, Rear or Front Projection, DLP, Tube (Flat or Curved) with different content safe areas, resolutions, pixel sizing, physical sizes, colors, font support, NTSC vs. PAL, and different distances from the user.

In one embodiment, the media subsystem 302 controls the display of content based upon the presentation device 310

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available. For example, a user in front of a computer as compared to a user that is 10 feet way from a TV screen needs different text sizing to make something readable. Additionally, the outside environment the presentation device is being viewed in, such as outside in direct sun or in an industrial warehouse, can also effect how the media subsystem will display content on the presentation device. In this example, the contrast or brightness of the presentation device will be adjusted to compensate for the outside light.

Multiple presentation devices can be available for displaying different content. For example, the presentation device can be a speaker or headset in the case of audio playback, or can be some other sensory transmitter. Additionally, the presentation device can display a status for the content management system.

The entity decoder module 306 decodes any of the different entities available to a user. The entity decoder module 1406 sends the decoded entities to the media subsystem, which as described above controls the output of the entities to the presentation devices. For example, for markup, scripting, and animation (such as Flash or SVG) content a browser is used to decode the content and for a DVD Disc a DVD Navigator/Decoder can used to decode the video stream. The presentation device also has different ways of displaying the entity decoder output. For example, if the source material is 4:3 and the presentation device is 16:9, the content is displayed with black bars on the right side and left side at 4:3, stretched to 16:9, or is displayed in a panoramic view where a logarithmic scaling of the content is used from center to the sides. In one embodiment, the metadata for the entity will prioritize which of these settings works best for the current entity. As described above, this is accomplished in one embodiment by having a preference defined in an XML file.

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In one embodiment a user makes a request for content. The playback runtime engine constructs the request and provides a user request to the content manager. A user request is a description of the collection or list of collections requested and can include the specific components of the media playback system desired by the consumer for playback (e.g. "display B" if there are multiple displays available). The user request can be described in the form of metadata which the Content Manager can interpret.

In one embodiment, the user request will additionally include a user profile that is used to tailor or interpret the request. A user profile is a description of a specific consumer's preferences which can be embodied in the user request. Optionally, the preferences are compiled by the new content acquisition agent over time and usage by the consumer.

Preferably, the request also includes a system profile (also referred to herein as system information). The system profile is a description of the capabilities of the media playback system including a complete characterization of the input, output and signal processing components of the playback system. In one embodiment, the system profile is described in the form of metadata which the Content Manager interprets. The content manager will then search for entities that will be preferred for the given system and also that will be compatible within the playback system. In one embodiment, the content manager uses the user request, the user profile and the system profile in order to search for entities or collections.

In one embodiment, the metadata associated with an entity is manually entered by the owner of the entity. Optionally, the manually entered metadata is automatically processed by the content management system that adds additional related metadata to the entity metadata. For

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example, the metadata of "4WD" is expanded to include 'four wheel drive', or further associated with 'sport utility vehicle' or 'SUV' which are similar terms for 4WD vehicles. This process is done while the metadata is created or done during the search process where search keywords are expanded to similar words as in this example. Alternatively, the content management system is utilized to create the metadata for the entity. Users are able to achieve real-time completely automated meta-tagging, indexing, handling and management of any audio and video entities. In one embodiment, this is done by creating dynamic indexes. The dynamically created index consists of a time-ordered set of time-coded statements, describing attributes of the source content. Because the statements are time-ordered and have millisecond-accurate time-codes, the statements are used to manipulate the source material trans-modally, i.e., allowing the editing of the video, by synchronistically manipulating the text, video and audio components. With this indexing a user is able to jump to particular words, edit a clip by selecting text, speaker or image, jump to next speaker, jump to next instance of current speaker, search for named speaker, search on accent or language, view key-frame of shot, extract pans, fades etc, or to find visually similar material.

In real-time multimedia production, the system optionally automates the association of hyperlinked documents with real-time multimedia entities, instant cross-referencing of live material with archived material, triggering of events by attribute (e.g. show name when speaker X is talking). For entity archives, the system provides automatic categorization of live material, automatically re-categorizes multiple archives, makes archives searchable from any production system, enables advanced concept-based retrieval as well as traditional keyword or Boolean methods, automatically

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aggregates multiple archives, automatically extracts and appends metadata.

One technology that is optionally used is high-precision speech recognition and video analysis to actually understand the content of the broadcast stream and locate a specific segment without searching, logging, time coding or creating metadata.

Yet another approach directly addresses the problems associated with manual meta-tagging by adding a layer of intelligence and automation to the management of XML by understanding the content and context of either the tags themselves or the associated information. In effect, this removes the need for meta-tags or explicit metadata. Metadata is implicitly (covertly) inferred through the installed layer of intelligence. However, if metadata is required, intuitive user interfaces may be provided to add reassurance and additional information. In situations where there are already large amounts of existing metadata and/or established taxonomies, more intelligent solutions are used to automatically add new content to these schemes and append the appropriate tags. Another option is to automatically integrate disparate metadata schemes and provide a single, unified view of the content with no manual overhead. In a DVD example, the metadata is optionally the subtitles or close caption text that goes along with the video being played back. Using both the video stream and the textual stream an even greater inference of metadata can be derived from the multimedia data. Thus using audio, video, and text simultaneously can improve the overall context and intelligence of the metadata.

Video analysis technology can automatically and seamlessly identify the scene changes within a video stream. These scene changes are ordered by time code and using similar pattern matching technology as described above all clips can

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be "understood". The detected scene changes can also be used as 'chapter points' if the video stream is to be converted to more of a virtual DVD structure for use with time indexes. In addition by using advanced color and shape analysis algorithms it becomes possible to search the asset database for similar video clips, without relying on either metadata or human intervention. These outputs are completely synchronized with all other outputs to the millisecond on a frame-accurate basis. This means that the images are synchronized with the relevant sentences within an automatically generated transcript, the words spoken are synchronized with the relevant speaker, the audio transcript is synchronized with the appropriate scene changes etc. This unsurpassed level of synchronization enables users to simultaneously and inter-changeably navigate through large amounts of audio visual content by image, word, scene, speaker, offset etc., with no manual integration required to facilitate this. In accordance with an embodiment, the system can gather entities and without using metadata assemble a collection including video, audio and text entities.

Audio analysis technology can automatically and seamlessly identifies the changes in speakers along with the speech to text translations of the spoken words. The audio recognition may be speaker dependent or speaker independent technology. The audio analysis technology may also utilize the context of the previous words to improve the translations.

Referring now to FIG. 4, a block diagram is shown illustrating a system diagram of a collection and entity publishing and distribution system connected to the content management system of FIG. 3. Shown are a plurality of storage devices 400, a content distribution and publishing module 402, a content management system 404, a remote control 406, a plurality of input devices 408, a front panel input 410, system resources 412, a system init 414, a system timer 416, a

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front panel display module 418, and a plurality of presentation devices 420.

In the embodiment shown, the plurality of storage devices 400 includes a portable storage medium 422, local storage medium 424, network accessible storage 426 and a persistent memory 428. The portable storage medium 422 can include, for example, DVD's, CD's, floppy discs, zip drives, HD-DVD's, AOD's, Blu-Ray Discs, flash memory, memory sticks, digital cameras and video recorders. The local storage medium 424 can be any storage medium, for example, the local storage medium 424 can be a hard drive in a computer, a hard drive in a set-top box, RAM, ROM, and any other storage medium located at a display device. The network accessible storage 426 is any type of storage medium that is accessible over a network, such as, for example, a peer-to-peer network, the Internet, a LAN, a wireless LAN, a personal area network (PAN), or Universal Plug and Play (UPnP). All of these storage mediums are in the group of computer readable medium.

The persistent memory 428 is a non-volatile storage device used for storing user data, state information, access rights keys, etc. and in one embodiment does not store entities or collections. The user data can be on a per user basis if the system permits a differentiation of users or can group the information for all users together. In one embodiment the information may be high game scores, saved games, current game states or other attributes to be saved from one game session to another. In another embodiment with video or DVD playback entities the information may be bookmarks of where in the current video the user was last playing the content, what audio stream was selected, what layout or format the entity was being played along with. The storage information may also include any entity licenses, decryption keys, passwords, or other information required to access the collections or entities.

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The persistent memory stores may include, but not limited to, Bookmarks, Game Scores, DRM & Keys, User preferences and settings, viewing history, and Experience Memory in Non-Volatile Ram (NVRam), which can be stored locally or on a server that can be accessed by the user or device.

The local storage can also act as a cache for networked content as well as archives currently saved by the user.

The content distribution and publishers module 402 determines what entities and collections are available and who the entities and collections are available to. For example, the establishment (e.g., the owner) that supplies the content (e.g., entities and collections) may only let people who have paid for the content have access to the content. The content management system 404 controls all of the content that is available and has access to all of the local and network accessible storage along with any portable or removable devices currently inserted, however, the content distribution and publishing module 402 will determine if the proper rights exist to actually allow this content to be used or read by others. In another example, on a peer-to-peer network only files that are in a shared folder will be available to people. In another embodiment a database or XML file contains the list of entities, collections, or content available for distributing or publishing along with the associated access rights for each entity, collection, or content. The content distribution publishing module 402 can also control what other people have access to depending upon the version (e.g., a "G" rating for a child who wants information).

The content distribution and publishing module 402 enables people to share entities and collections. One example of entity sharing to create a new collection is for a group of parents whose children are on the same soccer team to be able

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to share content. All of the parents can be on a trusted peer-to-peer network. In this case the parents can set access rights on their files for other parents to use the entities (i.e. digital pictures, videos, games schedules, etc). With this model others can view a collection of the soccer season and automatically go out and get everyone else's entities and view them as a combined collection. Even though different parents may have different display equipment and may not be able to playback all of someone else's entities, the content manager can intelligently select and gracefully degrade the experience as needed to be displayed on the local presentation equipment.

The content management system 404 includes a system controller 430, a media subsystem 432, a content services module 434, and an entity decoder module 436. The system controller 430 includes an initiation module 440, a system manager 442, an arbitration manager 444 and an on screen display option module 446.

The media subsystem 432 includes a playback runtime engine 450, a rules manager 452, a state module 454, a status module 456, a user preference manager 458, a user passport module 460, a presentation layout manager 462, a graphics compositing module 464, and an audio/video render module 466.

The content services module 434 includes a content manager 470, a transaction and playback module 472, a content search engine 474, a content acquisition agent 476, an entity name service module 478, a network content publishing manager 480, an access rights manager 482, and a collection name service module 484.

The entity decoder module 436 includes a video decoder 486, an audio decoder 488, a text decoder 490, a web browser 492, an animation 494, a sensory module 496, a media filter 498, and a transcoder (or transrating device) 499.

In one embodiment the content services module 434

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can run in a Java-Virtual Machine (Java-VM) or within a scriptable language on a platform. The content services module 434 can be part of a PC platform and therefore exist within an executable or within a browser that is scriptable.

The Content Manager -

There may be various types of entities within a collection and the content manager 470 determines which version to playback based on rules and criteria. The rules or criteria can include: a Rating (e.g., G, PG, PG-13, R), a display device format (e.g., 16:9, 320x240 screen size), bit rates for transferring streaming content, and input devices available (e.g., it does not make sense to show interactive content that requires a mouse when only a TV remote control is available to the user).

As will be described below, the content manager 470 provides graceful degradation of the entities and the playback of the collection. The content manager 470 uses the collection name service module 484 to request new content for playback. The content manager 470 coordinates all of the rules and search criteria used to find new content. In one embodiment, the content manager utilizes rules and search criteria provided by the user through a series of hierarchical rankings of decision criteria to use. In another embodiment, the content manager uses rules such as the acquiring the new content at a lost cost where cost is, e.g., either money spent for the content or based on location that has the highest bandwidth and will take the shortest amount of time to acquire the content. Alternatively, the search criteria is defined by the entity or collection meta data. Additionally, the content manager 470 is able to build up collections from various entities that meet the criteria as well. In one embodiment, the content manager 470 applies a fuzzy logic to determine which entities to include in a collection and how the entities

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are displayed on the screen as well as the playback order of the entities. The content manager 470 also delivers to the presentation layout manager 462 the information to display the entities on the screen and controls the positioning, layers, overlays, and overall output of the presentation layout manager 462.

The content manager 470 contains algorithms to determine the best-fit user experience based on the rules or user criteria provided to the content manager 470. Unlike other similar systems the content manager 470 can provide a gracefully degraded user experience and handles errors such as incomplete content, smaller screen dimensions then the content was design for, or handling slower Internet connections for streaming content.

The content manager 470 uses system information and collection information to help determine the best playback options for the collection. For example, a collection may be made for a widescreen TV and the content manager 470 will arbitrate how to display the collection on a regular TV because that is the only TV available on the system. The fact that the system for display included a regular TV is part of the system information.

The content manager 470 has system information as to the capabilities (screen size etc) and also has the preferred presentation information in the collection metadata. Having these two pieces of info, the content manager 470 can make trade-offs and send the presentation layout manager 462 the results to setup a (gracefully) degraded presentation. This is accomplished by internal rules applied to a strongly correlated set of vocabularies for both the system capabilities and the collection metadata. The content manager 470 has internal rules as to how to optimize the content. The content manager 470 for instance can try to prevent errors in the system playback by correlating the system information with

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the collection metadata and possibly trying to modify the system or the collection to make sure the collection is gracefully degraded. Optionally, the content manager 470 can modify the content before playback. An example of decisions the content manager can make about acquiring a video stream is when the option for two different formats of an entity exist, such as in Windows Media Player format (WMV file) versus in a Quicktime format are found. The content manager may decide between the two streams based on the playback system having only a decoder for one of the formats. If both decoders are supported then the cost to purchase one format may be different from another and therefore the content manager can minimize the cost if there was not a specific format requirement. In this same example if one format is in widescreen (16:9) and another was full screen (4:3) then a decision can be based on if the presentation device is widescreen or full screen. Entities numbers may also be coded to assist in finding similar content to the original entity desired. In this way if there are different entity ID numbers for specific versions such as the directors cut verses the made for TV version of a movie then while the exact entity ID number may be different the entity ID can be cataloged in such a way that only the last digit of the entity ID number is different to indicate the various of the original feature. This helps in finding similar content as well.

In another embodiment, the maximum cost willing to be paid for an entity can be known by the content manager as designated by the user or the preferences. The content manager can search locations that meet this cost criteria to purchase the entity. In addition the content manager can enter into an auction to bid for the entity without bidding above the maximum designated cost.

The content manager 470 does personalization through the use of agents and customization based on user criteria.

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In one embodiment, the content manager 470 adds content searchability along with smart playback.

In the case of a presentation, a collection defines the presentation. The collection has both static data that defines unchanging things like title numbers and behavioral data that define the sequence of playback. Hence, the selection of the collection is one level of personalization ("I go out and find a collection that sounds like what I want to see") and a next level of personalization derives how the playback presentation is customized or personalized to the system and current settings in accordance with the behavioral data. Searching for a collection that meets the personal entertainment desire is like using the GOOGLE search engine for the media experience. As GOOGLE provides a multiplicity of hits on a search argument, a request for a media experience (in the form a collection) can be sought and acquired with the distributed content management system.

Content Manager's Content Filter -

The content filter is used to provide both the content that the user desires as well as filter out the content that is undesirable. Along these guidelines when accessing network accessible content the content filter may contain: Lists of websites which will be blocked (known as "block lists"); Lists of websites which will be allowed (known as "allow lists"); and rules to block or allow access to websites. Based on the user's usage of various sites the content filter can "learn" which list new sites fall into to improve the content filtering. At another level with a website a content filter can further narrow down the designed material. In the case of a child user than the consideration of the content within a site such as chat rooms; The language used on the site; The nudity and sexual content of a site; The violence depicted on the site; Other content such as gambling,

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drugs and alcohol. The Platform for Internet Content Selection (PICS) specification enables labels (metadata) to be associated with Internet content. The Platform for Internet Content Selection (PICS) specification was originally designed to help parents and teachers control what children access on the Internet, but the PICS specification also facilitates other uses for labels, including code signing and privacy. The PICS platform is one on which other rating services and filtering software has been built. One method of implementation of PICS or similar metadata methods is to embed labels in HTML documents using a META tag. With this method, labels can be sent only with HTML documents, not with images, video, or anything else. It may also be cumbersome to insert the labels into every HTML document. Some browsers, notably Microsoft's Internet Explorer versions 3 and 4, will download the root document for a web server and look for a generic label there. For example, if no labels were embedded in the HTML for this web page (they are), Internet Explorer would look for a generic label embedded in the page at http://www.w3.org/ (generic labels can be found there).

The following is an example of a way to embed a PICS label in an HTML document:

```
<head>
 <META http-equiv="PICS-Label" content='
 (PICS-1.1 "http://www.gcf.org/v2.5"
    labels on "1994.11.05T08:15-0500"
           until "1995.12.31T23:59-0000"
           for "http://w3.org/PICS/Overview.html"
    ratings (suds 0.5 density 0 color/hue 1))
 '>
 </head>
```

The content associated with the above label is part of the HTML document. This is used for web-pages. The heading is one example of metadata for an HTML page. The metadata can be used for filtering out scenes that should not be viewed by children. This is but one example.

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Regardless of what actions are taken, mechanisms are needed to label content or identify content of a particular type. For any system of labeling or classifying content, it is important to understand who is performing the classification and what criteria the system is using. Classification may be done by content providers, third-party experts, local administrators (usually parents or teachers), survey or vote, or automated tools. Classification schemes may be designed to identify content that is "good for kids", "bad for kids," or both. The content may also be classified on the basis of age suitability or on the basis of specific characteristics or elements of the content. In addition content that is deemed bad for kids can still be acquired but the actual entity will be cleaned up for presentation. This can be done by filtering out tagged parts of the movie that are above a designation age limit for example. Therefore, a movie seen in the theaters with a higher rating can have designations within the movie for parts not acceptable for a television viewing audience and the same entity can be used for presentation on both devices but the filtering of the parts is done to make the two versions. This increases the number of entities that can be used and also reduces the need to create two different entities but instead to create one entity that is annotated with markers or in the entities metadata as to the two different viewable formats.

The playback runtime (RT) engine 450 provides the timing and synchronization of the content that is provided by the content manager 470. The content manager 470 determines the overall collection composition and the playback runtime engine 450 controls the playback. The composition of the collection can be in the form of an XML file, a scripting language such as CGI, JVM Code, HTML/Javascript, SMIL, or any other technologies that can be used to control the playback of one or more entities at a time. One example of multiple-

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entity playback is a DVD-video entity being played back with an alternate audio track and with an alternate subtitle entity. In this manner the synchronization between the various entities is important to maintain the proper lip-sync timing.

The content manager 470 is capable of altering existing collections/entities for use with other entities. For example, DVD-Video has a navigational structure for the DVD. The navigational structure contains menus, various titles, PGCs, chapter, and the content is stitched together with predefined links between the various pieces. The content manager 470 has the ability (Assuming the metadata permits modification of an entity/collection) to do navigation command insertion & replacement to change the stitching (flow) of the content to create a new collection or to add additional entities as well. For example, this can be done by creating traps for the playback at various points of the entity. For example, in the case of DVD collection with entities, the time, title, PGC, or chapter, GPRM value, or a menu number can be used to trap and change the playback engines state machine to an alternate location or to an alternate entity.

In stitching together various entities a structure that uses time codes, such as the traps or DVD chapter breaks (parts of title or PTTs) can be used. The program or script (or behavioral metadata) can look like the following:

Play DVD Title 1 from 0:13:45 to 0:26:00 … then
Play local PVR file "XYZ.PVR" from 0:2:30 to 0:4:30 … then
Play DVD Title 1 Chapter 3
While playing this, overlay "IMAGE1.GIF" at 100,100 at alpha %25

Additionally, an event handler can be used during a presentation and react to clicks of buttons (say during the display of the image) and take an action, e.g., Pause and play a

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different video in a window. The set of instructions can reference the collection & entity metadata and will depend on these traps to break apart and re-stitch segments together to create a new presentation.

The set of instructions is behavioral metadata about the collection. The content manager uses the behavioral metadata for playback and can modify the behavioral metadata depending upon the system information as described above.

Collection Name Service (CNS)

Keywords go into the collection name service (CNS) module 484 and collections and entities are located that have these keywords. The entity name services (ENS) module 478 is able to locate entities for the new content acquisition agent 476.

The entity name services module 478 converts keywords to Entity IDs and then is able to locate the entity IDs by using the content search engine 474.

Distinguish keyword searches from collection ID searches and entity ID searches.

Entity Name Service (ENS)

One of the functions of the entity name services module 478 is mapping entities or collections to the associated metatag descriptions. In one implementation these metatag descriptions may be in XML files. In another implementation this information can be stored in a database. The Entity naming service 478 can use an identifier or an identifier engine to determine an identifier for a given entity. The identifier may vary based on the type of entity.

In one embodiment, the entity identifier is assigned and structured the way the Dewey Decimal System is for books in libraries. The principle of the entity IDs assignments is that entities have defined categories, well-developed hierarchies, and a network of relationships among topics. Basic classes can be organized by disciplines or fields of

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study. In the Dewey Decimal Classification (DDC) the ten main classes are Computers, information & general reference, Philosophy & psychology, Religion, Social Sciences, Language, Science, Technology, Arts & recreation, Literature, History & geography. Then each class can be divided into 10 divisions and then each of the 10 divisions has 10 sections and so on. Near the bottom of the divisions can include different formats, different variations such as made for TV (Parts removed for viewable by families) versus and original on screen versions versus the directories cut extended version. This will aid the search engines in finding similar content requested by the user. Just as books in a library are arranged under subjects, which means that a book in similar fields is physically close to each other on the shelf, so are the Entity IDs. If a book is found that meets a certain criteria, nearby books can be browsed to find many related subject matter. Since features in an index tree are organized based on their similarity and an index tree has a hierarchical structure, we can use this structure to guide user's browsing by restricting the selection to certain levels. The structure can also be used to eliminate branches from further selection if these branches are not direct descendants of the current selection. Parts of entities can also be grouped together as well. So not just the entity may have an id but a smaller segment of an entity may be indexed further in this system as well. Taxonomy also refers to either a hierarchical classification of things, or the principles underlying the classification. Almost anything -- animate objects, inanimate objects, places, and events -- may be classified according to some taxonomic scheme. Mathematically, a taxonomy is a tree structure of classifications for a given set of objects. At the top of this structure is a single classification - the root node - that applies to all objects. Nodes below this

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root are more specific classifications that apply to subsets of the total set of classified objects.

A version control system of entities can also be utilized. If an updated version of an entity is created, for example in a screenplay a spelling correction is made, then the version should be updated and then released. The content manager 1570 may find multiple versions of an entity and then can try and get a newer version or if one is not available go and retrieve a previous version to provide content for the request. The version information is part of the entity or collection metadata.

Media Identifiers

In one embodiment, an entity may be identified through the use of a media identifier (MediaID). The media identifier may be computed based on the contents of the entity to create a unique ID for that entity. The unique ID will be referred to as an entity ID. The unique identifier can be used to match an entity's identifier and then the entity's associated metadata to the actual entity if the unique identifier and the entity metadata are stored in separate sources. Various permutations of media IDs or serialization may be employed including, but not limited to a watermark, hologram, and any other type in substitution or combination with the Burst Cut Area (BCA) information. Other technologies can be used for entity identification as well such as an RFID. An RFID may be used in replacement of the unique identifier or to correlate with the unique identifier for a database lookup. As RFID technology is beginning to be employed for packaged goods, a packaged media can be considered a Collection and be identified by this RFID. These same technologies can also be used to store all of the entity metadata as well.

In one embodiment, a three step process can be utilized. First, a media ID is computed for the given Entity. Second, to find the corresponding entity ID the Media ID can

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be submitted to a separate centralized server, entity naming service, local server, database or local location or file, to be looked up and retrieved. The final step is with the Entity ID the corresponding Metadata can be found through a similar operation to a separate centralized server, entity service, local server, database, or local location or file, to be looked up and retrieved. When new entities are created the entities go though a similar process where the Media ID, Entity, ID and corresponding metadata are submitted to the respective locations for tracking the entities for future use and lookup. This process can be condensed into several variations where the media ID is the same as the entity ID or the two are interchangeable and the lookups can be in a different order. In this case the media ID can be used to lookup the associated metadata as well or both the media ID and entity ID can be used find the metadata. The metadata may also contain references, filepaths, hyperlinks, etc. back to the original entity such that for a given entity ID or media ID the entity can be found through the locator. Again this can be through a separate centralized server, entity service, local server, database, or local location or file.

Watermarking

Digital video data can be copied repeatedly without loss of quality. Therefore, copyright protection of video data is a more important issue in digital video delivery networks than copyright protection was with analog TV broadcast. One method of copyright protection is the addition of a "watermark" to the video signal which carries information about sender and receiver of the delivered video. Therefore, watermarking enables identification and tracing of different copies of video data. Applications are video distribution over the World-Wide Web (WWW), pay-per-view video broadcast, or labeling of video discs and video tapes. In the mentioned applications, the video data is usually stored in compressed

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format. Thus, the watermark is embedded in the compressed domain.

Holograms

MPEG-7 addresses many different applications in many different environments, which means that MPEG-7 needs to provide a flexible and extensible framework for describing audiovisual data. Therefore, MPEG-7 does not define a monolithic system for content description but rather a set of methods and tools for the different viewpoints of the description of audiovisual content. Having this in mind, MPEG-7 is designed to take into account all the viewpoints under consideration by other leading standards such as, among others, TV Anytime, Dublin Core, SMPTE Metadata Dictionary, METS and EBU P/Meta. These standardization activities are focused to more specific applications or application domains, whilst MPEG-7 has been developed as generic as possible. MPEG-7 uses also XML as the language of choice for the textual representation of content description, as XML Schema has been the base for the DDL (Description Definition Language) that is used for the syntactic definition of MPEG-7 Description Tools and for allowing extensibility of Description Tools (either new MPEG-7 ones or application specific). Considering the popularity of XML, usage of XML will facilitate interoperability with other metadata standards in the future.

Content Search Engine

The content search engine 474 searches various levels for content, for example, local storage, removable storage, trusted peer network, and general Internet access. Many different types of searching and search engines may be used.

There are at least three elements to search engines that can be important for helping people to find entities and create new collections: information discovery & the database, the user search, and the presentation and ranking of results.

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Crawling search engines are those that use automated programs, often referred to as "spiders" or "crawlers", to gather information from the Internet. Most crawling search engines consist of five main parts:

Crawler: a specialized automated program that follows links found on web pages, and directs the spider by finding new sites for the spider to visit;

Spider: an automatic browser-like program that downloads documents found on the web by the crawler;

Indexer: a program that "reads" the pages that are downloaded by spiders. This does most of the work deciding what a web site is about;

Database (the "index"): simply storage of the pages downloaded and processed; and

Results engine: generates search results out of the database, according to a submitted query.

There can be some minor variations to this. For instance, ASK JEEVES (www.ask.co.uk) uses a "natural language query processor", which allows a user to enter a question in plain language. The query processor then analyses the submitted question, decides what the question means, and "translates" the question into a query that the results engine will understand. This happens very quickly, and out of sight to users of ASK JEEVES, so it seems as though the computer is able to understand English.

Spiders and crawlers are often referred to as "robots", especially in official documents like the robots exclusion standard

Crawler:

When a spider downloads pages, the spider is on the lookout for links. The links are easy for the spider to spot, because the links always look the same. The crawler then decides where the spider should go next, based on the links, and the crawler's existing list of URLs. Often, any new links

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the spider finds when revisiting a site are added to the spider's list. When a URL is added to a Search Engine, it is the crawler that is being requested to visit the site.

Spider:

A spider is an automated program that downloads the documents that the crawler sends the spider to. The spider works very much as a browser does when the browser connects to a website and downloads pages. Most spiders aren't interested in images though, and don't ask for them to be sent. A user can see what the spiders see by going to a web page, clicking the right-hand button on a mouse, and selecting "view source" in the menu that appears.

Indexer:

This is the part of the system that decides what a page is about. The indexer reads the words in the web site. Some are thrown away, as the words are so common (and, it, the etc). The indexer will also examine the HTML code which makes up a site looking for other clues as to which words are considered to be important. Words in bold, italic or headers tags will be given more weight. This is also where the metadata the keywords and description tags) for a site will be analyzed.

Database:

The database is where the information gathered by the indexer is stored. GOOGLE claims the to have the largest database, with over 3 billion documents, even assuming that the average size of each document is only a few tens of kilobytes, this can easily run to many terabytes of data (1 terabyte = 1,000 gigabytes = 1 million megabytes), which will obviously require vast amounts of storage.

Results engine:

The results engine is in many ways the most important part of any search engine. The results engine is the customer-facing portion of a search engine, and as such is

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the focus of most optimization efforts. The results engine's function is to return the pages most relevant to a users query.

When a user types in a keyword or phrase, the results engine decides which pages are most likely to be useful to the user. The method the results engine uses to decide which pages are most likely to be useful to the user is called the results engine's algorithm. Search engine optimization (SEO) experts discuss "algos" and "breaking the algo" for a particular search engine. This is because when a user knows what criteria are being used (the algorithm) a web page can be developed to take advantage of the algorithm.

The search engine markets, and the search engines themselves, have undergone huge changes recently, partially due to advances in technology, and partially due to the evolving economic circumstances in the technology sector. However, most are still using a mixture of the following criteria, with different search engines giving more or less weight to the following various criteria:

Title: Is the keyword found in the title tag?;

Domain/URL: Is the keyword found in the address of the document?;

Page text: Is the keyword being emphasized in some way, such as being made bold or italic? How close to the top of the text does the keyword appear?;

Keyword (search term) density: How many times does the keyword occur in the text? The ratio of keywords to the total number of words is called keyword density. While having a high ratio indicates that a word is important, repeating a word or phrase many times, solely to improve the standing with the search engines is frowned on, as repeating a word or phrase many times is considered an attempt to fraudulently manipulate the results pages. This often leads to penalties, including a ban in extreme cases;

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Meta information: These tags (keywords and description) are hidden in the head of the page, and not visible on the page while browsing. Due to a long history of abuse, meta information is no longer as important as the meta information used to be. Indeed, some search engines completely ignore the keywords tag. However, many search engines do still index keywords tags, and the keyword tags are usually worth including;

Outbound links: Where do the links from the page go to, and what words are used to describe the linked-to page;

Inbound links: Where do the links from the page come from, and what words are used to describe the page? This is what is meant by "off the page" criteria, because the links are not under the direct control of the page author; and

Intrasite links: How are the pages in the site are linked together? A page that is pointed to by many other separately developed pages is more likely to be important. Internal links are not usually as valuable as links from separately developed pages, as the internal links are controlled by the site owner, so more potential for abuse exists.

As stated above, there are some minor variations as each search engine has its own approach, and its own technology, but each of the search engines have more similarities than differences. Additionally, that this applies only to crawling search engines that use automated programs to gather information. Directories such as Yahoo! or the Open Directory Project work on a completely different principle, as these directories are human reviewed.

Once the metadata is present or inferred (as described above with reference to FIG. 3) the metadata can be searched and utilized. Keyword or metadata searches can consist of various levels of complexity and have different shortcomings associated with each. In the "no context" method a user enters a keyword or term into a search box, for example

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"penguin". The search engine then searches for any entities containing the word "penguin." The fundamental problem is that the search engine is simply looking for that word, regardless of how the word is used or the context in which the user requires the information, i.e., is the user looking for a penguin bird, a publisher or a chocolate-brand? Moreover, this approach requires the relevant word to be present and for the content to have been tagged with the word. Any new subjects, names or events will not be present and the system.

Manual keyword searches do nothing more complex than look for the occurrence of the searched word or term. These processes require a significant amount of hardware resources, which increase systems overheads. In addition keyword search systems require a significant amount of manual intervention so that words and the relationship between similar words can be identified. (Penguin = flightless birds = fish eating birds).

With no dynamic intelligence, keyword search engines cannot learn through use, nor do keyword search engines have any understanding of queries on specific words. For example when the word "penguin" is entered, keyword search engines cannot learn that the penguin is a flightless black and white bird that eats fish.

Significant user refinement is required to boost accuracy. Keyword search engines rely heavily on the expertise of the end user to create queries in such a way that the results are most accurate. This requires complex and specific Boolean syntaxes, which the ordinary end-user would not be able to complete, e.g., to get an accurate result for penguins, an end user would have to enter the query as follows: "Penguin AND (NOT (Chocolate OR Clothing OR Publishing) AND Bird.

In accordance with one embodiment, a more complex matching technology avoids these problems by matching concepts instead of simple keywords. The search takes into account the

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context in which the search terms appear, thus excluding many inaccurate hits while including assets that may not necessarily contain the keywords, but do contain their concept. This also allows for new words or phrases to be immediately identified and matched with similar ones, based upon the common ideas the words contain as opposed to being constrained by the presence or absence of an individual word; this equally applies to misspelled words. In addition to the concept matching technology, the search criteria may accept standard Boolean text queries or any combination of Boolean or concept queries.

Additionally, a searching algorithm can be used that has a cost associated with where content is received from. This will be described further with reference to FIG. 27.

Transaction and Playback History (Logging)-

The transition and playback module 472 uses the local storage facilities to collect and maintain information about access rights transactions and the acquisition of content (in the form of collections and entities). Additionally, this component tracks the history of playback experiences (presentations of content). In one embodiment the history is built by tracking each individual user (denoted by a secure identifier through a login process) and their playback of content from any and all sources. The transactions performed by the individual user are logged and associated with the user thereby establishing the content rights of that user. In another embodiment the history of playback is associated with the specific collection of content entities that were played back. Additionally, all transactions related to the collection of content entities (acquisition, access rights, usage counters, etc) are logged. These may be logged in the dynamic metadata of the collection, thus preserving a history of use.

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New Content Acquisition Agent (NCAA) - the new content acquisition agent 476 acts as a broker on behalf of a specific user to acquire new content collections and the associated access rights for those collections. This can involve an e-commerce transaction. The content acquisition agent 472 uses the content search engine 474 and a content filter to locate and identify the content collection desired and negotiate the access rights through the access rights manager 482. In one embodiment, the content filter is not part of the playback engine 450 but instead part of the content manager 470 and the new content acquisition agent 476. The new content acquisition agent uses the metadata associated with the entities in helping with acquisition.

Access Rights Manager - The access rights manager 482 acts as a file system protection system and protects entities and collections from being accessed by different users or even from being published or distributed. This insures the security of the entities and collections is maintained. The access rights may be different for individual parts of an entity or a collection or for the entire entity or collection. An example of this is a movie that has some adult scenes. The adult scenes may have different access rights then the rest of the movie. In one embodiment, the access rights manager 482 contains digital rights management (DRM) technology for files obtained over a network accessible storage device. In most instances, DRM is a system that encrypts digital media content and limits access to only those people who have acquired a proper license to play the content. That is, DRM is a technology that enables the secure distribution, promotion, and sale of digital media content on the Internet. The rights to a file may be for a given period of time. This right specifies the length of time (in hours) a license is valid after the first time the license is stored on the consumer's device. For example, the owner of content can

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set a license to expire 72 hours after the content is stored. Additionally, the rights to a file may be for a given number of usage counts. For example, each time the file is accessed the allowed usage count is decremented and when a reference count is zero the file is no longer usable. The rights to a file may also limit redistribution or transferring to a portable device. This right specifies whether the user can transfer the content from the device to a portable device for playback. A related right specifies how many times the user can transfer the content to such portable devices. The access rights manager 482 may be required to obtain or validate licenses for entities before allowing playback each time or may internally track the licenses expiration and usage constraints.

In another embodiment by owning a particular set of entities or collections, the ownership can allow access rights to additional entities or collections. An example of this is if a user owns a DVD disc then the user can gain access to additional features on-line.

A trusted establishment can charge customers for entities. This allows for a user-billing model for paying for content. This can be, e.g., on a per use basis or a purchase for unlimited usages.

The access rights manager can also register new content. For example, content registration can be used for new discs or newly downloaded content.

The access rights manager 482 may use DRM to play a file or the access rights manager 482 may have to get rights to the file to even read the file in the first place. This is similar to hard disk rights. For streaming files, the right to the content is established before downloading the content.

Network Content Publishing Manager - The network content publishing manager 480 provides the publishing service to individual users wishing to publish their own collections

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or entities. The network content publishing manager 480 negotiates with the new content acquisition agent 482 to acquire the collection, ensuring that all the associated access rights are procured as well. The user can then provide unique dynamic metadata extensions or replacements to publish their unique playback presentation of the specific collection. One embodiment is as simple as a personal home video being published for sharing with family where the individual creates all the metadata. Another embodiment is a very specific scene medley of a recorded TV show where the behavioral metadata defines the specific scenes that the user wishes to publish and share with friends.

In one embodiment the Publishing Manager may consist of a service that listens to a particular network port on the device that is connected to the network. Requests to this network port can retrieve an XML file that contains the published entities and collections and the associated Metadata. This function is similar to the Simple Object Access Protocol (SOAP). SOAP combines the proven Web technology of HTTP with the flexibility and extensibility of XML. SOAP is based on a request/response system and supports interoperation between COM, CORBA, Perl, Tcl, the Java-language, C, Python, or PHP programs running anywhere on the Internet. SOAP is designed more for the interoperability across platforms but using the same principles SOAP can be extended to expose and publish available entity and collection resources. A system of this nature allows peer-to-peer interoperability of exchanging entities. Content Acquisition agents can search a defined set of host machines to search for available entities. In another embodiment the Publishing manager is a service that accepts search requests and returns the search results back as the response. In this system the agents contact the publishing manager which searches its entities and collections and returns the results in a given

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format (i.e. xml, text, hyperlinks to the given entities found, etc.). In this model the search is distributed among the peer server or client computers and a large centralized location is not required. The search can be further expanded or reduced based on the requesters access rights to content which is something a public search engine (such as YAHOO or GOOGLE) cannot offer today. In another embodiment the Content Directory Service in UPnP Devices can be used by the Publishing Manager. The Content Directory Service additionally provides a lookup/storage service that allows clients (e.g. UI devices) to locate (and possibly store) individual objects (e.g. songs, movies, pictures, etc) that the (server) device is capable of providing. For example, this service can be used to enumerate a list of songs stored on an MP3 player, a list of still-images comprising various slide-shows, a list of movies stored in a DVDJukebox, a list of TV shows currently being broadcast (a.k.a an EPG), a list of songs stored in a CDJukebox, a list of programs stored on a PVR (Personal Video Recorder) device, etc. Nearly any type of content can be enumerated via this Content Directory service. For those devices that contain multiple types of content (e.g. MP3, MPEG2, JPEG, etc), a single instance of the Content Directory Service can be used to enumerate all objects, regardless of their type. In addition the services allow search capabilities. This action allows the caller to search the content directory for objects that match some search criteria. The search criteria are specified as a query string operating on properties with comparison and logical operators.

Media Subsystem

The playback runtime engine 450 is responsible for maintaining the synchronization, timing, ordering and transitions of the various entities. The playback runtime engine 450 will process any scripts (e.g., behavioral metadata) of the collections and has the overall control of

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the entities. The playback runtime engine 450 accepts user input to provide the various playback functions including but not limited to, play, fast-forward, rewind, pause, stop, slow, skip forward, skip backward, and eject. The synchronization can be done using events and an event manager, such as described herein with reference to FIG. 11. The playback runtime engine 450 can be implemented as a state machine, a virtual machine, or even within a browser. The playback runtime engine 450 can be hard coded for specific functions in a system with fixed input devices and functionality or programmable using various object oriented languages to scripting languages. There are numerous markup languages that can be used in this system as well. A web browser may support various markup languages including, but not limited to, HTML, XHTML, MSHTML, MHP, etc. While HTML is referenced throughout this document HTML is replaced by any markup language or alternative meta-language or script language having the same functionality in different embodiments. In addition the presentation device may be a presentation rendering engine that supports virtual machines, scripts, or executable code, for example, Java, Java Virtual Machine (JVM), MHP, PHP, or some other equivalent engine.

The Presentation Layout Manager

The presentation layout manager 462 determines the effect of the input devices 408. For example, when multiple windows are on the screen the position of the cursor is as important as to which window will receive the input devices action. The system controller 430 provides on-screen menus or simply processes commands from the input devices to control the playback and content processing of the system. As the system controller 430 presents these on-screen menus, the system controller 430 also requests context-sensitive overlaid menus from a menu generator based upon metadata so that these menus provide more personalized information and choices to the

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user. This feature will be discussed below in greater detail with reference to FIG. 11. In addition the system controller 430 manages other system resources, such as timers, and interfaces to other processors. The presentation layout manager not only controls the positioning of the various input sources but also can control the layering and blending/transparency of the various layers.

DVD Navigation Command Insertion & Replacement

The DVD navigational structure can be controlled by commands that are similar to machine assembler language directives such as: Flow control (GOTO, LINK, JUMP, etc.); Register data operations (LOAD, MOVE, SWAP, etc.); Logical operations (AND, OR, XOR, etc.); Math operations (ADD, SUB, MULT, DIV, MOD, RAND, etc.); and Comparison operations (EQ, NE, GT, GTE, LT, LTE, etc.).

These commands are authored into the DVD-Video as pre, post and cell commands in program chains (PGCs). Each PGC can optionally begin with a set of pre-commands, followed by cells which can each have one optional command, followed by an optional set of post-commands. In total, a PGC cannot have more than 128 commands. The commands are stored in the IFO file at the beginning and can be referenced by number and can be reused. Cell commands are executed after the cell is presented.

Normally in an InterActual title, any Annex J directives like a TitlePlay(8) which tells the navigator to jump to title #8, or AudioStream(3) which tells the navigator to set the audio stream to #3, are sent *after* these embedded navigation commands have been loaded from the IFO file for the Navigator to reference and executed in *addition* to the navigation command processing.

In one embodiment, new navigation commands can be inserted or navigation commands can replace existing navigation commands in the embedded video stream. This is

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done by altering the IFO file. The commands are at a lower level of functionality than the Annex J commands that are executed via JavaScript. The IFO file has all the navigation information and is hard coded. For graceful degradation the IFO file is intercepted and intelligently modified.

In one embodiment, the playback runtime engine 1550 executes the replacement or insertion action. One way is for the playback runtime engine 450 to replace the navigation commands in the IFO file before the IFO file is loaded and processed by the DVD Navigator by using an interim staging area (DRAM or L2 cache of file system) or intercepting the file system directives upon an IFO load. Alternatively, the playback runtime engine 450 can replace the navigation commands in the system memory of the DVD Navigator after the navigation commands have been loaded from the IFO file.

The former allows one methodology for many systems/navigators where the management of the file system memory is managed by the media services code. The latter requires new interfaces to the DVD Navigator allowing the table containing the navigation commands (located within the Navigator's working memory) to be patched or replaced/inserted somewhat like a program that patches assembler code in the field in computers (this was a common practice for delivering fixes to code in the field by editing hexadecimal data in the object files of the software and forcing the object files to be reloaded).

Case I - Browser modifies the Commands individually

This case is one where the specific navigation commands are modified by a JavaScript command. In this case, the command is constructed in the following fashion:

```
SetNavCmd(title, PGCNumber, newCmdString,
locationOffset);
```


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where, for the specified *title* (e.g. as specified by "t" in VTS_0t_0), the *newCmdString* is the hexadecimal command string, and the *locationOffset* is the hexadecimal offset in the PGC command table for PGC referenced in the *PGCNumber* (e.g. as specified by "n" here: VTS_PGC_n).

Case II - Media Subsystem modifies the Command Table

This case is where the media subsystem acquires the full set of modifications to the navigation command table and applies the modifications similar to a software patch. In one embodiment, the method of acquiring the full set of modifications is as follows:

1. By locating the modifications on a specific ROM directory (this enables the DVD-Video to be burned without re-authoring the DVD-video by simply placing the "patch" on the ROM).
2. By receiving the modifications from the server after a disc identification exchange that occurs during the startup process. This is where the web server provides the modifications to media services upon verifying the DVD-Video disc (title).
3. By receiving the modifications via a JavaScript command, but as an entire command table, such as ApplyNavCmdTable(title, PGCNumber, newCmdTable);

Additionally, for the above Case 1 command in the media subsystem (exposed to JavaScript) can be employed to modify individual navigation commands by the media services.

Referring to FIG. 5 a diagram is shown illustrating a media player according to one embodiment. Shown are a media storage device 500, a media player 502, an output 504, a presentation device 506, a browser 508, an ITX API 510, a media services module 512, and a decoder module 514.

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The ITX API 510 is a programming interface allowing a JavaScript/HTML application to control the playback of DVD video creating new interactive applications which are distinctly different from watching the feature movie in a linear fashion. The JavaScript is interpreted line-by-line and each ITX instruction is sent to the media subsystem in pseudo real-time. This can create certain timing issues and system latency that adversely affect the media playback. One example of the programming interface is discussed in greater detail with reference to FIGS. 6 AND 7.

Referring to FIG. 6 a diagram is shown illustrating a media player according to another embodiment. Shown is a media storage device 600, a media player 602, an output 604, a presentation device 606, an on screen display 608, a media services module 610, a content services module 612 a behavioral metadata component 614 and a decoder module 616.

The media player 602 includes the on screen display 608, the media services module 610 and the decoder module 616. The media services module 610 includes the content services module 612 and the behavioral metadata component 614.

The media services module 610 controls the presentation of playback in a declarative fashion that can be fully prepared before playback of an entity or collection. This process involves queuing up files in a playlist for playback on the media player 602 through various entity decoders. Collection metadata is used by the content manager (shown in FIG. 4) to create the playlist and the content manager will also manage the sequencing when multiple entity decoders are required. In one example, the media services module 610 gathers (i.e., locates in a local memory or download from remote content source if not locally stored) the necessary entities for a requested collection and fully prepares the collection for playback based upon, e.g., the system requirements (i.e., capabilities) the properties of the

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collection (defined by the entity metadata). An example of the media service module 610 fully preparing the collection for playback is described below with reference to the W3C SMIL timing model. The W3C standard can be found at http://www.w3.org/TR/smil20/smil-timing.html.

SMIL Timing defines elements and attributes to coordinate and synchronize the presentation of media over time. The term media covers a broad range, including discrete media types such as still images, text, and vector graphics, as well as continuous media types that are intrinsically time-based, such as video, audio and animation.

Three synchronization elements support common timing use-cases:

- The <seq> element plays the child elements one after another in a sequence.
- The <excl> element plays one child at a time, but does not impose any order.
- The <par> element plays child elements as a group (allowing "parallel" playback).

These elements are referred to as time containers. The time containers group their contained children together into coordinated timelines. SMIL Timing also provides attributes that can be used to specify an element's timing behavior. Elements have a begin, and a simple duration. The begin can be specified in various ways - for example, an element can begin at a given time, or based upon when another element begins, or when some event (such as a mouse click) happens. The simple duration defines the basic presentation duration of an element. Elements can be defined to repeat the simple duration, a number of times or for an amount of time. The simple duration and any effects of repeat are combined to define the active duration. When an element's active duration has ended, the element can either be removed from the

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presentation or frozen (held in its final state), e.g. to fill any gaps in the presentation.

An element becomes active when the element begins its active duration, and becomes inactive when the element ends its active duration. Within the active duration, the element is active, and outside the active duration, the element is inactive.

In another example, a timeline is constructed from behavioral metadata which is used by the playback engine. The behavioral metadata attaches entities to the timeline and then, using the timeline like a macro of media service commands, executes them to generate the presentation.

A full set of declarations can be given to the media subsystem such that media playback can be setup completely before the start of playback. This allows for a simpler authoring metaphor and also for a more reliable playback experience compared to the system shown in FIG. 5. The actions associated with each declaration can be a subset (with some possible additions) of the ITX commands provided to JavaScript. In JavaScript, Methods are actions applied to particular objects, that is, things that the objects can do. For example, document.open(index.htm) or document.write("text here"), where open() and write() are methods and document is an object. Events associate an object with an action. JavaScript uses commands called event handlers to program events. Event handlers place the string "on" before the event. For example, the onMouseover event handler allows the page user to change an image, and the onSubmit event handler can send a form. Page user actions typically trigger events. For example onClick="javascript:formHandler()" calls a JavaScript function when the user clicks a button or other element. Functions are statements that perform tasks. JavaScript has built-in functions and functions that can be written by a developer. A function is a series of commands

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that will perform a task or calculate a value. Every function must be named. Functions can specify parameters, the values and commands that run when the function is used. A written function can serve to repeat the same task by calling up the function rather that rewriting the code for each instance of use. A pair of curly brackets {} surrounds all statements in a function. Additionally, the on-screen display, in one example can be a browser such as described with reference to FIG. 5.

Referring to FIG. 7 a diagram is shown illustrating an application programming system in accordance with one embodiment.

Shown are an embedded web browser 700, a command handler (with command API) 702, a properties handler (with properties API) 704, an event generator (with event API) 706, a cookie manager (with cookie API) 708, an identifier engine 710, an initialization module 712, a navigator state module 714, a bookmark manager 716, a system resources 920, a system timer 722, a system monitor 724, a system initialization 726 a DVD/CD navigator 728, a user remote control 730, a front panel display module 732, a CD decoder 734, a DVD decoder 735, an I/O controller 736, a plurality of disks 738, a HTML/JavaScript content 740, and an InterActual API 742.

The embedded web browser 700 is coupled to the command handler (which has an associated command API) 702 as shown by a bi-directional arrow. The embedded web browser 700 is coupled separately to the properties handler (which has an associated properties API) 704, the event generator (which has an associated event API) 706, and the cookie manager (which has an associated cookie API) 708, all three connections shown by an arrow pointing towards the embedded web browser 700.

The command handler 702 is coupled to the bookmark manager 716 shown by a bi-directional arrow. The command handler 702 is coupled to the DVD/CD navigator 728 shown by a

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bi-directional arrow. The command handler 702 is coupled to the navigator state module 714 shown by a bi-directional arrow. The command handler 702 is coupled to the system resources 720 by an arrow pointing to the system resources 720.

The properties handler 704 is coupled separately to the bookmark manager 716 and the identifier engine 710, both shown by an arrow pointing to the properties handler 704. The properties handler 704 is coupled the event generator 706 by a bi-directional arrow.

The event generator 706 is coupled to the navigator state module 714 shown by a bi-directional arrow. The event generator 76 is coupled to the system timer 722 shown by an arrow pointing to the event generator 706. The event generator 706 is coupled to the cookie manager 708 by an arrow pointing to the cookie manager 708.

The cookie manager 708 is coupled to the identifier engine 710 shown by a bi-directional arrow.

The identifier engine 710 is coupled to the I/O controller 736 by an arrow pointing towards the identifier engine 710 and to the navigator state module 714 by a bi-directional arrow.

The initialization module 712 is coupled to the system initialization 726 by an arrow pointing towards the initialization module 712. The initialization module 712 is coupled to the navigator state module 714 by an arrow pointing to the navigator state module 714.

The navigator state module 714 is also coupled separately to the bookmark manager 716 and the DVD/CD navigator 722 by bi-directional arrows.

The DVD/CD navigator 728 is coupled to the user remote control 730 by an arrow pointing to the DVD/CD navigator 728. The DVD/CD navigator 728 is coupled to the front panel display module 732 by an arrow pointing to the

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front panel display module 732. The DVD/CD navigator 722 is coupled to the DVD decoder 726 by a bi-directional arrow.

The I/O controller 736 is coupled separately to both the DVD decoder 735 and the CD decoder 734 by arrows pointing away from the I/O controller 736. The I/O controller 736 is coupled to the disk 738 by an arrow pointing to the disk 738.

The disk 738 is coupled to the HTML/JavaScript content 740 by an arrow pointing to the HTML/JavaScript content 740.

The HTML/JavaScript content 740 is coupled to the Application programming interface (API) 742 by an arrow pointing to the Application programming interface (API) 742.

In operation, the embedded web browser 700 receives HTML / JavaScript content from the disk 738 which is displayed by presentation engine within the embedded web browser 700. The embedded web browser 700 originates commands as a result of user interaction which can be via the remote control (shown in FIG. 30) in set-top systems, the keyboard or mouse in computing systems, the game interface (e.g., joystick, PLAYSTATION controller) in gaming systems, etc., which are sent to the command handler 702 by way of the command API. The embedded web browser 700 also receives commands from the command handler 702 by way of the command API. An example of such a command is InterActual.FullScreen(w). The embedded web browser 700 also receives cookies from the cookie manager 708 via the cookie API, generally in response to the accessing of an Internet website. The embedded web browser 700 also receives events (notifications) each of which is a notification that a respective defined event (generally related to media playback) has occurred. These events are generated by the event generator 706 and sent via the event API. The embedded web browser 700 also queries properties from the properties handler 704 via the properties API.

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Properties are received in response to inquiries generated by the embedded web browser 700.

The command handler 702 controls the DVD/CD navigator 728 including starting and stopping playback, changing audio streams, and displaying sub-pictures from JavaScript, among many things. The command handler 702 provides live web content for non-Interactive disks when an active Internet connection is present, determined by checking the InternetStatus property, or by initiating a connection through such commands as InterActual.NetConnect() and InterActual.NetDisconnect(). In one example, if a connection is available, the command handler can pass to a content server the content ID, Entity ID, or Collection ID and the server can return additional content to be used during playback. In another embodiment a web-address for the updated content is included on the disc in the form of a URL. Alternatively, the server is specified by the user for which the software should look for updated content. In yet another embodiment, the server and the interface or URL that is queried for the additional content may be predetermined or preconfigured into the player. In still another embodiment, updated content is searched for across the web according to the Entity or Collection Meta Data as described such as described below with reference to FIG. 27.

The command handler 702 commands the bookmark manager 716 through such commands as InterActual.GotoBookmark() and InterActual.SaveBookmark(). The command handler 702 also interacts with the navigator state module 714 generally regarding user interaction. The Navigator state module 714 keeps the current state of the system and receives the current state of the system directly from the decoder (or maps directly into the decoder). When the bookmark manager 716 saves a bookmark and needs to know the current title, the bookmark manager 716 receives the

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current title from the navigator state module 714 and places the current title in a bookmark and returns the current title to the command handler to allow the command handle to provide a return value to the InterActual.SaveBookmark command.

The properties handler 704 provides the embedded web browser 700 with the ability to interrogate the navigator state module 714 for the DVD/CD navigator 728 state which includes the properties (also referred to as attributes) of the elapsed time of the current title, the disk type, and the disk region, among others. This is accomplished by providing the browser a handle to the memory offset where the navigator state module stores the current media attributes thereby allowing the browser to directly read the current media attributes. The properties handler 704 maintains knowledge of system attributes. The Event Generator monitors these attributes and triggers and event when one is changed.

The event generator 706 receives notification from the DVD/CD navigator 728 of events such as a change of title or chapter with web content (based on DVD time codes and the system time from the system timer 722. The event generator 706 notifies the properties handler 704 of event triggers which are of interest to the properties handler 704. The event generator 706 also provides events to the cookie manager 708 such as relate to the accessing of web pages, disk insertion, and disk ejection events. The event mechanism used for the scripting and synchronizing is the event generator 706 of the Media Services system. The event generator 706 generates media events when instructed by a media navigator such as media title change or media PTT (Part of Title, which is also referred to as a Chapter) change. The media events in turn cause a user interface (e.g., a web-browser) to receive an event, such as a Document Object Model (DOM) event (also referred to as a JavaScript event) for the AV object. In one embodiment, the AV object is an Active X control on a web-

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page, i.e., the component of software that does the work to display the video within a web-page. Thus, the web-browser is able to handle the media events, for example, in the same way the keyboard or mouse generate mouse events in web browsers. By way of example, a JavaScript event handler registers interest in the class of event occurring (such as a PTT event) and the JavaScript code, upon invocation, changes the presentation and/or layout. For example, in one embodiment, HTML text is changed in the presentation when a PTT change occurs as in the case where the HTML text is the screenplay for the actors and changes as scene boundaries which correlate to the PTT boundaries. Another example is when user operations (UOP) change in the media navigator, for instance Fast-Forward is not allowed, and a JavaScript event handler modifies the presentation by making an arrow-shaped button grayed out based upon this change.

The cookie manager 708 interacts with the identifier engine 710 to provide the ability to save information regarding the disk, platform, current user, and the application programming interface (API) version in local storage. This is enabled by the identifier engine maintaining this disc-related information and passing memory pointers to the disc-related information when the cookie manager requests them.

The identifier engine 710 provides an algorithm to generate a unique identifier for the media which enables the DVD ROM content (HTML and JavaScript from the disk) to carry out platform validation to ensure a certified device is present. The identifier engine 710 provides the ability to serialize each disk by reading and processing the information coded in the burst cut area (BCA) of the disk. The BCA is read by the identifier engine 710 and stored in the navigator state module 714. The BCA is read from the disc by the DVD-ROM Drive firmware and accessed by the controlling program

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through the drives ATAPI IDE interface. The Multimedia Command Set (MMC) and Mt. Fuji specifications provide the standardized commands used to interface with the DVD-ROM Drives firmware to read out the BCA value similar to how a SCSI drive is controlled. Hence commands such as InterActual.GetBCAField() can get the BCA information from the navigator state module 714 after insertion of a disc. This BCA information provides the ability to uniquely identify each disk by serial number. Conditional access to content, usage tracking, and other marketing techniques are implemented thereby. The identifier engine 710 gets the BCA information for the serial identifier (SerialID), hashes the video .IFO file to identify the title (called the MediaID), and then reads the ROM information to establish a data identifier (DataID) for the HTML/JavaScript data on the disc. The identifier engine 710 provides this information to the navigator state module 714 which stores this information and provides the information to whichever of the command handler 702, properties handler 704, or event generator 706 needs the information. The identifier engine 710 interacts with the navigator state module. The identifier engine 710 receives the BCA information (read differently than files) from the I/O controller 736. The identifier engine 710 interacts with the cookie manager 708 to place disc related information read from the BCA as discussed previously herein into the InterActual System cookie.

The initialization module 712 provides the ability to establish the DVD/CD navigator environment. The initialization module 712 allows the internal states and the State Modules (i.e. the navigator state module 714 to be initialized. This initialization also includes reading the current disc in the drive and initializing a system cookie. It is noted that the embedded web browser 700 interfaces which

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allow registering a callback for the event handler are established at power-up as well.

The navigator state module 714 provides the ability to coordinate user interaction and DVD behavior with front panel controls and/or a remote control. In one embodiment, arbitration of control happens in the navigator 728 between the remote and front panel controls. DVD/CD navigator 722 playback is initiated by the navigator state module 714 in response to input from the initialization module 712. The navigator state module 714 receives locations of book marked points in the video playback from the bookmark manager 716 and controls the DVD/CD navigator 728 accordingly.

The bookmark manager 716 provides the ability for the JavaScript content to mark spots in video playback, and to return later to the same spot along with the saved parameters which include angle, sub-picture, audio language, and so forth. The bookmark manager 716 provides the ability to use video bookmarks in conjunction with web bookmarks. As an example, a video bookmark is set, a web session is launched going to a preset web book marked source to retrieve video-related information, then later a return to the video at the book marked spot occurs. When a user "bookmarks" a web-page, a Web browser remembers that page's address (URL), so that the browser can be easily accessed again without having to type in the URL. For example, bookmarks are called "favorites" in Microsoft Internet Explorer. The bookmark keeps place, much like a bookmark in a book does. Most browsers have an easy method of saving the URL to create a bookmark. Microsoft Web editors use the term bookmark to refer to a location within a hyperlink destination within a Web page, referred to elsewhere as an anchor. In one embodiment Web bookmarks have an associated video bookmark. The Video bookmark stores the current location of the video playback, which may be the current time index to a movie or additional information such

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as the video's state being held in internal video registers that contain the state. In this example, when a new web session is started, a browser is opened and a web bookmark is restored that causes video to resume from a particular video bookmark.

The system timer 722 provides time stamps to the event generator (706) for use in determining events for synchronization or controlled playback.

The system monitor 724 interacts with the properties handler 704. In one embodiment, the system timer 722 generates a 900 millisecond timer tick as an event which the HTML/JavaScript uses in updating the appropriate time displays as is needed. For systems that do not have a DVD Navigator that creates events the system timer 722 is used to poll the property values every 900 milliseconds and compares the poll results with a previous result. If the result changes then an event is generated to the HTML/JavaScript. Some navigators keep the state information of the DVD internally and do not broadcast or send out events to notify other components of the system. These navigators do provide methods or properties to query the current state of the navigator. It is these systems that require polling for the information. Optionally, the process that polls the information detects changes in the information and then provides an event to other components in the system to provide events.

The system initialization 726 provides initialization control whenever the system is turned on or reset. Each component is instantiated and is given execution to setup the components internal variables thereby bringing the system to a known initialized state. This enables the state machine for media playback to always start in a known state.

The DVD decoder 735 generally receives the media stream from the I/O controller 736 and decodes the media

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stream into video and audio signals for output. The DVD decoder 735 receives control from DVD/CD navigator 728.

The CD-DA decoder 734 receives a media stream from I/O controller 736 and decodes the media stream into audio which the CD-DA decoder 734 provides as output.

The I/O controller 736 interfaces with disk 738 and controls the disk's physical movement, playback, and provides the raw output to the appropriate decoder. The I/O controller 736 also provides disk state information to identifier engine 710.

In one embodiment, the application programming interface (API) 742 provides a basic set of guidelines for the production of Internet-connected DVDs and for the playback of these enhanced DVDs on a range of computer, set-top platforms, and players. Based on the industry standard publishing format hypertext markup language (HTML) (found at http://www.w3.org/TR/html) and JavaScript, the application programming interface (API) provides a way to easily combine DVD-Video, DVD-Audio, and CD-Audio with and within HTML pages, whereby HTML pages can control the media playback. The application programming interface (API) provides a foundation for bringing content developers, consumer electronics manufacturers, browser manufacturers, and semiconductor manufacturers together to provide common development and playback platforms for enhanced DVD content.

Referring to Fig. 8, shown is a depiction of one example of the relationship between an entity, a collection, entity metadata, and collection metadata. Shown is a storage area 800 containing multiple entities. Within the storage area is a text entity 802, a video entity 804, an audio entity 806 and a still image entity 808. Also shown are the entity metadata 810, the collection metadata 812 and a final collection 814. The final collection 814 includes the text entity 802, the video entity 804, the audio entity 806, the

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still image entity 808, the entity metadata 810, and the collection metadata 812.

The collection metadata 812 can be generated at the time of creation of the collection and can be done by the content manager 870 or manually. The content manager 870 can also create a collection from another collection by gracefully degrading the collection or modifying the collection. The collection metadata can by static, dynamic or behavioral.

The content services module 824 utilizes a collection of entities for playback. A collection is made up of one or more entities. FIG. 8 shows the hierarchy of a collection to an entity. In one embodiment an entity can be any media, multimedia format, file based formats, streaming media, or anything that can contain information whether graphical, textual, audio, or sensory information. In another embodiment an entity can be disc based media including digital versatile disks (DVDs), audio CDs, videotapes, laserdiscs, CD-ROMs, or video game cartridges. To this end, DVD has widespread support from all major electronics companies, all major computer hardware companies, and all major movie and music studios. In addition, new formats disc formats such as High Definition DVD (HD-DVD), Advanced Optical Discs (AOD), and Blu-Ray Disc (BD, as well as new mediums such as Personal Video Recorders (PVR) and Digital Video Recorders (DVR) are just some of the future mediums that can be used. In another form entities can exist on transferable memory formats from floppy discs, Compact Flash, USB Flash, Sony Memory Sticks, SD_Memory, MMC formats etc. Entities may also exist over a local hard disc, a local network, a peer-to-peer network, or a WAN or even the Internet.

In accordance with one embodiment, each of the entities includes both content and metadata. The entities are gathered by the content search engine 874. The entities are then instantiated into a collection. In object-oriented

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programming, instantiation produces a particular object from the objects' class template. This involves allocation of a structure with the types specified by the template, and initialization of instance variables with either default values or those provided by the class's constructor function. In accordance with one embodiment, a collection is created that includes the video entity 804, the audio entity 806, the still image entity 808, the text entity 802, the entity metadata 810 for each of the aforementioned entities, and the collection metadata 812.

An entire collection can be stored locally or parts of the entities can be network accessible. In addition entities can be included into multiple collections.

Referring to FIG. 9 shown is a conceptual diagram illustrating one example of metadata fields 900 for one of the various entities 902. Along with each entity is associated metadata 904. The metadata 904 has various categories for which the metadata describes the entity.

In one embodiment the entity metadata may be contained in an XML file format or other file format separate from the entity file. In another embodiment the entity metadata is contained within in the header of the entity file. The entity metadata may be part of the entity itself or in a separate data file from where the entity is stored.

The entity metadata may be stored on a separate medium or location and the present embodiment can identify the disc through an entity identifier or media identifier and then pass the identifier to a separate database that looks up the identifier and returns the entity's metadata, e.g., an XML description file.

The entity metadata is used to describe an entity that the entity metadata is associated with. The entity metadata can be searched using the search engine described herein. Additionally, the content management system uses the

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metadata in the creation of collections and uses the metadata to determine how each of the entities within a collection will be displayed on the presentation device.

In one embodiment, a system can include a presentation device having a 16:9 aspect ration. The user may wish to create a collection of Bruce Lee's greatest fight scenes. The content management system will do a search and find different entities that are available, either on an available portable storage medium, the local storage medium, or on any remote storage medium. The content management system will identify the available entities on each storage medium and create a collection based upon the metadata associated with each entity and optionally also the content of each entity. In creating the collection, the system will attempt to find entities that are best displayed on a presentation device with a 16:9 aspect ratio. If an entity exists that has a fight scene, but the entity is not available in the 16:9 version, the content manager will then substitute this entity with, e.g., the same fight scene that is in a standard television format.

In addition to scenes from a movie, the content management system may also include in the collection still pictures from the greatest fight scenes. In yet another embodiment, the collection can include web-pages discussing Bruce Lee or any other content related to Bruce Lee's greatest fight scenes that is available in an form. The presentation layout manager along with the playback runtime engine will then determine how to display the collection on the presentation device.

There can be different categories of metadata. One example of a category of metadata is static metadata. The static metadata is data about the entity that remains constant and does not change without a complete regeneration of the entity. The static metadata can include all or a portion of

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the following categories; for example: Format or form of raw entity (encoder info, etc - ex: AC3, MPEG-2); Conditions for use; IP access rights, price - (ex: access key); paid, who can use this based on ID; Ratings and classifications - (ex: parental level; region restrictions); Context data - (ex: when/where recorded; set or volume information); One example of metadata for audio content can include: a = artist, c = album (CD) name, s = song, l = record label and L = optional record label; Creation and/or production process info - (ex: title, director, etc.); and Rules of usage regarding presentation (unchangeable as per the collection owner) including, for example, layouts, fonts and colors.

Another example of a category of metadata is dynamic metadata. The dynamic metadata is data about the entity that can change with usage and can be optionally extended through additions. The dynamic metadata can include all or a portion of the following categories; for example:
Historical and factual info related to usage - (ex: logging for number of times used (royalty related - copyright usage, distribution limitations) or for rental type transaction (e.g. Divx)); Segmentation information - (ex: scene cuts described by static metadata data info (like the G rated version etc) with start/end time codes and textual index info to allow search ability); User preferences and history - (ex: learn uses over time by user to note patterns of use with this collection (versus patterns of use associated with the user ID like TiVo may do)); and Rules of usage regarding presentation (changeable and extendable) including, for example, layout, fonts and colors.

Yet another type of metadata can be behavioral metadata. The behavioral metadata is the set of rules or instructions that specify how the entities are used together in a collection (built upon the static and dynamic metadata information). The behavioral metadata can include all or a

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portion of the following categories; for example: A script of a presentation of the collection - for example, a G rated version of the collection is constructed using static metadata describing scenes ("Love Scene" starts at time code A and stops at B) and rules which specify layout or copyright requirements (e.g., must be played full screen); A playlist of the collection - (ex: a scene medley of all the New Zealand scenery highlights from "Lord of the Rings"); and A presentation of the collection defined by the title's Director to highlight a cinemagraphic technique.

In one implementation the collection metadata is implemented in an XML file or XML files. In other implementations the collection metadata is in other formats such as part of a playlist. Some examples of Playlist formats for Audio are:(M3U, PLS, ASX, PLT, LST).

The M3U (.m3u) Playlist File Format

M3U is a media queue format, also generally known as a playlist. M3U is the default playlist save format of WinAMP and most other media programs. M3U allows multiple files to be queued in a program in a specific format.

The actual format is really simple. A sample M3U list can be:

```
#EXTM3U
#EXTINF:111,3rd Bass - Al z A-B-Cee z
mp3/3rd Bass/3rd bass - Al z A-B-Cee z.mp3
#EXTINF:462,Apoptygma Berzerk - Kathy´s song (VNV Nation rmx)
mp3/Apoptygma Berzerk/Apoptygma Berzerk - Kathy's Song
(Victoria Mix by VNV Nation).mp3
#EXTINF:394,Apoptygma Berzerk - Kathy's Song
mp3/Apoptygma Berzerk/Apoptygma Berzerk - Kathy's Song.mp3
#EXTINF:307,Apoptygma Bezerk - Starsign
mp3/Apoptygma Berzerk/Apoptygma Berzerk - Starsign.mp3
#EXTINF:282,Various_Artists - Butthole Surfers: They Came In
mp3/Butthole_Surfers-They_Came_In.mp3
```


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The First line, "#EXTM3U" is the format descriptor, in this case M3U (or Extended M3U as it can be called). The first line does not change and is always #EXTM3U.

The second and third operate in a pair. The second begins "#EXTINF:" which serves as the record marker. The "#EXTINF" is unchanging. After the colon is a number: this number is the length of the track in whole seconds (not minutes:seconds or anything else. Then comes a comma and the name of the tune (not the FILE NAME). A good list generator will take the length of the track and the name of the tune from the ID3 tag if there is an ID3 tag, and if not the list generator will take the file name with the extension chopped off.

The second line of this pair (the third line) is the actual file name of the media in question. In the above example the file names are not fully qualified because the full file path is relative from the path of invocation.

For MP3 software Developers:

M3U files can hold MP3 files inside as an album file, called M3A. There is a file format used for Album files, ALBW. This is free to extract files, but not free to create.

Having M3A files do the same makes the format open and free to use by anyone. M3A format does not attempt to re-invent the wheel, M3A uses existing M3U format known to any mp3 software developers already, with a small addition.

Using the M3U file with file names listed as normal. An additional 2 entries are used:

#EXTBYT:

#EXTBIN:

The size of the file to be inserted is preceded by EXTBYT as follows:

#EXTBYT:510000

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filename1.mp3

#EXTBYT:702500

filename2.mp3

All file name entries are preceded by #EXTBYT: values of each file. Following all entries the actual files are inserted after #EXTBIN. To be precise, #EXTBIN: plus CR+LF is the 0 offset for the first file. All mp3 files are joined and inserted as is after that point. To extract a file from an M3A the file size of each file is known in #EXTBYT: size value. Each additional file #EXTBYT: is summed to find the end position of the preceding file to the one a user wishes to extract. Extracted files are created using filenames and #EXTBYT: as file size. This means all files are added to M3A without modification and there is no tag in the M3A itself that can be modified corrupting the Album file. The player can still read M3A part to find the content.

Additional M3U/M3A formatting can add Album descriptions to the file.

#EXTINF: seconds, track- artist

or

#EXTALB:

#EXTART:

(These are existing m3u values that some mp3 players support already.)

A JukeBox Decoder will currently create M3A files and view and extract mp3 files from M3A.

The JukeBox Decoder will treat the file as an M3A file, playing the same filenames of files listed in the M3A file if those files already exist in the same folder as an M3A file, just the same as a normal M3U. If there are no external copies the juke box will then allow extraction of the tracks from the M3A.

The M3A file will play as one continuous mp3 if renamed to mp3. There is a separate stand alone program

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m3aExtract limited to view tracks in an M3A file and extract them in the case a JukeBox Decoder is not installed. Any programs can use the #EXTBIN: and #EXTBYT: to create Album files, read them and extract contents. Additional optional entries are: #EXTM3U and #EXTM3A. These simply indicate the other EXT entries are present or explicit naming of the content and placed in the first line of the file.

The PLS format is highly proprietary and is only recognized by Winamp and few other players. Specifically, Windows Media Player does not support the PLS format, and MusicMatch Jukebox only plays the first song on the list. To ensure that a playlist reaches the widest possible audience, an m3u metafile is the desired format. While the PLS format has extra features like "Title", these properties can be adjusted in the MP3 file's tag.

In accordance with one embodiment, the content search engine can perform a metadata search in order to find entities. The content management system can include the entities in a collection either by downloading them to the local storage medium or simply including them from where the entities are currently stored.

Additionally, the metadata for each collection can be accessed and used across all collections in a library such that a search is made against the entire library much like the UNIX "grep" command. For many uses, a text search will be sufficient; however, pattern or speech recognition technologies can be used against the entities themselves.

In another embodiment, multiple collections can be retrieved and then entities from the multiple collections can be combined to make a new collection. The entities from the two previous collections make up the new collections.

In addition content owners can have control over the content and in what collections the content can be used. Content owners may want to control what a collection can be

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combined with or if the collection is allowed to be broken up into the collections different entities at all. Thus, the metadata associated with the collection can include parameters to control these options.

There can be various types of entities within a collection and the content manager determines which version to playback based on the passed in rules and criteria.

Referring to FIG. 10 a conceptual diagram is shown illustrating one embodiment of a collection. The collection includes the collection metadata (e.g., static, dynamic and behavioral), entities (e.g., title, video, sub-picture, text, still image, animation, audio, sensory, trailer and preview) and entity metadata associated with each of the entities.

In one embodiment, the contents of a DVD can be represented using entities and a collection. For example, video segments will be video entities and have associated metadata. Menus can be still image entities, subtitles can be text entities, and the audio can be audio entities. The collection metadata will describe the behavior of all of the different entities. The playback environment is used to seamlessly playback the represented DVD on the system available.

Referring to FIG. 11 a diagram is shown illustrating an exemplary collection 1150 in relation to a master timeline. Shown is a master timeline 1100, a first video clip 1102 a second video clip 1104, a third video clip 1106, a first audio clip 1108, a second audio clip 1110, a third audio clip 1112, a first picture 1114, a second picture 1116, a third picture 1118, a first text overlay 1120, a second text overlay 1122, a third text overlay 1124, and an event handler 1126.

The exemplary collection 1150 includes the first video clip 1102, the second video clip 1104, the third video clip 1106, the first audio clip 1108, the second audio clip 1110, the third audio clip 1112, the first picture 1114, the

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second picture 1116, the third picture 1118, the first text overlay 1120, the second text overlay 1122, and the third text overlay 1124, each of which are an entity. Therefore, as shown, the collection 1150 is made up of a plurality of entities.

The collection 1150 also includes collection metadata. The collection metadata can include information about when along the timeline each of the entities will be displayed in relation to the other entities. This is demonstrated by showing each entity being displayed according to the master timeline. Furthermore, the collection metadata can have hard coded metadata or optionally, variable metadata that can be filled in depending upon the system information (requirements and capabilities) for the system the collection will be displayed upon. The system information can be supplied to the content services module by the playback runtime engine. The content services module will then prepare the collection for playback based upon the system information.

One example of an XML file that includes system information and is supplied to the content services module from the presentation engine may be as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:noNamespaceSchemaLocation="CAP.xsd">
<Module>
     <Capabilities>
          <platforms>
               <platform>01</platform>
               <platform>02</platform>
          </platforms>
          <products>
               <productID>01</productID>
               <productID>02</productID>
          </products>
          <videoDisplays>
               <videoDisplaytype>01</videoDisplaytype>
               <videoDisplaytype>02</videoDisplaytype>
          </videoDisplays>
          <videoResolutions>
               <resolution>
```


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```
                    <videoXResolution>1024</videoXResolution>
                    <videoYResolution>768</videoYResolution>
                </resolution>
                <resolution>
                    <videoXResolution>800</videoXResolution>
                    <videoYResolution>600</videoYResolution>
                </resolution>
            </videoResolutions>
            <navigationDevices>
                <device>02</device>
                <device>03</device>
            </navigationDevices>
            <textInputDeviceReqd>01</textInputDeviceReqd>
            <viewingDistances>
                <view>01</view>
                <view>02</view>
            </viewingDistances>
        </Capabilities>

</Module>
</Metadata>
```

Alternatively, the XML file that includes the system information can include system requirements that must be met in order for the collection to be displayed. For example, a system that can not decode a HDTV signal will require only entities for a standard NTSC signal. Thus, an available collection may change depending upon the capabilities of the system it will be displayed upon. In this case, the entities within the collection will remain unchanged, however, the collection metadata may change how each of the entities are displayed based upon the system information. The collection metadata that defines how each of the entities are displayed upon a presentation device can be referred to as behavioral metadata.

Behavioral metadata can also include information for when each of the entities will be displayed. The behavioral metadata can map each of the entities into a master timeline, such as is shown in FIG. 11. For example, the first video clip is played from time T0 to time t1.

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One example of an XML file that includes behavioral metadata is as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xsi:noNamespaceSchemaLocation="BHM.xsd">
<Module>
     <moduleName>Sample Script</moduleName>
     <eventHandler>"..\Sample_ev.xmb"</evenetHandler>
     <presentationArray>
          <medley>
               <startHour>0</startHour>
               <startMin>6</startMin>
               <startSec>27</startSec>
               <clipLength>6500</clipLength>
               <clipDescription>Have a face</clipDescription>
               <action type="PlayTime"></action>
          </medley>
          <medley>
               <startHour>0</startHour>
               <startMin>13</startMin>
               <startSec>45</startSec>
               <clipLength>76500</clipLength>
               <clipDescription>The birthday</clipDescription>
               <action type="PlayTime"></action>
          </medley>
          <medley>
               <startHour>1</startHour>
               <startMin>34</startMin>
               <startSec>57</startSec>
               <clipLength>3250</clipLength>
               <clipDescription>A goodbye</clipDescription>
               <action type="PlayTime">
               <action type="DisplayImage">
                    <startHour>1</startHour>
                    <startMin>36</startMin>
                    <startSec>0</startSec>
                    <entity>"..\Image.gif"</entity>
               </action>
               </action>
          </medley>
     </presentationArray>
</Module>
</Metadata>
```

In one embodiment, the previous example is used to stitch the varies entities within a collection together using a declarative language model, where each element in the XML file instructs the system what is to be shown at a specific

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time along a master timeline. Therefore, the collection contains all of the entities, static metadata about the collection, dynamic metadata about the collection, and behavioral metadata about the collection. All of this is used to fully prepare the collection for playback on a presentation device. If the device has the processing power all of this stitching can occur in real-time. In addition, the acquisition of some of the entities that will be used later in time on the presentation can be searched and retrieved in parallel while others are being displayed, to further allow real-time, retrieval, rendering and stitching of entities.

Table 1 is a partial list of the different commands that can be included in the behavioral metadata file.

Play
PlayTitle
PlayChapter
PlayChapterAutoStop
PlayTime
PlayTimeAutoStop
PlayTitleGroup
PlayTrack
SearchChapter
SearchTime
SearchTrack
NextPG
PrevPG
GoUp
NextTrack
PrevTrack
NextSlide
PrevSlide
Pause
Stop
FastForward
Rewind
Menu
Resume
StillOff
SelectAudio
SelectSubpicture
SelectAngle
SelectParentalLevel

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EnableSubpicture
SetGPRM
Mute
FullScreen
GotoBookmark
SaveBookmark
NetConnect
NetDisconnect
SubscribeToEvent

Table 1

The following is one example of what collection metadata can look like in XML. The example includes both static and dynamic metadata:

```
<?xml version="1.0" encoding="UTF-8"?>
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="Collection.xsd">
        <Collection id="123456789">
                <title>
                        <video>
                                <entity id="A32W">
                                 <locator uri="www.someplace.org/videos/movie"/>
                                 <metadata uri="www.someplace.org/meta/movie-meta.xml"/>
                                 <copyright>Buena Vista</copyright>
                                </entity>
                        </video>
                        <audio>
                                <entity id="Z3Q1">
                                 <locator uri="www.someplace.org/tracks/track33.wav"/>
                                 <metadata uri="www.someplace.org/meta/audio-meta.xml"/>
                                 <copyright>Buena Vista</copyright>
                                </entity>
                        </audio>
                        <text>
                                <entity id="F4R0">
                                 <locator uri="www.someplace.org/subtitles/t12.xml"/>
                                 <metadata uri="www.someplace.org/meta/text-meta.xml"/>
                                 <copyright>NA</copyright>
                                </entity>
                        </text>
                        <subpictures>
                                <entity id="422P">
                                 <locator uri="www.someplace.org/subp/track8"/>
                                 <metadata uri="www.someplace.org/meta/subp-meta.xml"/>
                                 <copyright>Buena Vista</copyright>
                                </entity>
                        </subpictures>
                </title>
                <static>
                        <description>
                          <format type="MPEG-2" encoder="Sigma"/>
                          <condition type="PKI">free</condition>
                          <rating type="US">PG</rating>
                          <author>Disney</author>
                          <director>George Jetson</director>
```


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```
                    <usage uri="rules/J-rule" type="mandatory" />
                </description>
            </static>
            <dynamic>
                <description>
                    <usageLog type="royalty-free" uri="http://www.free-media.com/BV"/>
                    <segments uri="segments/G-version" />
                </description>
            </dynamic>
        </Collection>
</Metadata>
```

The collection metadata includes a listing of the entities included in the collection and also includes pointers to where the entity and the entities metadata are stored. Additionally included are both static and dynamic metadata. The collection need not include both static and dynamic metadata but will generally include both types of metadata.

The following is an example of entity metadata in an XML file. In the example given, the entity is a piece of video content:

```
<?xml version="1.0" encoding="UTF-8"?>
<Metadata xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="ENT.xsd">
    <entity id="3445" type="video">
        <locator uri="www.someplace.org/videos/test-flick"/>
        <static>
            <description>
                <format type="MPEG-4" encoder="CC"/>
                <condition type="PKI">free</condition>
                <rating type="US">PG</rating>
                <author>Disney</author>
                <director>Yogio</director>
                <copyright>Time Warner</copyright>
                <usage uri="rules/Y-rule" type="mandatory" />
            </description>
        </static>
    </Entity>
</Metadata>
```

As shown, the metadata includes, for example, a location of the entity, the type of content, the copyright owner, the usage rules, the author, the access rules, and the format. The entity metadata is used by the content manager to properly place the entity within a collection and is also used by other components of the system, such as is described herein. The previous examples of files are shown in XML however other types of files, such a SMIL or proprietary files can be used.

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In addition, a stream of video can have predefined jump points in the entity metadata to instruct the playback system to intelligently load the stream (start loading at multiple points in the stream to enable quick jumping). Further, some predictive analysis is optionally used by the playback system (using the jump points defined in the metadata) to setup not only the start of playback a t=00:00 but also at a jump point defined at t=05:13. Thus, if a portion of an entity that is being downloaded has inappropriate content for children, the streaming video will begin downloading at the beginning of the video and also directly after the inappropriate content. A jump point can then be defined at the beginning of the inappropriate content such that the player will skip the inappropriate content and continue play with the video directly after the inappropriate content.

Alternative to having a master timeline, the timing of the entities within the collection can be specified by Flextime. Flextime provides temporal grouping (or temporal snapping) and allows a segment of stream to stretch/shrink. Rather than being based on "hard" object times on a timeline, this allows a relative stitching of entities together which helps in delivery systems that have delays like broadcast or streams having congestion. For example, the timing of actions can be specified to CoStart or CoEnd or Meet (reference paper give on "FlexTime" by Michelle Kim IBM TJ Watson Research 16 July 2000.

As shown in FIG. 11, the system also includes an event handler. The event handler monitors inputs from a user and takes the appropriate action depending upon the input detected. In one embodiment, the event handler monitors inputs from the remote control shown in FIG. 30.

FIG. 12 is a block diagram illustrating a virtual DVD construct in accordance with one embodiment. Shown is a

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PVR recording 1200, a feature movie 1202, a bonus clip 1204, and web-content 1206.

In one embodiment, the bonus clip 1204 can be added to the feature movie 1202. As shown, the bonus clip 1204 can be taken from the PVR recording 1200. The main feature movie 1202 can be a PVR recording or some other set of entities. Additionally, the web-content 1206 (which can be one or more entities) can be added to form a collection including the feature movie 1202, the bonus clip 1204 and the web-content 1206. This can be assembled into a virtual DVD.

In another example, content from a PVR and content from the web are combined to assemble a virtual DVD. The last step of assembling the DVD is not shown, however, this simply shows the virtual DVD. This virtual DVD can be similar to the DVD described with reference to FIG. 10.

To create a virtual DVD, first the content services module 304 assembles the raw materials of the DVD including: Video file or files for the feature presentation; Video files for alternate angles; Audio files which can be multiple for more than one language; Text files for subpictures (use DOM/CSS to do text overlay); XHTML files to replace menus; and GIF/JPEG etc to create same look of menu. In this Virtual DVD, the menu has more capabilities than a standard, fixed DVD menu in that the virtual DVD menu is capable of presenting on top of the live video using alpha blending techniques. That is, the overlaid menus have transparency and are shown with XHTML text overlaid on top of the playing video. Generally, the DVD menus are fixed and unchangeable when the disc is replicated. The new overlaid menus are also optionally context-sensitive based upon where the menus are requested during video playback. The overlaid menus will change according to the timeline of the video and the text. Similarly, the graphics of the overlaid menu can be fresh and new, e.g., come from an online connection. This is

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accomplished by providing triggers in the collection metadata that define the content of the overlaid menu based upon the timeline and a menu generator function within the Presentation Layout Manager. The system will read these metadata triggers to construct the menu upon a user request.

Another feature of the overlaid menus is that in one embodiment the menu generator function uses both collection metadata and the stored user preferences to determine how the menus are presented and what information is presented. Alternatively, an online service that uses the predefined information of the media (such as the mountainous location) and the user preferences stored in the playback system (fly fishing interest) combines these two inputs to derive new information for the overlaid menu. In this example, the menu includes a description of where the mountains in the media are located and a description of the local fly fishing resources in the area. In one embodiment, the process of creating the menu is done in a background process upon first inserting the disk where the information for the menu is stored locally, e.g., as additional user preferences related to the inserted disk. In another example, when a user prefers a color scheme, the menus will adhere to the preferred color scheme. When the user has certain interests, such as fly fishing, upon generating the menu during a mountain scene, the menu will, for example, add URL links to fishing locations near that location. A menu generated during the same scene for a second user who enjoys skiing, will add a link to a local ski resort.

For packaged media (i.e. DVD disks, Video-CDs) menus stored on the media are static and do not change after replication and are associated with the content on the disk. The menus have a root or main menu and there can also be individual title menus. Additionally, the video presentation is traditionally halted when the menu is requested by the consumer. One embodiment allows the menu of a specific title

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to be displayed while the video presentation progresses. This is done, in one embodiment, utilizing alpha blending, as will be described herein below. Another embodiment, allows the menu to change according to when the menu is requested. For example, the menu options are different depending on where in the video playback the menu is requested. Alternatively, there are multiple menus associated with the same scene and the menus are randomly chosen as to which one is displayed. Optionally, the player will track which menus the user has already seen and rotate through an associated menu set. In one embodiment, the menus are used for advertising purposes such that as the menu is shown the menu contains a different sponsor or rotates sponsors each time the menu is shown. For these examples the menu can be different menus each with different branding or the menu can incorporate another menu, e.g., a menu for related material, an index, or another menu for a sponsor or advertiser's material. In an alternative embodiment this is achieved utilizing multiple layers or through the use of alpha blending. Alternatively this is achieved by writing to a single frame buffer the two sets of images or material.

For broadcast media, TV is broadcast via cable, terrestrial or satellite and a unique menu called an electronic program guide (EPG) is provided that aggregates the available programs. The EPG is a menu that allows the consumer to alter the video presentation. The EPG originates not with the broadcast stream (i.e., the Disney channel doesn't provide a Disney EPG) but with the service provider. One embodiment allows the menu displayed to be associated with or even derived from the specific broadcast stream (a Disney menu pops up while on the Disney channel). When the menu is displayed the menu can be either overlaid (using alpha blending) on the content, the video presentation can be halted, or the video presentation can be displayed in only a

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portion of the display screen. Another embodiment (adding to the above scenario) allows the Disney menu to change depending upon when the menu is requested, e.g., the menu options differ 5 minutes into the broadcast versus 30 minutes into the broadcast. As in the previous paragraph multiple menus can be associated with the same scene and randomly chosen as to which is displayed. Alternatively, the player tracks which menus the user has already seen and rotates through the associated menu set.

Returning to the creation of a Virtual DVD, once all of the entities have been assembled for the Virtual DVD a metadata file is created (e.g., an XML file, such is described herein which is essentially a collection metadata file) to describe the playback of all of the entities. Table 2 shows an example mapping of entities to the DVD structural construct:

Titles & Chapters (PTT)		
Title 1	Video file name	HH:MM:SS:FF
-- Chapter 1	Video file name	HH:MM:SS:FF
-- Chapter 2	Video file name	HH:MM:SS:FF
…		
-- Chapter 999	Video file name	HH:MM:SS:FF
Title 2	Video file name	HH:MM:SS:FF
-- Chapter 1	Video file name	HH:MM:SS:FF
-- Chapter 2	Video file name	HH:MM:SS:FF
…		
-- Chapter 999	Video file name	HH:MM:SS:FF
…		
Title 99	Video file name	HH:MM:SS:FF
Menus		
Menu 1	XHTML Page	
Menu 2	XHTML Page	
…		
Menu 6	XHTML Page	
Audio		
Stream 0	Audio file name	
Stream 1	Audio file name	
…		

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Stream 7	Audio file name	
Subpicture		
Stream 0	Text file name	
Stream 1	Text file name	
…		
Stream 31	Text file name	
Angle		
Angle 1	Video file name	HH:MM:SS:FF
Angle 2	Video file name	HH:MM:SS:FF
…		
Angle 9	Video file name	HH:MM:SS:FF

TABLE 2

Next the media services can use this metadata file to reinterpret the ITX commands. For example,

```
In JavaScript…
InterActual.PlayTitle(3);
Is interpreted by the IMS using the mapping in C or C++ as…
If (title == 3)
    PlayTime(filename, timecode);
```

where the mapping says title 3 is equivalent to playing the PVR file from the time offset specified in the mapping to effectively playback the DVD title 3.

Referring now to FIG. 13, shown is a comparison of a DVD construct 1350 as compared to a virtual DVD construct such as described with reference to FIG. 12. The virtual DVD is constructed from different entities including a PVR file 1354, a XHTML page 1356, a MP3 audio stream 1358, and a bonus video clip 1360. The content manager gathers the entities and constructs the virtual DVD. The playback of the Virtual DVD will basically appear to the viewer as if the viewer is watching the actual DVD video. The XHTML page can include links that will jump a user to a time period in the PVR file corresponding to a chapter boundary in the actual DVD.

The content manager 470 (shown in FIG. 4) can create a virtual DVD. For example, the content manager 470 can break up one long PVR stream on a DVR and add titles and breaks such

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as a DVD. Additionally, other entities from the Internet or any other location can be made part of the DVD and inserted as chapters. For example, bonus clips of video from the Web can be inserted into the PVR in the appropriate place.

Furthermore, over cable or satellite delivery systems, full length, uninterrupted movies are often offered for sale for a one-time use, which is called "pay-per-view." With the advent of personal video recorders (PVRs), the content owner can offer these movies purchased to be placed temporarily to a local storage medium. For some additional charge or some other agreement, the consumer can be allowed to record the content to an optical medium (such as DVD-R or DVD+R). As such, the consumer is purchasing the movie, yet the movie is not equivalent in content to the replicated DVD (packaged media) available in a store. This offers the same or updated material or bonus material for download to the client device and the recording process to create a close facsimile to the packaged media. Where there are differences from the packaged media (such as navigation normally done in the DVD navigation commands), included HTML-based ROM content can accommodate for navigational differences. Using the recording system associated with the optical drive, the titles can be laid out much the same as the replicated DVD.

In another example, many applications that record entities have the ability to put in delimiters or what can be called chapter points in the case of DVD. The chapter points can happen automatically by tools or authoring environments in which the start and end of any entity within a collection becomes a chapter point. Additionally, a user can add chapter points into relevant parts of the collection/entity that are desired to be indexed later. These chapter points can also be indexed by a menu system, such as in the case of DVDs. In many tools or authoring packages a user can instantly create a menu button link to any chapter point by simply dragging the

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chapter point onto a menu editor. The button created uses the video clip from the frame where the chapter point is located.

Another feature is Smart End-Action Defaults in which every video and multimedia entity added automatically establishes appropriate end-action settings. In DVD systems these are pre and post commands. In some cases the end-action may be to return to the menu system the DVD was started from or to continue on to playback the next entity. These transition points between entities can become automatic chapter points as well.

In another virtual DVD system a video stream from a DVD entity can be based on single timeline, with the addition of creating pseudo-DVD chapter points and title points to simulate the DVD. This will entail knowing the detailed structure of the replicated DVD and using that as input to the encoder to know how to break up the one long stream of the main feature and bonus clips into the separate bonus titles and the main feature into chapters.

In addition to meta-tags used for parts of data or textual entities in a PVR system, a smart tag can be implemented at run time or processed before the smart tag is displayed. The Smart tag can be used to find key words that match other entities and provide a hyperlink to jump to that associated entities. For example, all words on a page can be linked back to a dictionary using smart tags. In this example, if the user does not understand what a word means in the entity that is displayed, the user is able to click on the word and get a definition for the word. Smart tags can also be used for promotional purposes or be used to link back to a content owner. For example, if a multimedia entity is displayed from a particular studio, then a tag is available to link back to the studio's website or for similar content by the same studio or a preferred partner or vendor. In one embodiment, because this is done at run-time the options of

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the smart tag can be relevant to what is available at that time or based on user preferences as well.

Referring to FIG. 14 a block diagram is shown illustrating a content management system locating a pre-defined collection in accordance with an embodiment. Shown is a content manager 1400, a new content acquisition agent 1402, a media identifier 1404 (also referred to as the entity name service), a content search engine 1406, a access rights manager 1408, a playback runtime engine 1410, and a presentation layout manager 1412; and a collection name service 1414.

Shown is a data-flow diagram for finding a pre-defined collection and setting up for a specified playback experience.

The following steps are performed for the embodiment shown:

1. First, a request is made for a pre-defined collection.
2. Next, the Playback run-time engine constructs the request that can include, for example: The desired collection information; The expected output device (display); the expected input device (HID); and other desired experience characteristics.
3. The playback RT engine passes the request to the Content Manager.
4. The content manager passes the request details (such as "all the Jackie Chan fight scenes from the last 3 movies") to the collection name service which translates the request into a list of candidate collection locators (or IDs). Alternatively, in another embodiment, the request can be translated into a list of entity locators or entity IDs. If a collection can not be located, different entities can be located to create a collection.

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5. The content manager then requests a search be executed by the content search engine.

6. The content search engine then searches for the collection and the collection's associated entities. This can involve a secondary process for searching local and across the network which is explained below.

7. Upon locating the collection and caching the collection in the local storage, the content search engine requests access rights for the collection from the access rights manager. In some cases, the access rights are first acquired to read the entity and make a copy in local storage.

8. The access rights manager procures the access rights and provides the rights information to the Content Search Engine.

9. If certain entities are not available from their primary sources, alternate sources can be found and used. In this case:

   a. The content search engine will request individual entities form the new content acquisition agent.

   b. The new content acquisition agent then passes the entity request to the Entity Name Service which resolves the various entities down to unique locators (as to where the entities can be located across the network).

   c. The NCAA then will pass the entity location information or alternatively entity IDs to the Content Search Engine.

10. After all necessary entities of the collection are located, the content search engine provides the collection locator to the content manager.

11. The content manager then passes the collection locator to the presentation layout manager along with the collection request.

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12. The presentation layout manager then processes the two pieces of information to verify that this collection can satisfy the request.

13. The presentation layout manager then creates rules for presentation and sets up the playback subsystem according to these rules.

14. Then the presentation layout manager provides the collection locator (pointer to local storage) to the playback RT engine.

15. The playback RT engine then commences playback.

Referring now to FIG. 15 a block diagram is shown illustrating a search process of the content management system of FIG. 14 for locating a pre-defined collection in accordance with one embodiment. Shown is the content search engine 1406, a local collection name service 1500, and a network collection name service 1502.

In operation, the following steps are performed in the search process in accordance with one embodiment:

1. First, the local collection name service collection index is searched for the collection requested (in case the collection has already been acquired).

2. If the collection is not found locally, then the network collection name service searches the network collection index. This service maintains an index that is an aggregate of multiple indices distributed across the network in the fashion that Domain Name Servers work for the Internet where they keep updated on a regular basis.

3. If a specific entity cannot be located or acquired, then the entities desired to assemble the collection can be located and acquired from alternate sources and the Content Services Subsystem assembles the collection. This is accomplished using a distributed Entity Name

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Service that operates underneath the collection name service (again, in a similar fashion to Internet DNS).

Referring now to FIG. 16 a block diagram is shown illustrating a content management system creating a new collection in accordance with an embodiment. Shown is a content manager 1600, a new content acquisition agent 1602, a content search engine 1606, a access rights manager 1608, a playback runtime engine 1610, and a presentation layout manager 1612; and a collection name service 1614.

Shown is a data-flow diagram for creating a new collection based upon a desired set of entities and desired user experience in accordance with one embodiment.

The following steps can be performed in accordance with one embodiment:

1. A request is made for a collection that includes certain entities with details about the desired experience (for example, "the Toy Story II on wide screen (16:9) in the Living Room with interactive click-through points in the video using a remote control with joystick pointer").
2. The Playback run-time engine constructs the request that includes, for example:
   a. The desired collection information including a list of the desired entities (e.g., video, audio, pictures, etc.).
   b. The expected output device (display).
   c. The expected input device (HID).
   d. Other desired experience characteristics.
3. The Playback RT engine passes the request to the Content Manager.
4. The Content Manager passes the request details (such as Toy Story II on wide screen) to the Collection Name Service, which translates the request into a list of

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candidate collection locators (or IDs). In this case, there is no collection to satisfy this request, so a new collection will be created.

5. The Content Manager then requests a new collection be created by the Content Search Engine.

6. The Content Search Engine requests the individual entities from the New Content Acquisition Agent to assemble the new collection. In one embodiment, the request can be translated into a list of entity locators or entity IDs. If a collection can not be located, different entities can be located to create a collection.

7. The NCAA then searches storage for the entities (in case the entities are part of some other collection). In one embodiment, the NCAA searches for the entity IDs.

8. The NCAA then passes the entity location information to the Content Search Engine. The NCAA can also pass the entity metadata location to the content search engine.

9. The Content Search Engine then assembles all the entities and initiates the process to create the new metadata for a new collection.

10. Upon locating the entities and caching the desired entities in local storage, the content search engine requests access rights for the collection from the Access Rights Manager. In some cases, the access rights are first acquired in order to read the entity and make a copy in local storage.

11. The Access Rights Manager procures the access rights and provides the rights information to the Content Search Engine.

12. The Content Search Engine creates new collection metadata.

13. The Content Search Engine then provides the collection locator to the Content Manager.

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14. The Content Manager then passes the collection locator to the Presentation Layout Manager along with the collection request.

15. The Presentation Layout Manager then processes the two pieces of information to verify that this collection can satisfy the request.

16. The Presentation Layout Manager then creates rules for presentation and sets up the playback subsystem according to these rules.

17. Then the Presentation Layout Manager provides the collection locator (pointer to local storage) to the Playback RT Engine.

18. The Playback RT Engine then commences playback.

Referring now to FIG. 17, a block diagram is shown illustrating a search process of the content management system of FIG. 16 for locating at least one entity in accordance with one embodiment. Shown is the content search engine 1606, a local collection name service 1700, and a network collection name service 1702.

In operation, the following steps are performed in the search process in accordance with one embodiment:

1. The local Entity Name Service index is searched for any entities that can be included in the new collection.

2. If the entities are not found locally or additional entities can be added, then the network entity name service searches the network for the entities that were not found and/or for entities that can be included in the collection.

Referring now to FIG. 18, a block diagram is shown illustrating a content management system publishing a new collection in accordance with an embodiment. Shown is a content manager 1800, a new content publishing manager 1802, a

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access rights manager 1804, a playback runtime engine 1806; and a collection name service 1808.

Shown is a data-flow diagram for publishing a new collection in accordance with one embodiment.

The following steps can be performed in accordance with one embodiment:

1. The System Manager requests that a collection (recently acquired or created) be published.
2. The System Manager constructs the request that includes, for example:
   e. The published request, including a subset of the collection metadata that contains search strings and keywords that enable mapping the collection to items the collection contains (for example, clips of John Wayne western fight scenes).
   f. The collection locator and all of the metadata and associated entities (or pointers to those entities).
   g. Criteria for Access Rights.
3. The System Manager passes the request to the Content Manager.
4. The Content Manager passes the request to the Network Content Publishing Manager.
5. The Network Content Publishing Manager processes the publishing request, which includes the criteria of how the collection is to be made available for access.
6. The Access Rights Manager also processes the request for the generation of the access rights.
7. The publishing request and collection metadata is passed to the Collection Name Service so that search strings and keywords can be associated with this collection.
8. The Collection Name Service makes the collection available across the WAN via its Collection Name Service update structure.

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Referring now to FIG. 19 a block diagram is shown illustrating a content management system locating and modifying a pre-define collection in accordance with an embodiment. Shown is a content manager 1900, a new content acquisition agent 1902, a media identifier 1904(also referred to as the entity name service), a collection name service 1906, a content search engine 1908, a access rights manager 1910, a playback runtime engine 1912, and a presentation layout manager 1914.

Shown is a data-flow diagram for finding a pre-defined collection and modifying the pre-defined collection for playback experience in accordance with one embodiment.

The following steps can be performed in accordance with one embodiment:

1. A request is made for a pre-defined collection with certain unique requirements that will likely require modifications to the collection.
2. The Playback run-time engine constructs the request that includes, for example:
   h. The desired collection information
   i. The expected output device (display)
   j. The expected input device (HID)
   k. Other desired experience characteristics
3. The Playback RT engine passes the request to the Content Manager.
4. The Content Manager passes the request details (such as "all the Humphrey Bogart love scenes from 1945") to the Collection Name Service, which translates the request into a list of candidate collection locators (or IDs). (In this case, the collection may need to be a subset of a "Bogart Love Scenes from 1935 – 1955 " collection.).
5. The response from the Collection Name Service informs the Content Manager that there is no one

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collection that will satisfy this request. The Content Manager notes that for later adjustment of the collection metadata based on a best-fit algorithm.

6. The Content Manager then requests a search be executed by the Content Search Engine.

7. The Content Search Engine then searches for the best-fit collection and its associated entities. This involves a secondary process for searching local and across the network which is explained below.

8. Upon locating the collection and caching the collection in the local storage, the Content Search Engine requests access rights for the collection from the Access Rights Manager. In some cases, the access rights are first acquired in order to read the entity and make a copy in local storage.

9. The Access Rights Manager procures the access rights and provides the rights information to the Content Search Engine.

10. If certain entities are not available from their primary sources, alternate sources can be found and used. In this case,

    l. The Content Search Engine will request individual entities form the New Content Acquisition Agent.

    m. The New Content Acquisition Agent will then pass the entity request to the Entity Name Service which resolves the various entities down to unique locators (as to where the various entites can be located across the network).

    n. The NCAA then will pass the entity location information to the Content Search Engine.

11. After all necessary entities of the collection are located, the Content Search Engine provides the collection locator to the Content Manager.

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12. The Content Manager modifies the collection metadata to fit the request (in this case, subsets the "love scenes for 1945" only). If it is not possible to modify the collection, e.g., because it is disallowed by the collection metadata, then instead of playback setup, the request is denied and the following steps are not executed.

13. The Content Manager then passes the collection locator to the Presentation Layout Manager along with the collection request.

14. The Presentation Layout Manager then processes the two pieces of information to verify that this collection can satisfy the request.

15. The Presentation Layout Manager then creates rules for presentation and sets up the Playback Subsystem according to these rules.

16. Then the Presentation Layout Manager provides the collection locator (pointer to local storage) to the Playback RT Engine.

17. The Playback RT Engine then commences playback.

FIG. 20 is a block diagram illustrating a search process of the content management system of FIG. 19 for locating a pre-defined collection in accordance with one embodiment. Shown is the content search engine 1908, a local collection name service 2000, and a network collection name service 2002.

In operation, the following steps are performed in the search process in accordance with one embodiment:

1. First, the local Collection Name Service collection index is searched for the collection requested (in case the collection has already been acquired)

2. If the collection isn't found locally, then the network Collection Name Service searches the network

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collection index. This service maintains an index that can be an aggregate of multiple indices distributed across the network in the same fashion that domain name servers work for the Internet where the domain servers keep updated on a regular basis.

3. If a specific entity cannot be located or acquired, then the entities that are used to assemble the collection can be located and acquired from alternate sources and the content services subsystem will assemble the necessary collection. This can be accomplished using a distributed entity name Service that operates "underneath" the collection name service (again, in a similar fashion to Internet DNS).

Referring now to FIG. 21, a general example is shown of a display device receiving content from local and offsite sources according to one embodiment. Shown are a display device 2102, a local content source 2104, an offsite content source 2106, a first data channel 2108, and a second data channel 2110.

The display device 2102 is coupled to the local content source 2104 via a first data channel as shown by a first bi-directional arrow. The display device 2102 is coupled to the offsite content source 2106 via a second data channel 2110 as shown by a second bi-directional arrow. The first and second data channels are any type of channel that can be used for the transfer of data, including, for example, a coaxial cable, data bus, light, and air (i.e., wireless communication).

In operation, the display device 2102 displays video, data documents, images, and/or hypertext markup language (HTML) documents to a user. The display device, in some variations, is also capable of displaying many different types of data files stored on many different types of storage

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media. Alternatively, the display device 2102 can be for audio only, video only, data documents only, or a combination of audio, and/or video, images, and data documents. The display device 2102 can be any device capable of displaying an external video feed or playing an external audio feed such as, but not limited to, a computer (e.g., a IBM compatible computer, a MACINTOSH computer, LINUX computer, a computer running a WINDOWS operating system), a set top box (e.g., a cable television box, a HDTV decoder), gaming platforms (e.g., PLAYSTATION II, X-BOX, NINTENDO GAMECUBE), or an application running on such a device, such as a player (e.g., INTERACTUAL PLAYER 2.0, REALPLAYER, WINDOWS MEDIA PLAYER). The display device 2102 receives content for display from either the local content source 2104 or the offsite content source 2106. The local content source 2104, in one embodiment, can be any device capable of playing any media disk including, but not limited to, digital versatile disks (DVDs), digital versatile disk read only memories (DVD-ROMs), compact discs (CDs), compact disc-digital audios (CD-DAs), optical digital versatile disks (optical DVDs), laser disks, DATAPLAY (TM), streaming media, PVM (Power to Communicate), etc. The offsite content source 2106, in one embodiment, can be any device capable of supplying web content or HTML-encoded content such as, but not limited to, a network-connected server or any source on the Internet. The offsite content source 2106 can also be any device capable of storing content such as video, audio, data, images, or any other types of content files.

In yet another alternative embodiment, the display device 2102 can be any display device capable of displaying different entities within a collection. Entities and collections will be further described herein in greater detail.

Alternatively, the display device is not connected to an offsite content source, but is capable of simultaneously

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displaying content from different local storage areas. In one embodiment the display device is able to display entities from a collection that is stored at the local content source 2104.

Furthermore, the system shown in FIG. 21 is capable of working in accordance with the different embodiments of the content management system shown in FIGS. 1-4.

FIG. 22 shows a general example of a computer receiving content from local and offsite sources according to one embodiment. Shown are a local content source 2104, an offsite content source 2106, a computer 2202, a microprocessor 2204, and a memory 2206.

The local content source 2104 is coupled to the computer 2202. The local content source 2104 can contain, e.g., video, audio, pictures, or any other document type that is an available source of information. In a preferred embodiment, the local content source 2104 contains entities and collections. The offsite content source 2106 is coupled to the computer 2202. In one embodiment, the offsite content source 2106 can be another computer on a Local Area Network. In another embodiment, the offsite content source can be accessed through the Internet, e.g., the offsite content source can be a web page. The offsite content source 106 can also include, e.g., video, audio, pictures, or any other document type that is an available source of information. In a preferred embodiment the offsite content source 2106 includes entities and collections. The computer 2202 includes the microprocessor 2204 and the memory 2206.

Alternatively, the computer 2202 is not connected to an offsite content source 2106, but is displays content from different local storage areas (e.g., a DVD and a hard drive). In one embodiment the computer 2202 displays entities from a collection that is stored at the local content source 2104. The computer is able to display entities by decoding the

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entities. Many possible decoders utilized by the computer are described herein at least with reference to FIGS. 3 and 4.

In operation, the computer 2202 is any computer able to play/display video or audio or other content, including entities or collections, provided by the local content source 2104 and/or as provided by the offsite content source 2106. Additionally, in one embodiment, the computer 2202 can display both video and web/HTML content synchronously according to one embodiment. The web-HTML content can be provided by either the offsite content source or the local content source. Microprocessor 2204 and memory 2206 are used by the computer 2202 in executing software.

Furthermore, the system shown in FIG. 22 is capable of working in accordance with the different embodiments of the content management system shown in FIGS. 1-4.

FIG. 23 shows an example of a system 2300 comprising a television set-top box receiving content from local and offsite sources according to one embodiment.

Shown are a local content source 2104, an offsite content source 2106, a set-top box 2302, a microprocessor 2304, a memory 2306, and a television 2308, a first communication channel 2310, a second communication channel 2312, and a third communication channel 2314.

The set-top box 2302 includes the microprocessor 2304 and the memory 2306. The set-top box 2302 is coupled to the local content source 2104 through the first communication channel 2310. The set-top box is coupled to the offsite content source 2106 through the second communication channel 2312. The set-top box is coupled to the television 2308 through the third communication channel 2310.

In operation the set-top box 2302 accesses, for example, video, audio or other data, including entities and collections, from the local content source 2104 through the first communication channel 2310. The set-top box 2302 also

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accesses HTML content, video, audio, or other content, including entities and collections, from the offsite content source 2106 through the second communication channel 2312. The set-top box 2302 includes decoders (described at least with reference to FIGS. 1-4) that decode the content from either the local content source 2104 or the offsite content source 2106. The set-top box 2302 then sends a video signal that includes the content to the television 2308 for display. The video signal is sent from the set-top box 2302 to the television 2308 through the third communication channel.

Additionally, set-top box 2302 can combine both video, audio, data, images and web/HTML content synchronously according to one embodiment and provide the same to the television 2308 for display. The content management system described at least with reference to FIGS. 1-4 is utilized by the set-top box 2302 in accordance with a preferred embodiment in order to combine the different types of content for display on the television 2308. Microprocessor 2304 and memory 2306 are used by the set-top box 2302 in executing software.

Furthermore, the system shown in FIG. 23 is capable of working in accordance with the different embodiments of the content management system shown in FIGS. 1-4. That is the set-top box is one embodiment of a hardware platform for the content management system shown in FIGS. 1-4.

Referring to FIGS. 24-26 shown are examples of media and other content integration according to different embodiments. Shown are a display device 2402, a screen 2404, a content area 2406, a first sub window 2408, a second sub window 2410, and a third sub window 2412.

As is shown in FIG. 24, the display device 2402 (for example, a television, a computer monitor, and projection monitor, such as is well known in the art) contains the screen 2404 that displays at least graphics and text. The display of graphics and text is also well known in the art. The content

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area 2406 contains the sub window 2408 (also referred to as a video window or alternate frame).

In one embodiment, the sub window is maintained in a separate frame buffer from the content area and its orientation is sent to the compositor (in X, Y coordinates) for the compositor to move and refresh. In another embodiment, there is one frame buffer for the entire content area and the software manager for the sub-window updates the frame buffer using bit level block transfers. These methods and others are well known in the art.

One aspect of this embodiment is that audio and/or video can be integrated with other content such as text and/or graphics described in web compatible format (although the source need not be the Internet, but can be any source, such as, for example, a disk, a local storage area, or a remote storage area, that can store content). Content can be displayed in an overlaid fashion. This is known in the art as Alpha blending. Alpha blending is used in computer graphics to create the effect of transparency. This is useful in scenes that feature glass or liquid objects. Alpha blending ins accomplished by combining a translucent foreground with a background color to create an in-between blend. For animations, alpha blending can also be used to gradually fade one image into another.

In computer graphics, an image uses 4 channels to define its color. Three of these are the primary color channels - red, green and blue. The fourth, known as the alpha channel, conveys information about the image's transparency. The alpha channel specifies how foreground colors are merged with those in the background when overlaid on top of each other.

The equation used in alpha blending is:

$$[r,g,b]_{blended} = \alpha[r,g,b]_{foreground} + (1-\alpha)[r,g,b]_{background}$$

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where [r,g,b] is the red, green, blue color channels and alpha is the weighting factor.

In fact, it is from the weight factor, that alpha blending gets its name. The weighting factor is allowed to take any value from 0 to 1. When set to 0, the foreground is completely transparent. When the alpha factor is set to 1, the foreground becomes opaque and totally obscures the background. Any intermediate value creates a mixture of the two images.

Such as is shown in FIG. 25, the content area 2406 can be split into multiple sub windows 2408, 2410, and 2412 and different types of content can be in each sub-window. For example, in one embodiment, pictures are displayed in the first sub window 2408, video is simultaneously displayed in the second sub window 2410 and a data document is simultaneously displayed in the third sub window 2412. In an alternative example, entities from a collection are displayed in the different sub windows 2408, 2410, 2412. For example, at the same time a text entity from the collection is displayed in the first sub window 2408 and a video entity from the collection is displayed in the second sub window 2410. Optionally, a picture entity from the collection is also be simultaneously displayed in the third sub window 2412.

In another alternative example, a video entity is displayed in the first sub window 2408 for a first time period. During the first time period (or following the first time period) a picture entity is displayed in the second sub window 2410 for a second time period. After the second time period a second video entity is displayed in the third sub window 2412. The feature of displaying different entities within a collection at different time periods will be described in greater detail herein at least with reference to FIG. 11.

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As is shown in FIG. 26, the content area 2406 does not have a sub window 2408. In this embodiment, entities within a collection are displayed at different times within the entire content area 2406. In this embodiment, the content management system can still display multiple entities within a collection simultaneously. This is accomplished by creating a single video signal that is sent to the display device. This can be accomplished through alpha blending of graphics and text on video into one frame buffer (as explained above); specifying audio to be started at a certain time within the video stream (see the above section and references to the SMIL timing model); and similar mechanisms.

Alternatively, the sub window can 2408 be used to display one entity within a collection while the remainder, or a portion, of the content area 2406 is used to display another entity within the collection. The hardware platform 100 shown in FIG. 1 can be utilized to determine how the entities within the collection will be displayed within the content area 2406.

In one example, the sub window 2408 displays movie content, such as the movie *Terminator2*, and the content area 2406 displays text and/or graphics (provided by HTML coding) which is topically related to the part of the movie playing in the sub window 2408 user/viewer interacts with the content in the content area 2406, such as by clicking on a displayed button, effects can be reflected in the media sub window 2408. As an example, clicking on buttons or hypertext links indicating sections or particular points in the movie results in the video playback jumping to the selected point. Additionally, the media displayed in sub window 2408 can result in changes in the content area 2406. As an example, progression of the movie to a new scene results in a new text display giving information about the scene.

As another example, a group of entities is grouped together to form a collection. When a collection is formed

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from ten different entities, and all of the entities are different video segments, each of the entities can be displayed in the content area in an ordered fashion. Thus, the first entity will be shown, and then the second entity, the third and so on until the last entity in the collection is shown. Alternatively, the collection can also include additional entities which are related to the video clips and displayed along with the video clips. For example, a first entity within a collection can be displayed in the sub window 508 and a second entity can be displayed somewhere in the content area 2406.

Concurrent browsing and video playback

One feature of the application programming interface (API), described above with reference to FIGS. 5-7, is the ability to view HTML pages while playing video and/or audio content. The concurrent playback of HTML pages and video content places additional requirements on the processing and memory capabilities of the content management system. Thus, the playback device, such as shown in FIGS. 21-23, is designed to perform both of these functions (i.e., display of HTML and display of video) simultaneously.

Another feature of the application programming interface (API) is the ability to display downscaled video within a frame of a web page which is often provided as a hardware feature as it is well known in the art. The hardware feature is indirectly accessed through the presentation system specifying the size and X, Y coordinates desired for the video to the underlying software layers which translate that into instructions to the hardware. Yet another feature that is included, at least in some variations, is an ability to display up-scaled video within a web page using similar features in the hardware. The API also has the ability to display multiple entities within a collection simultaneously.

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The decoders combine all of the entities into one video signal that is sent to the playback device.

Storyboard with scrolling display

As an example, in accordance with one embodiment, a movie, i.e., audio and video content, is authored with the entire screenplay provided on a DVD in HTML format.

The following exemplary commands can be used to navigate and display content in addition to movie, i.e., the audio and video content:

InterActual.SearchTime can be utilized to jump to a specific location within a title;

InterActual.DisplayImage can be utilized to display an picture (e.g., a picture entity) in addition to the audio and video content of the movie; and

InterActual.SelectAudio(1) can be utilized to select an alternate audio track to be output. In the case of DVD this command tells the DVD Navigator to decoder the DVD's Audio Channel based on the parameter being passed in.

In accordance with the present example, when a viewer clicks on any screen visually represented in HTML, the content management system links the viewer to a corresponding scene (by use of the command InterActual.SearchTime to go to the specific location within a title) within the DVD-Video. Besides being capable of a finer granularity than the normal chapter navigation provided on DVD-Video, the HTML-based script can contain other media such as a picture (by use of the command "InterActual.DisplayImage") or special audio (by use of the command "InterActual.SelectAudio(1)") and/or server-based URL if connected to the Internet for other information. Furthermore, in one preferred embodiment, the text of the screenplay in HTML scrolls with the DVD-Video (e.g., in one of the sub windows) to give the appearance of being synchronized with the DVD-Video.

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Referring now to FIG. 27, a block diagram is shown illustrating one example of a client content request and the multiple levels of trust for acquiring the content in accordance with an embodiment. Shown is a client 2700, a local storage medium 2702, a removable storage medium 2704, a LAN 2706, a VPN 2708, a WAN 2710, a global Internet 2712, and a level of trust scale 2714.

Entities can be acquired from various levels of trusted sources, for example: Local Computer (e.g., Hard Disc); Removable and Portable storage; Local LAN; Local Trusted Peer-to-peer or on Trusted WAN Network or (VPN); WAN; and the Internet.

In one embodiment a relative cost factor can be computed for retrieving the content from each trust level. The cost factor can be computed on several criteria including but not limited to: Level of trust of the entity; bandwidth speed or time to download/acquire entity; financial cost or dollars paid to use or acquire the entity; Format for the entity, there can be different formats the entity comes in, such as, for audio a .MP3 vs. a .WMA file format, so a user may prefer the MP3 format; and number of times a source has been used in the past with good results.

In one embodiment, in building a collection the different levels of trust becomes a funnel effect for the amount each source will be used to acquire entities. The closest local sources are used the most while the farther and/or more costly Internet sources are used the least.

Additionally, multiple levels of access rights to content can be integrated with the system. Every entity has access rights and therefore for collections an aggregation of access rights occurs to establish the access rights for the collection. Access rights are is also used when publishing new changes to a collection and users can add additional levels of rights access to those above the individual entity

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rights. An entity's rights can also disallow being included into various collections or limit distribution rights. Optionally, the entity's rights are tied to a user that has purchased the content and the rights are verified to DRM systems such as verification with a server, trusted entity, local smart card or the "Wallet" or Non-volatile storage of the system. Content can also disallow inclusion into any collection or being included with specific types of other entities. For example, a kids Disney Movie entity may not be allowed to be displayed with adult entities at the same time. In another embodiment the content manager can remove the scenes that contain adult content in a movie to make the movie acceptable for younger viewers. This can be done through filters of the written script to verbal filters, to the video entities etc.

In one embodiment, access will be granted for an entity if the client is within a certain trust level. For example, access may be granted to any entity stored in the local storage medium. In another example, the client will have access to any entity stored on the LAN and the trusted connections.

Additionally, the level of trust can be used to in a search algorithm, when searching for collections or entities. When a request for a collection is made by the client the content search engine will first search for the content in the higher levels of trust. Next, if the entities or collections are not found the content search engine will proceed to search for the entities or collections at the lower trust levels. Advantageously, this allows for efficient searching and also can prevent getting content from unknown sources or sources that are not trusted.

Referring to FIG. 28, shown is a diagram illustrating multiple display devices displaying content simultaneously. Both of the devices can simultaneously

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display entities and collections in accordance with one embodiment. The entity or collection can be received from the server or stored at one or both of the display devices. The server or one of the devices can control the simultaneous playback. Simultaneous playback is described in detail in the following patent applications: United States Patent Application No. 09/488,345, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR EXECUTING A MULTIMEDIA EVENT ON A PLURALITY OF CLIENT COMPUTERS USING A SYNCHRONIZATION HOST ENGINE; United States Patent Application No. 09/488,337, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR STORING SYNCHRONIZATION HISTORY OF THE EXECUTION OF A MULTIMEDIA EVENT ON A PLURALITY OF CLIENT COMPUTERS; United States Patent Application No. 09/488,613, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR LATE SYNCHRONIZATION DURING THE EXECUTION OF A MULTIMEDIA EVENT ON A PLURALITY OF CLIENT COMPUTERS; United States Patent Application No. 09/488,155, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR JAVA/JAVASCRIPT COMPONENT IN A MULTIMEDIA SYNCHRONIZATION FRAMEWORK; United States Patent Application No. 09/489,600, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR A SYNCHRONIZER COMPONENT IN A MULTIMEDIA SYNCHRONIZATION FRAMEWORK; United States Patent Application No. 09/488,614, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR A SCHEDULER COMPONENT IN A MULTIMEDIA SYNCHRONIZATION FRAMEWORK; United States Patent Application No. 09/489,601, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR A BUSINESS LAYER COMPONENT IN A MULTIMEDIA SYNCHRONIZATION FRAMEWORK; and United States Patent Application No. 09/489,597, filed January 20, 2000, entitled SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR A CONFIGURATION MANAGER COMPONENT IN A MULTIMEDIA SYNCHRONIZATION FRAMEWORK.

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FIG. 29 is a block diagram illustrating a user with a smart card accessing content in accordance with an embodiment. Shown are a Smart card 2900, a media player 2904, and media 2902.

In one embodiment, the system requires a user login in the form of a smart card user interface to identify the user or a single profile for all of the usage. A smartcard or smart card is a tiny secure cryptoprocessor embedded within a credit card-sized or smaller (like the GSM SIM) card. A secure cryptoprocessor is a dedicated computer for carrying out cryptographic operations, embedded in a packaging with multiple physical security measures, which give the cryptoprocessor a degree of tamper resistance. The purpose of a secure cryptoprocessor is to act as the keystone of a security sub-system, eliminating the need to protect the rest of the sub-system with physical security measures.

Smartcards are probably the most widely deployed form of secure cryptoprocessor, although more complex and versatile secure cryptoprocessors are widely deployed in systems such as ATMs.

Using a smart card further customization based on user preferences and not just all users of the content management system can be accomplished. The smart card stores user preferences that can be retrieved from memory and read by the presentation layout engine. The presentation layout engine can then set system parameters that a user prefers. In one embodiment, these preferences may be specific to the system capabilities. That is to say, if the system can use the display in a 1024x768 resolution or a 1920x1280 resolution, the user preferences may specify that the user always prefers the display set to 1920x1280. Likewise, if a QWERTY style keyboard with mouse is available and also a remote control, the user may prefer their user interface to be generated that only requires the remote control to use all the

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system features. Another preference can be based on the user's login criteria such as age, sex, financial status, time of day, or even the mood of the user can be used to select content. These user preferences can be determined from the user through a series of questions, having the user enter in or select preferences or knowing the situation such as time of day is determined by the current time the user is accessing the content. The preferences that do not change over time such as sex or birthday can be saved in a user profile and saved for later use without having the prompt the user for this information again. The user login can best be utilized for multi-user systems. An administrator or parent may also set additional access rights/restricts to a given user. For example a parent may set a rule that the child is not only allowed to view G or PG rated content and nothing else.

With smart cards today it is possible to store not only the user information, but the rules and profile of a given user, access rights, DRM licenses, saved games, or any information that may be stored in non-volatile storage of the system on the smart card as well.

Utilizing technologies, such as the smart card security industry, provides a unique ID (by way of a smart card) for each user of the next generation media player (System 10.0 player). That is, each smart card can be individually identified through, e.g., a code on the smart card. In addition these technologies provide an even more secure environment for execution of the key-management algorithm via a Java VM on the card itself with the key-management algorithm coming with the media. In one embodiment, the algorithm which resides on the media is a set of Java instructions that are loaded and executed on the Java Virtual Machine of the Smart card. Other virtual machines are used in alternative embodiments. This way the combination of the algorithm (JVM Source Code) being on the media with the user

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keys on the smart card provide a combined secure environment that can change over time with new media and new user access rights or license keys (where either the card holding the keys changes or the media with the algorithm changes or both). In addition, the same user can use different devices and have the same user experience whether in their house, a neighbor's house, at work, or at a local access point, given the user profile is stored on the user's card. This information can also be stored on an accessible server by the device and the user login to a device enables the system to access the user's information. In another form a cell phone with connectivity to a device may also transmit a users profile or even bio identity information such as a fingerprint or retinal scan can be used to identify a user. The user's device may also contain the actual authentication algorithm for the user, i.e., a virtual machine code. This way the algorithm can change over time.

Referring to FIG. 30, shown is a remote control according to an embodiment. Shown is a remote control 3000, having a back button 3002, a view button 3004, a home button 3006, an IA (InterActual) button 3008, a stop button 3010, a next button 3012, a prev button 3014, a play button 3016, an up button 3018, a left button 3020, a right button 3022, and a down button 3024.

The back button 3002 has different uses. In an Internet view, the back button 3002 goes back to the previously-visited web page similar to a back button on a web browser. In a content (from disk) view, the back button 3002 goes back to the last web page or video/web page combination which was viewed. This is unique in that there are two state machines manifested in the content view, one being the web browser markup (text, graphics, etc.) and the other being the audio/video embedded in the page. Hence, using the back button, one returns to the prior web page markup content and

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the prior audio/video placement. The application can also decide whether to restart the audio/video at some predefined point, or continue playback regardless of the forward and back operations. In one embodiment, this is accomplished by storing the pertinent state information for both state machines and maintaining a stack of history information allowing multiple steps back using the back button. The stack information gets popped off and each state machine restarted with that information.

The view button 3004 switches between a full-screen Internet (or web) view to a full-screen content (from disk) view.

The home button 3006 has different uses. In an Internet view, the home button 3006 goes to the device's home page which, as example, can be the manufacturer's page or a user-specified page if changed by the user. In a content (from disk) view, the home button 3006 goes to the content home page which, as example, can be INDEX.HTM from the disk ROM or CONNECT.HTM from the flash system memory.

The IA button 3008, or "InterActual" button, is a dedicated button which is discussed in greater detail under the subheading "context sensitive application" later herein in reference to FIG. 30.

The playback buttons, stop 3010, next 3012, prev (previous) 3014, and play 3016, control the video whenever there is video being displayed (either in full-screen mode or in a window). When one of the buttons in pressed a signal is sent from the remote control to a receiver at the playback device (such as is shown, e.g., in FIGS. 28-30). The playback device then decodes the signal, and executes a corresponding command to control the playback of the video. When no video is being displayed, pressing of the play button 1316, in one embodiment, loads a special page VIDPLAY.HTM if the special page is present in the /COMMON directory of an inserted disk

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ROM. If the VIDPLAY.HTM file is not found, pressing of the play button 1316, in one embodiment, plays the DVD in full-screen video mode.

The navigation buttons, up 3018, left 3020, right 3022, and down 3024, in one embodiment, do not work for DVD navigation unless video is playing in full-screen mode. If video is playing in a window within a web page, these buttons enable navigation of the web page, especially useful for navigating to and selecting HTML hyperlinks. In this embodiment, the windowed video will be a selectable hyperlink as well. Selecting the video window (by an enter button not shown) causes the video window to change to full-screen video. In another embodiment, a mouse or other pointing device such as a trackball, hand glove, pen, or the like can be integrated with the system.

Context Sensitive Application

In one embodiment, use of a unique event and a special button on the remote control 3000, a specific section in the media can trigger a context-sensitive action. Events that are used for this purpose are context sensitive to the media content. As example, an event can trigger during a certain scene, upon which, in response to a user's selection of an object within the scene can display information relating to the selected object.

In one embodiment, when media content subscribes to a particular event for context sensitive interaction, which can be done on a chapter or time basis, the DVD navigator can optionally overlay transparently some place on the display alerting the user that context-sensitive interaction is available. In computer graphics, an image uses 4 channels to define its color. Three of these are the primary color channels - red, green and blue. The fourth, known as the alpha channel, conveys information about the image's transparency. The alpha channel specifies how foreground

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colors are merged with those in the background when overlaid on top of each other. A weighting factor is used for the transparency of the colors. The weighting factor is allowed to take any value from 0 to 1. When set to 0, the foreground is completely transparent. When the weighting factor is set to 1, the foreground becomes opaque and totally obscures the background. Any intermediate value creates a mixture of the two images. Similar to when a network logo is transparently displayed at the bottom of a television screen, in one embodiment, an InterActual logo is displayed to signify there is more info available for the displayed scene. The ability to display, for example, the InterActual logo is implemented through the media services and the graphical subsystem of the DVD navigator.

While the invention herein disclosed has been described by means of specific embodiments and applications thereof, other modifications, variations, and arrangements of the present invention may be made in accordance with the above teachings other than as specifically described to practice the invention within the spirit and scope defined by the following claims.

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CLAIMS

We claim:

1. A method comprising:

receiving a request for content;

searching for a plurality of entities in response to the received request, the plurality of entities each having entity metadata associated therewith; and

creating a collection, the collection comprising the plurality of entities and collection metadata.

2. The method of claim 1 further comprising:

locating the plurality of entities;

analyzing the entity metadata associated with each of the plurality of entities; and

downloading only the entities that meet a set of criteria.

3. The method of claim 2 wherein the set of criteria include at least one of a system criteria and a request criteria.

4. A data structure for storing data embodied on a computer readable medium comprising:

a plurality of entities;

entity metadata associated with each of the plurality of entities; and

a collection containing each of the plurality of entities, the collection comprising collection metadata for playback of the plurality of entities.

5. The data structure of claim 4 wherein the computer readable medium is a portable storage medium.

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6. The data structure of claim 4 wherein the computer readable medium is a plurality of storage devices.

7. The data structure of claim 6 wherein the plurality of storage devices are local storage devices.

8. The data structure of claim 6 wherein at least one of the plurality of storage devices is a remote storage device.

9. The data structure of claim 4 wherein the computer readable medium is a local storage medium.

10. The data structure of claim 4 wherein the computer readable medium is a remote storage medium.

11. A method comprising:

receiving a request for content;

creating a collection comprising a plurality of entities meant for display with a first system and at least one entity meant for display on a second system; and

outputting the collection comprising the plurality of entities meant for display on the first system and the at least one entity meant for display on the second system to the first system.

12. The method of claim 11 wherein the collection further comprises collection metadata.

13. The method of claim 12 further comprising using presentation rules that are based at least upon the collection metadata.

14. The method of claim 11 wherein the plurality of entities meant for display with the first system and the at

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least one entity meant for display on the second system each have entity metadata.

15. The method of claim 14 further comprising using presentation rules that are based at least upon the entity metadata.

16. The method of claim 11 further comprising using presentation rules that are based at least upon a set of system criteria.

17. A method for searching for content comprising the steps of:

receiving at least one search parameter;

translating the search parameter into a media identifier; and

locating the content associated with the media identifier.

18. The method of claim 17 wherein the content comprises an entity; wherein the media identifier is an entity identifier.

19. The method of claim 17 wherein the content comprises a collection; wherein the media identifier is a collection identifier.

20. The method of claim 17 further comprising creating a set of presentation rules for the content.

21. The method of claim 20 further playing back the content on a presentation device.

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22. The method of claim 20 further comprising acquiring access rights to the content.

23. The method of claim 17 wherein the content is a collection comprising a plurality of entities, the method further comprising:

determining one of the plurality of entities can not be viewed; and

locating an entity for replacing the one of the plurality of entities that can not be viewed.

24. The method of claim 23 wherein the step of determining one of the plurality of entities can not be viewed comprises determining that there are not access rights for the entity.

25. The method of claim 23 wherein the step of determining one of the plurality of entities can not be viewed comprises determining that one of a set of presentation rules are not compatible with the entity.

26. The method of claim 25 wherein the presentation rules are based upon system information.

27. The method of claim 25 wherein the presentation rules are based upon a user request.

28. The method of claim 25 wherein the presentation rules are base upon a user profile.

29. A system for locating content comprising:

a playback runtime engine for constructing a request from a set of search parameters;

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a collection name service for translating the request into a collection identifier; and

a content search engine for searching for content associated with the collection identifier.

30. The system of claim 29 further comprising an access rights manager for determining if access rights are needed for the content.

31. The system of claim 29 further comprising a presentation layout manager for creating rules for presentation.

32. The method of claim 31 wherein the presentation rules are based upon system information.

33. The method of claim 31 wherein the presentation rules are based upon a user request.

34. The method of claim 31 wherein the presentation rules are base upon a user profile.

35. The system of claim 31 wherein the presentation layout manager additionally sets up a playback subsystem according to the presentation rules.

36. The system of claim 31 wherein the presentation layout manager provides a collection identifier to a playback runtime engine.

37. The system of claim 36 wherein the playback runtime engine outputs the content to a display device.

38. A method comprising:

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receiving a request for content;

searching for a plurality of entities in response to the received request, the plurality of entities each having entity metadata associated therewith;

creating a first group of entities that meet the received request, each entity within the first group of entities having entity metadata associated therewith;

comparing the first group of entities that meet the received request or the associated entity metadata to a user profile; and

creating a collection comprising at least one entity from the first group of entities.

39. The method of claim 38 wherein the collection further comprises collection metadata.

40. The system of claim 38 further comprising an access rights manager for determining if access rights are needed for any of the first group of entities.

41. The system of claim 38 further comprising a presentation layout manager for creating rules for presentation.

42. The method of claim 41 wherein the presentation rules are based upon system information.

43. The method of claim 41 wherein the presentation rules are based upon the received request.

44. The method of claim 41 wherein the presentation rules are base upon the user profile.

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45. The system of claim 41 wherein the presentation layout manager additionally sets up a playback subsystem according to the presentation rules.

46. The system of claim 41 wherein the presentation layout manager provides a collection identifier to a playback runtime engine.

47. The system of claim 46 wherein the playback runtime engine outputs the content to a display device.

48. A system comprising:

a plurality of devices connected via a network;

a plurality of entities located on at least one of the plurality of devices; and

a content management system located on at least one of the plurality of devices for creating a collection using at least two of the plurality of entities.

49. The system of claim 48 wherein the entities are public domain entities.

50. The system of claim 48 wherein the entities are shared within a LAN, a trusted network, a WAN, or an Internet.

51. The system of claim 48 wherein the entities require access privileges.

52. The system of claim 51 wherein the access privileges include a password.

53. The system of claim 51 wherein the access privileges include a key.

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54. The system of claim 48 further comprising a content search engine for locating entities.

55. The system of claim 54 wherein the content search engine searches for entities based upon a cost of retrieving the entities.

56. The system of claim 55 wherein the cost of retrieving the entities includes determining a trust level where the entities are stored.

57. A method of modifying a collection comprising:

analyzing metadata associated with the collection; and

removing at least one entity from the collection based upon a set of presentation rules.

58. The method of claim 57 further comprising adding at least one new entity from to the collection, wherein the added entity takes the place of the removed entity.

59. The method of claim 57 wherein the presentation rules include system information.

60. The method of claim 57 wherein the presentation rules include a user profile.

61. The method of claim 57 wherein the presentation rules are based upon a user request.

62. A method of displaying content comprising:

providing a request to a content manager, the request including a set of criteria;

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searching for a collection that at least partially fulfills the request, the collection including a plurality of entities;

determining which of the plurality of entities within the collection do not meet the set of criteria; and

searching for a replacement entity to replace one of the plurality of entities within the collection that do not meet the set of criteria.

63. The method of claim 62 wherein the set of criteria include system information.

64. The method of claim 62 wherein the set of criteria include a user profile.

65. The method of claim 62 further comprising determining if access rights exist for each of the plurality of entities within the collection.

66. The method of claim 65 further comprising replacing one of the plurality of entities for which there are not access rights with a second replacement entity.

67. The method of claim 62 further comprising:

replacing one of the plurality of entities within the collection that do not meet the set of criteria with the replacement entity; and

modifying a set of collection metadata in response to the replacing step.

68. A method of modifying an entity, the entity having entity metadata associated therewith, comprising the steps of:

comparing the entity or the entity metadata with a set of criteria ;

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determining a portion of the entity that does not meet the set of criteria; and

removing the portion of the entity that does not meet the set of criteria.

69. The method of claim 68 further comprising modifying the entity metadata.

70. The method of claim 68 further comprising adding a portion of a second entity to replace the portion of the entity that was removed.

71. The method of claim 70 further comprising modifying the entity metadata.

72. The method of claim 68 wherein the set of criteria include a user profile.

73. The method of claim 68 wherein the set of criteria include system information.

74. The method of claim 68 wherein the entity is a video entity.

75. The method of claim 68 wherein the entity is an audio entity.

76. The method of claim 68 wherein the entity is a graphics entity.

77. A collection embodied on a computer readable medium comprising:

a digital video entity;

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an audio entity, for providing an associated audio for the digital video entity;

a menu entity, for providing points within the digital video entity; and

collection metadata for defining the playback of the digital video entity, the audio entity, and the menu entity.

78. The collection embodied on a computer readable medium of claim 77 the points correspond to titles or parts of titles within a digital versatile disk.

79. The collection embodied on a computer readable medium of claim 77 further comprising an entity for providing subtitles corresponding to the audio entity.

80. The collection embodied on a computer readable medium of claim 77 wherein the computer readable medium is a portable storage medium.

81. The collection embodied on a computer readable medium of claim 77 wherein the computer readable medium is a plurality of storage devices.

82. The collection embodied on a computer readable medium of claim 81 wherein the plurality of storage devices are local storage devices.

83. The collection embodied on a computer readable medium of claim 81 wherein at least one of the plurality of storage devices is a remote storage device.

84. The collection embodied on a computer readable medium of claim 77 wherein the computer readable medium is a local storage medium.

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85. The collection embodied on a computer readable medium of claim 77 wherein the collection metadata includes system information.

86. A method of downloading streaming content comprising:

downloading a first portion of the streaming content;

downloading a second portion of the steaming content while the first portion of the streaming content is also downloading;

outputting the first portion of the steaming content for display on a presentation device; and

outputting the second portion of the steaming content for display on a presentation device after outputting the first portion of the steaming content;

wherein a third portion of the steaming content originally positioned in between the first portion of the steaming content and the second portion of the steaming content is not output for display on a presentation device.

87. The method of claim 86 wherein the third portion of the streaming content does not meet a set of presentation rules.

88. The method of claim 86 wherein the streaming content is an audio file.

89. The method of claim 86 wherein the streaming content is a video file.

90. The method of claim 86 wherein the third portion of the streaming content does not meet a set of user criteria.

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91. The method of claim 86 further comprising receiving a request from a user to skip the third portion of the streaming content.

92. A method of displaying a context sensitive menu comprising the steps of:

outputting content to a display device;

receiving a request to display a menu;

deriving the context sensitive menu from the current content being output; and

outputting the context sensitive menu to the display device.

93. The method of claim 92 wherein the context sensitive menu is derived from video content.

94. The method of claim 92 further comprising the step of deriving the context sensitive menu from a user profile.

95. The method of claim 92 further comprising the step of receiving the context sensitive menu from a server.

96. The method of claim 95 wherein the context sensitive menu is an update of video content on a DVD.

97. The method of claim 95 further comprising altering the context sensitive menu received from the server base upon a user profile.

98. The method of claim 92 wherein the context sensitive menu is overlaid on the content.

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99. The method of claim 98 wherein the context sensitive menu is overlaid using alpha blending.

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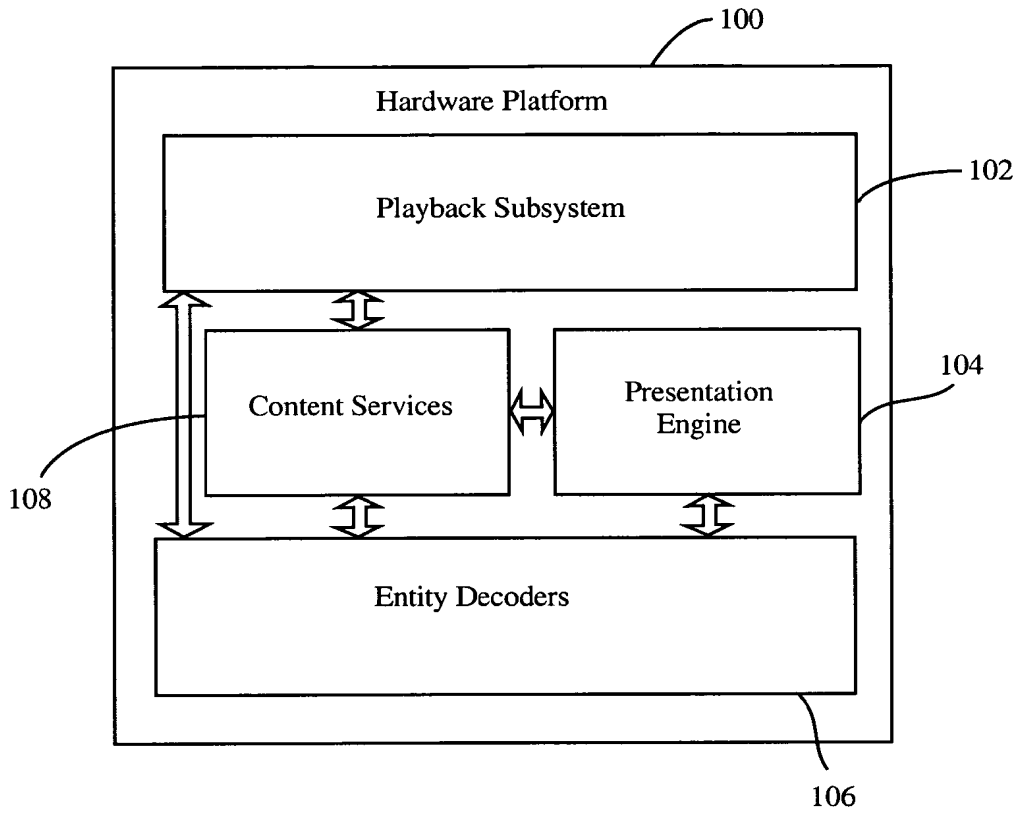

100
Hardware Platform
Playback Subsystem
102
Content Services
Presentation Engine
104
108
Entity Decoders
106

Fig. 1

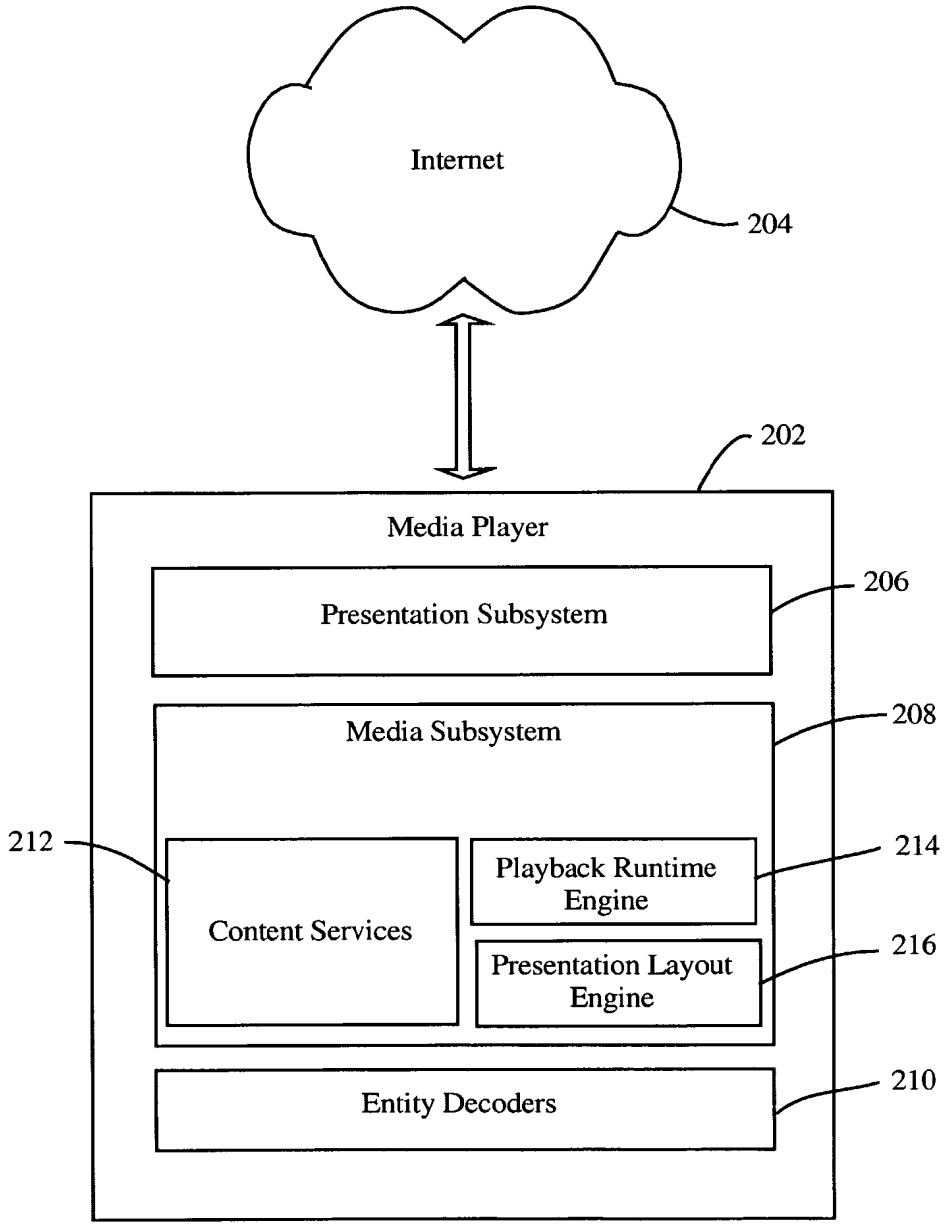

Internet
204
202
Media Player
Presentation Subsystem
206
Media Subsystem
208
212
Content Services
Playback Runtime Engine
214
Presentation Layout Engine
216
Entity Decoders
210

Fig. 2

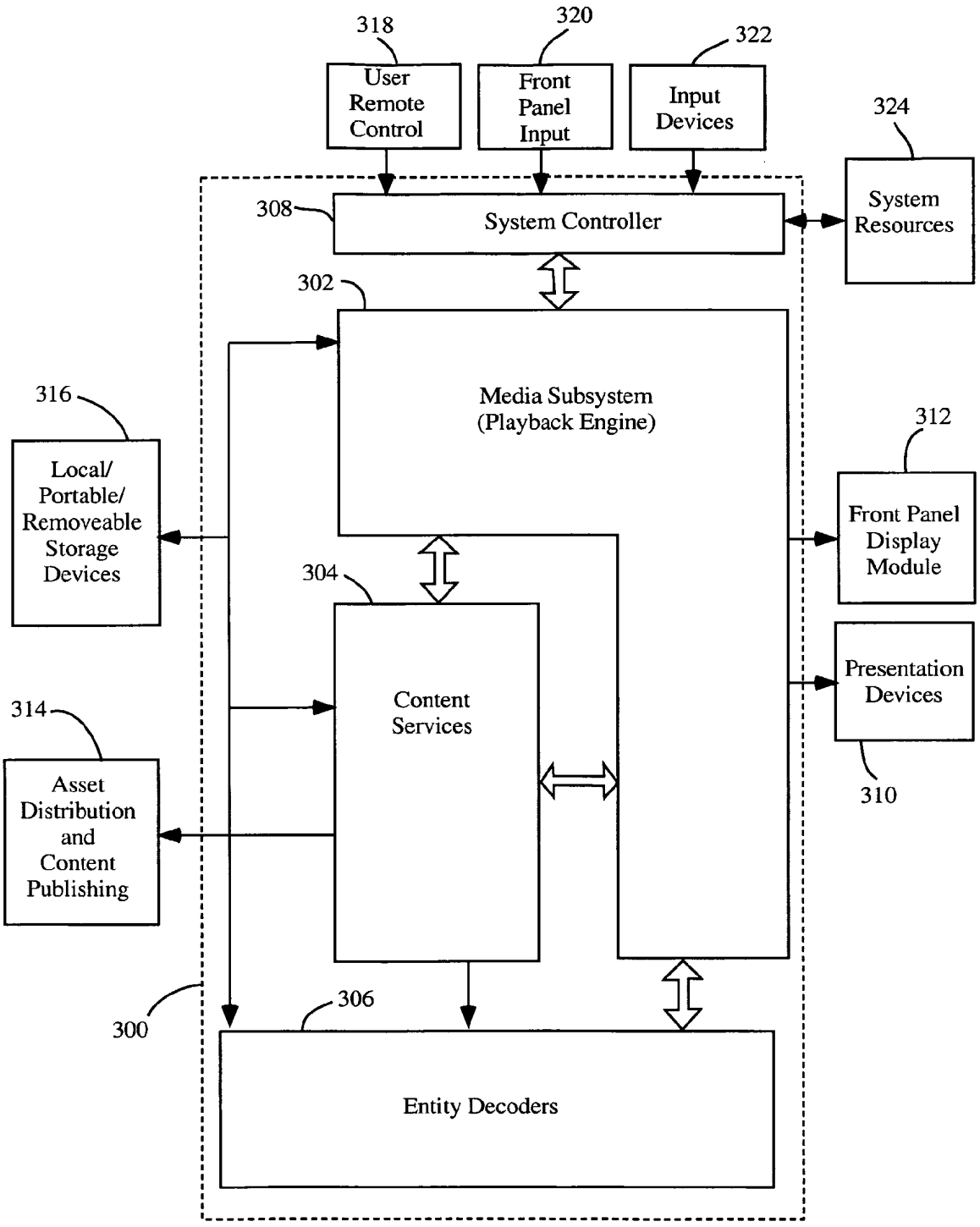

318
User Remote Control
320
Front Panel Input
322
Input Devices
324
System Resources
308
System Controller
302
Media Subsystem (Playback Engine)
316
Local/ Portable/ Removeable Storage Devices
312
Front Panel Display Module
304
Content Services
Presentation Devices
314
Asset Distribution and Content Publishing
310
300
306
Entity Decoders

Fig. 3

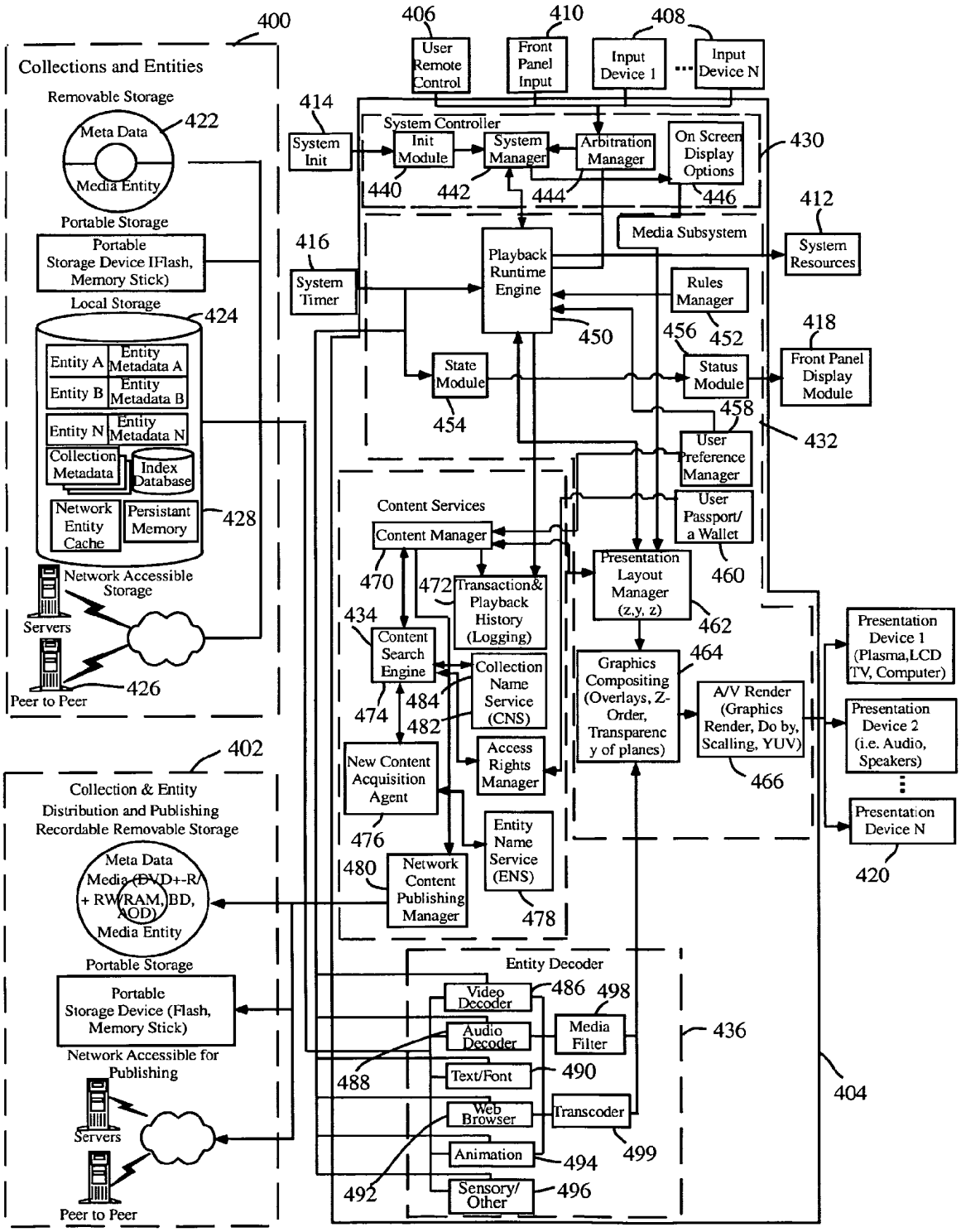

400
Collections and Entities
Removable Storage
Meta Data
Media Entity
422
Portable Storage
Portable Storage Device IFlash, Memory Stick)
Local Storage
424
Entity A
Entity Metadata A
Entity B
Entity Metadata B
Entity N
Entity Metadata N
Collection Metadata
Index Database
Network Entity Cache
Persistant Memory
428
Network Accessible Storage
Servers
Peer to Peer
426
402
Collection & Entity Distribution and Publishing
Recordable Removable Storage
Meta Data
Media (DVD+-R/ + RW/RAM, BD, AOD)
Media Entity
Portable Storage
Portable Storage Device (Flash, Memory Stick)
Network Accessible for Publishing
Servers
Peer to Peer
406
User Remote Control
410
Front Panel Input
408
Input Device 1
Input Device N
414
System Init
System Controller
Init Module
System Manager
Arbitration Manager
On Screen Display Options
430
440
442
444
446
412
Media Subsystem
System Resources
416
System Timer
Playback Runtime Engine
450
Rules Manager
456
452
418
Front Panel Display Module
State Module
454
Status Module
458
432
User Preference Manager
User Passport/ a Wallet
460
Content Services
Content Manager
470
472
Transaction& Playback History (Logging)
Presentation Layout Manager (z,y, z)
462
434
Content Search Engine
Collection Name Service (CNS)
464
Graphics Compositing (Overlays, Z-Order, Transparenc y of planes)
A/V Render (Graphics Render, Do by, Scalling, YUV)
466
474
484
482
New Content Acquisition Agent
Access Rights Manager
476
Entity Name Service (ENS)
480
Network Content Publishing Manager
478
Presentation Device 1 (Plasma,LCD TV, Computer)
Presentation Device 2 (i.e. Audio, Speakers)
Presentation Device N
420
Entity Decoder
Video Decoder
486
498
Audio Decoder
Media Filter
436
488
Text/Font
490
Web Browser
Transcoder
499
Animation
494
492
Sensory/ Other
496
404

Fig. 4

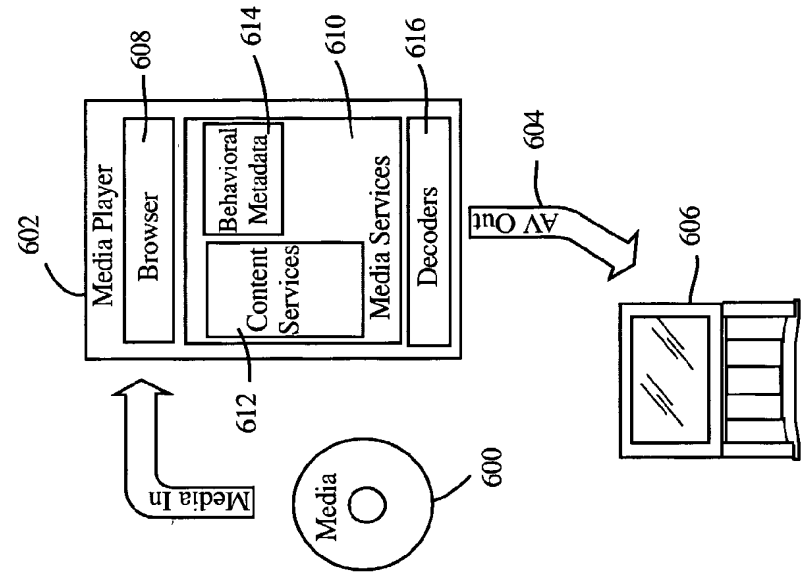

Media Player
Browser
Behavioral Metadata
Content Services
Media Services
Decoders
AV Out
Media In
Media
602
608
614
610
616
604
606
612
600

Fig. 6

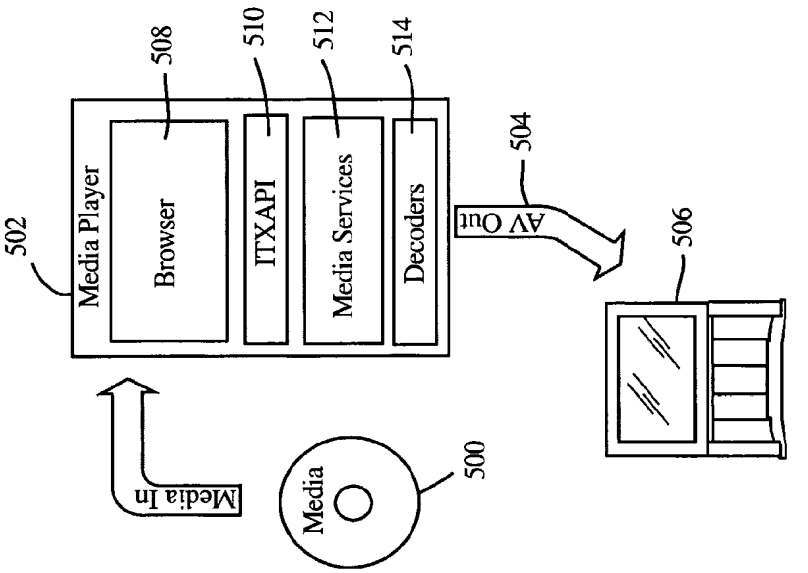

Media Player
Browser
ITXAPI
Media Services
Decoders
AV Out
Media In
Media
502
508
510
512
514
504
506
500

Fig. 5

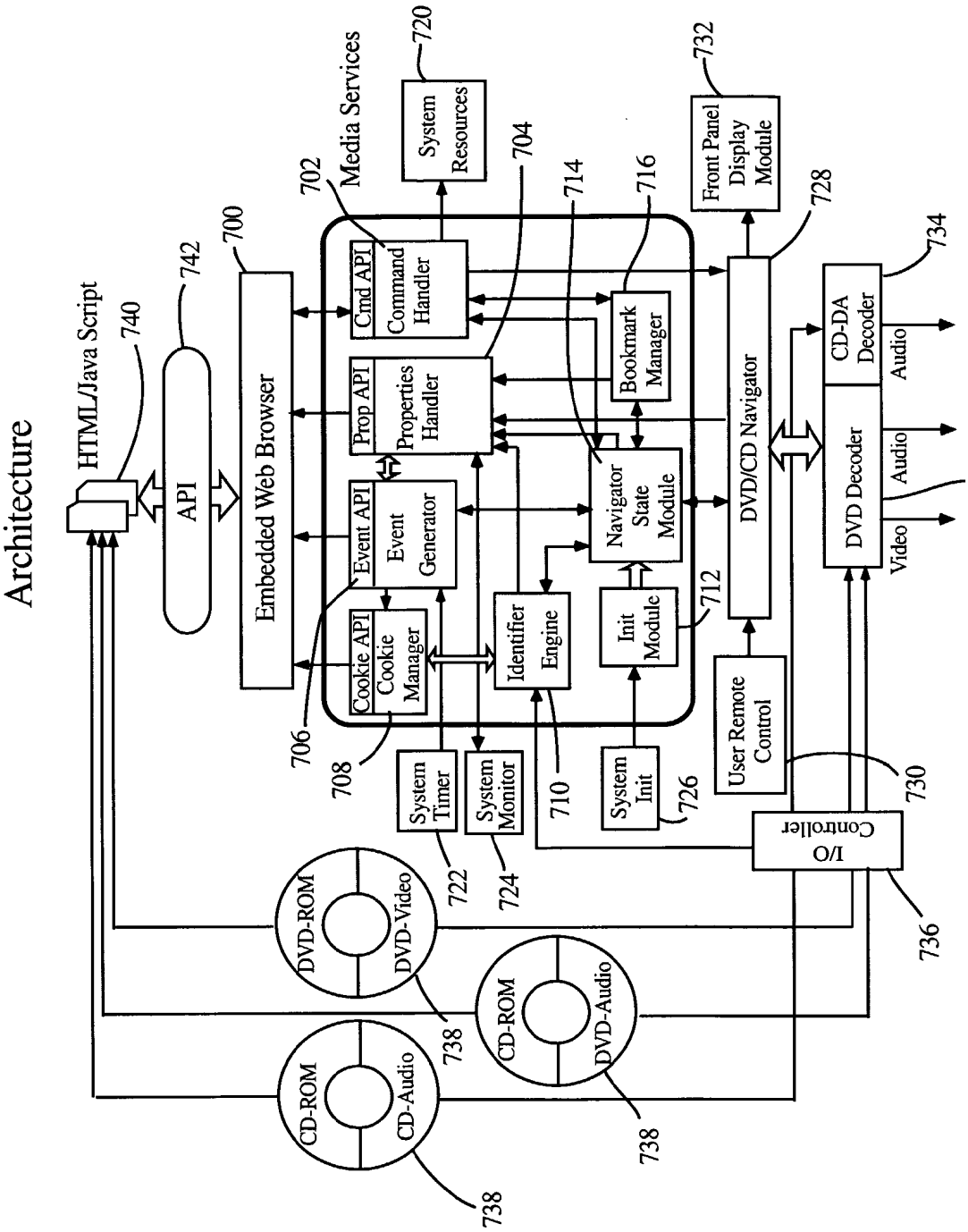

Architecture
HTML/Java Script
740
API
742
Embedded Web Browser
700
Media Services
702
Cmd API
Command Handler
Prop API
Properties Handler
Event API
Event Generator
Cookie API
Cookie Manager
706
708
System Resources
720
704
714
716
Bookmark Manager
Navigator State Module
Identifier Engine
Init Module
712
710
System Timer
722
System Monitor
724
System Init
726
Front Panel Display Module
732
728
DVD/CD Navigator
User Remote Control
730
I/O Controller
736
CD-DA Decoder
734
DVD Decoder
Audio
Audio
Video
735
DVD-ROM
DVD-Video
738
CD-ROM
DVD-Audio
738
CD-ROM
CD-Audio
738

Fig. 7

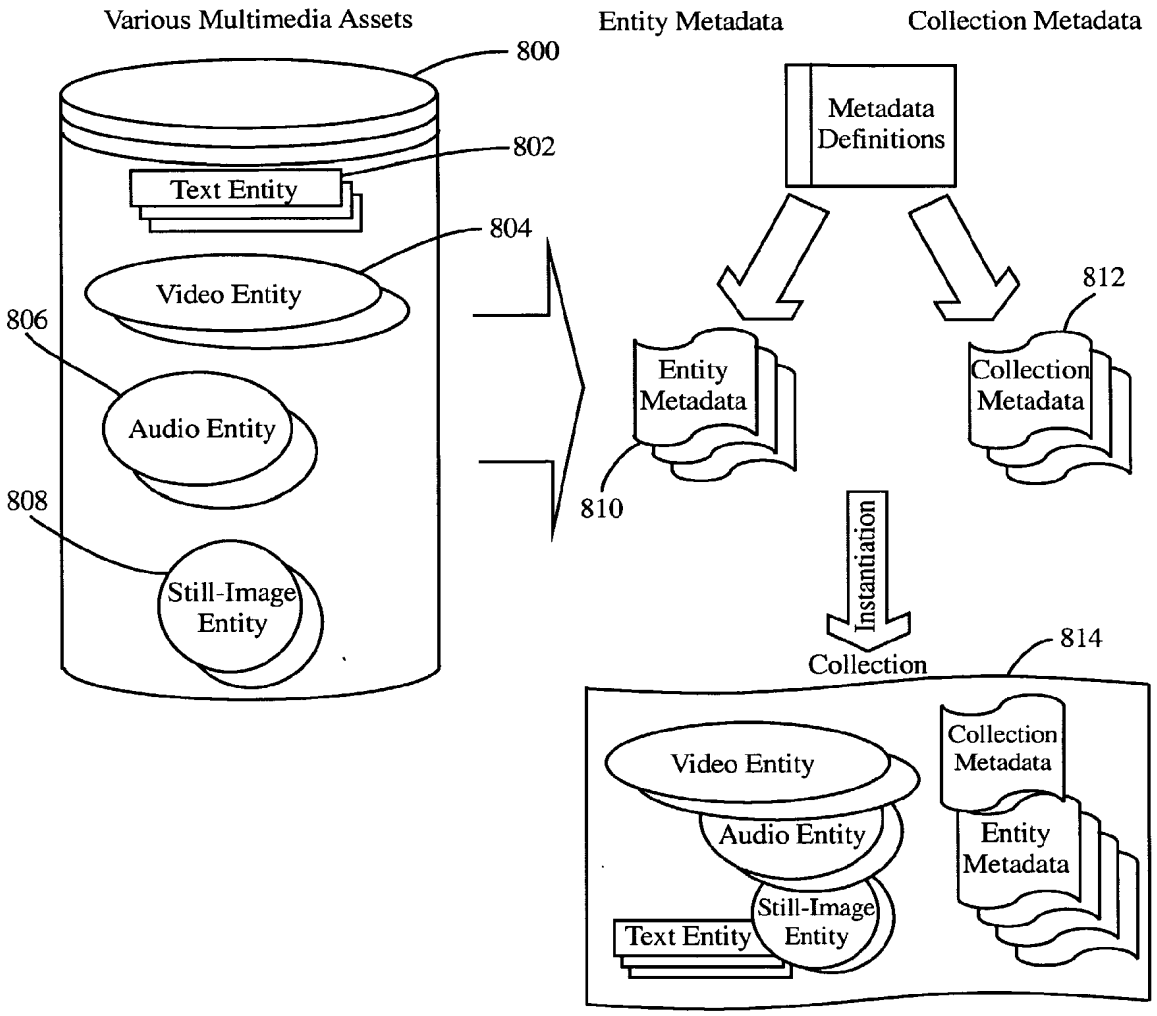

Various Multimedia Assets
Entity Metadata
Collection Metadata
800
802
804
806
808
810
812
814
Text Entity
Video Entity
Audio Entity
Still-Image Entity
Metadata Definitions
Entity Metadata
Collection Metadata
Instantiation
Collection
Video Entity
Audio Entity
Still-Image Entity
Text Entity
Collection Metadata
Entity Metadata

Fig. 8

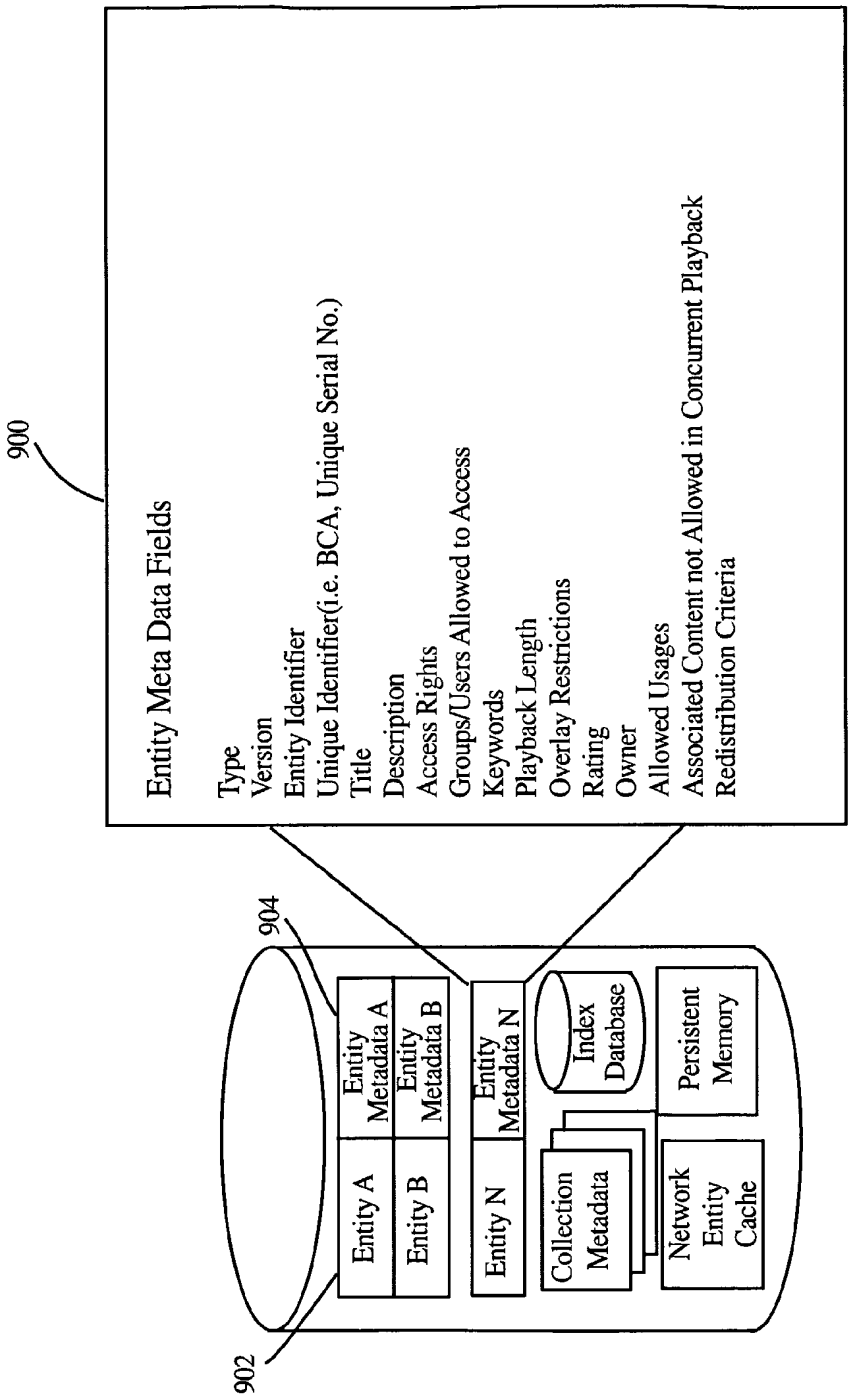

900
Entity Meta Data Fields
Type
Version
Entity Identifier
Unique Identifier(i.e. BCA, Unique Serial No.)
Title
Description
Access Rights
Groups/Users Allowed to Access
Keywords
Playback Length
Overlay Restrictions
Rating
Owner
Allowed Usages
Associated Content not Allowed in Concurrent Playback
Redistribution Criteria
904
902
Entity A
Entity B
Entity Metadata A
Entity Metadata B
Entity N
Entity Metadata N
Collection Metadata
Index Database
Network Entity Cache
Persistent Memory

Fig. 9

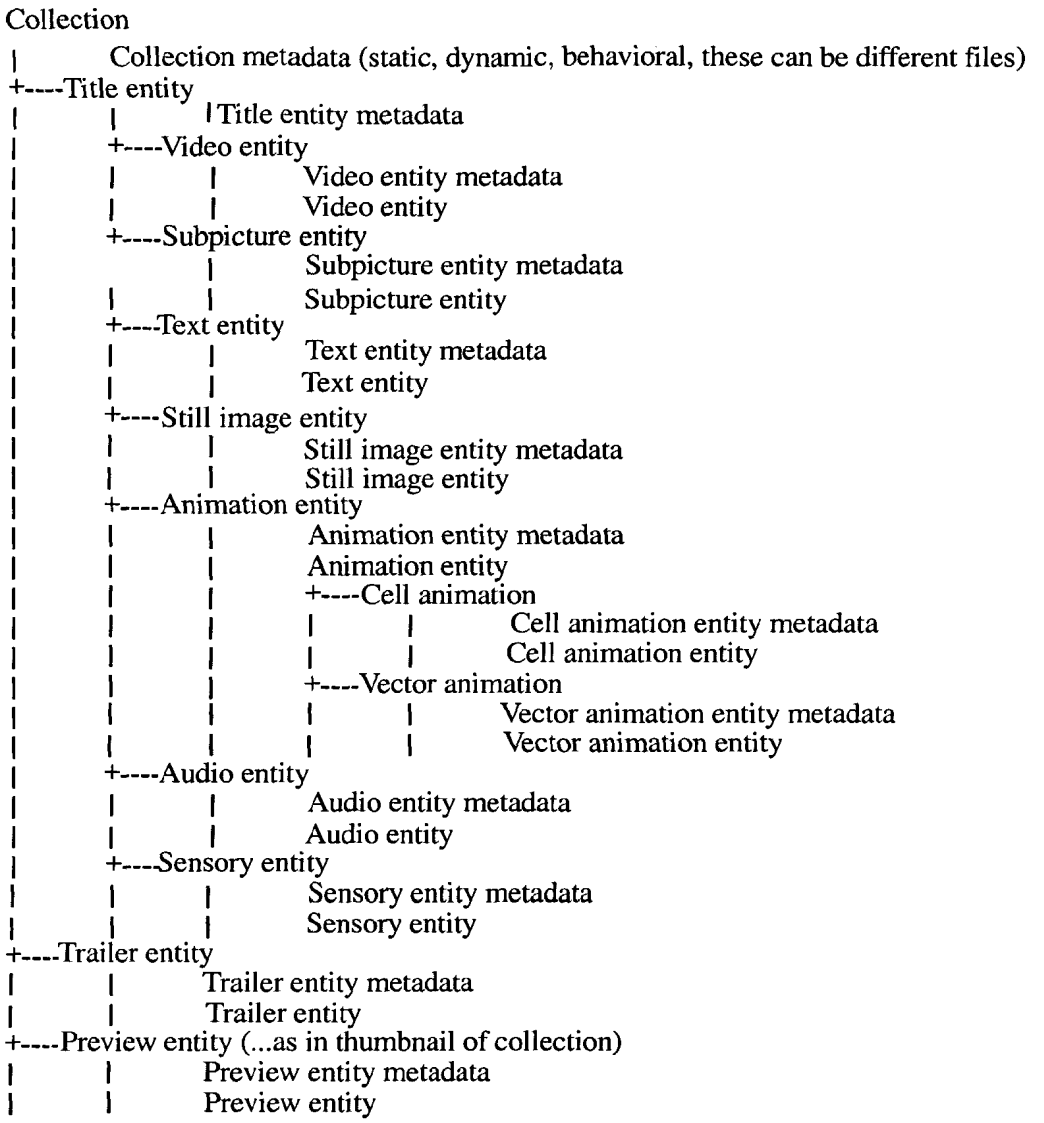

Collection
Collection metadata (static, dynamic, behavioral, these can be different files)
Title entity
Title entity metadata
Video entity
Video entity metadata
Video entity
Subpicture entity
Subpicture entity metadata
Subpicture entity
Text entity
Text entity metadata
Text entity
Still image entity
Still image entity metadata
Still image entity
Animation entity
Animation entity metadata
Animation entity
Cell animation
Cell animation entity metadata
Cell animation entity
Vector animation
Vector animation entity metadata
Vector animation entity
Audio entity
Audio entity metadata
Audio entity
Sensory entity
Sensory entity metadata
Sensory entity
Trailer entity
Trailer entity metadata
Trailer entity
Preview entity (...as in thumbnail of collection)
Preview entity metadata
Preview entity

Fig. 10

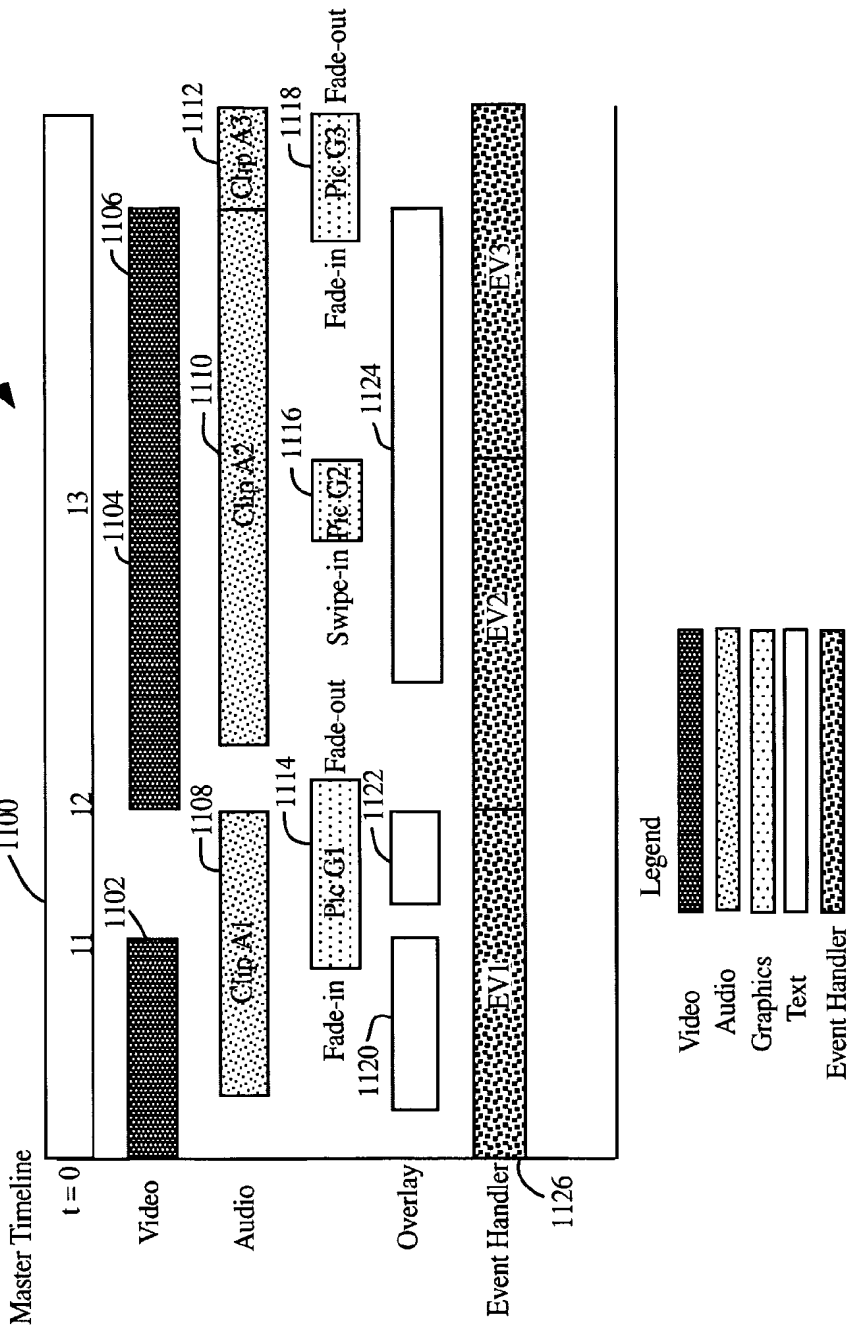

1150
1100
Master Timeline
t = 0
11
12
13
1102
1104
1106
Video
1108
Clip A1
1110
Clip A2
1112
Clip A3
Audio
1114
Pic G1
Fade-in
Fade-out
1116
Pic G2
Swipe-in
1118
Pic G3
Fade-in
Fade-out
1120
1122
1124
Overlay
EV1
EV2
EV3
Event Handler
1126
Legend
Video
Audio
Graphics
Text
Event Handler

Fig. 11

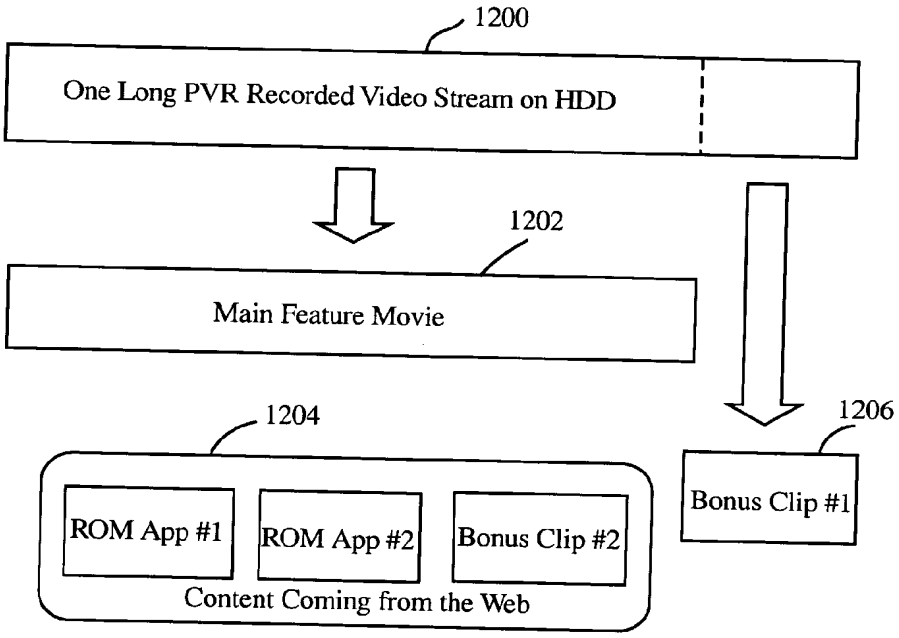

1200
One Long PVR Recorded Video Stream on HDD
1202
Main Feature Movie
1204
1206
ROM App #1
ROM App #2
Bonus Clip #2
Bonus Clip #1
Content Coming from the Web

Fig. 12

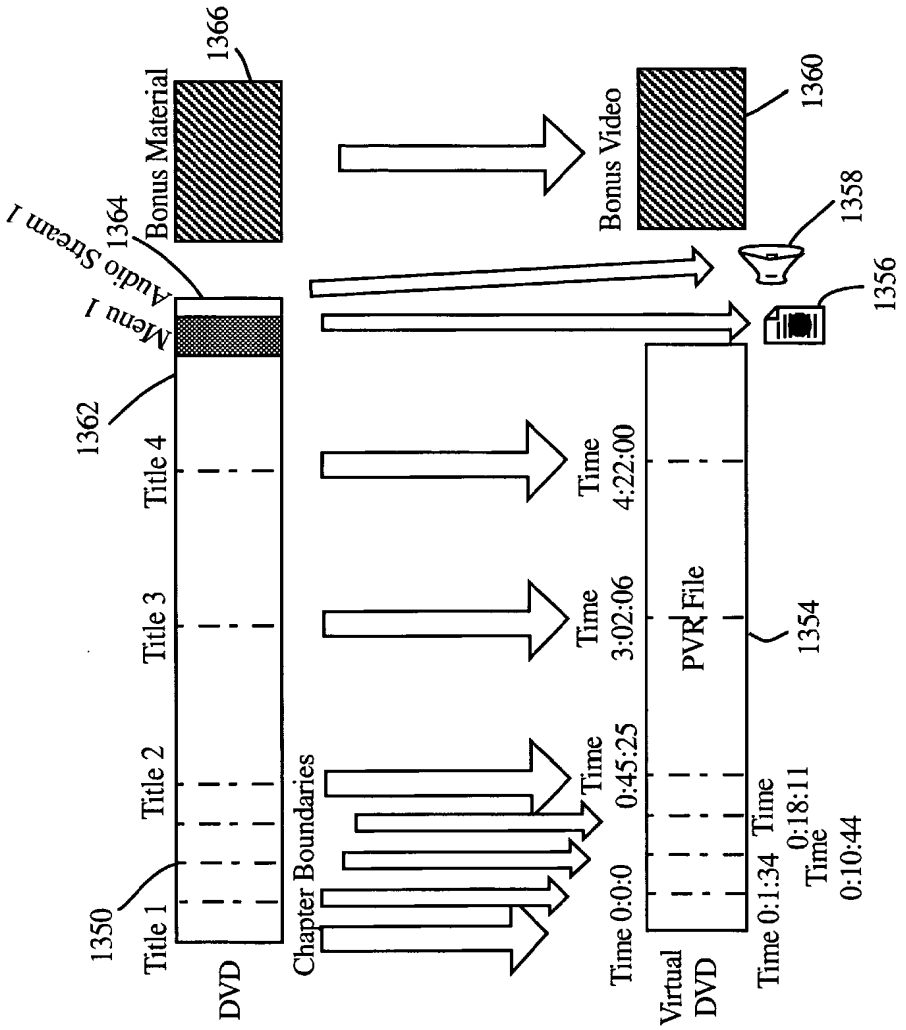

1366
Bonus Material
1364
Audio Stream 1
Menu 1
1362
Title 4
Title 3
Title 2
Title 1
1350
DVD
Chapter Boundaries
Time 0:0:0
Time 0:45:25
Time 3:02:06
Time 4:22:00
Virtual DVD
PVR File
1354
Time 0:1:34
Time 0:18:11
Time 0:10:44
1360
Bonus Video
1358
1356

Fig. 13

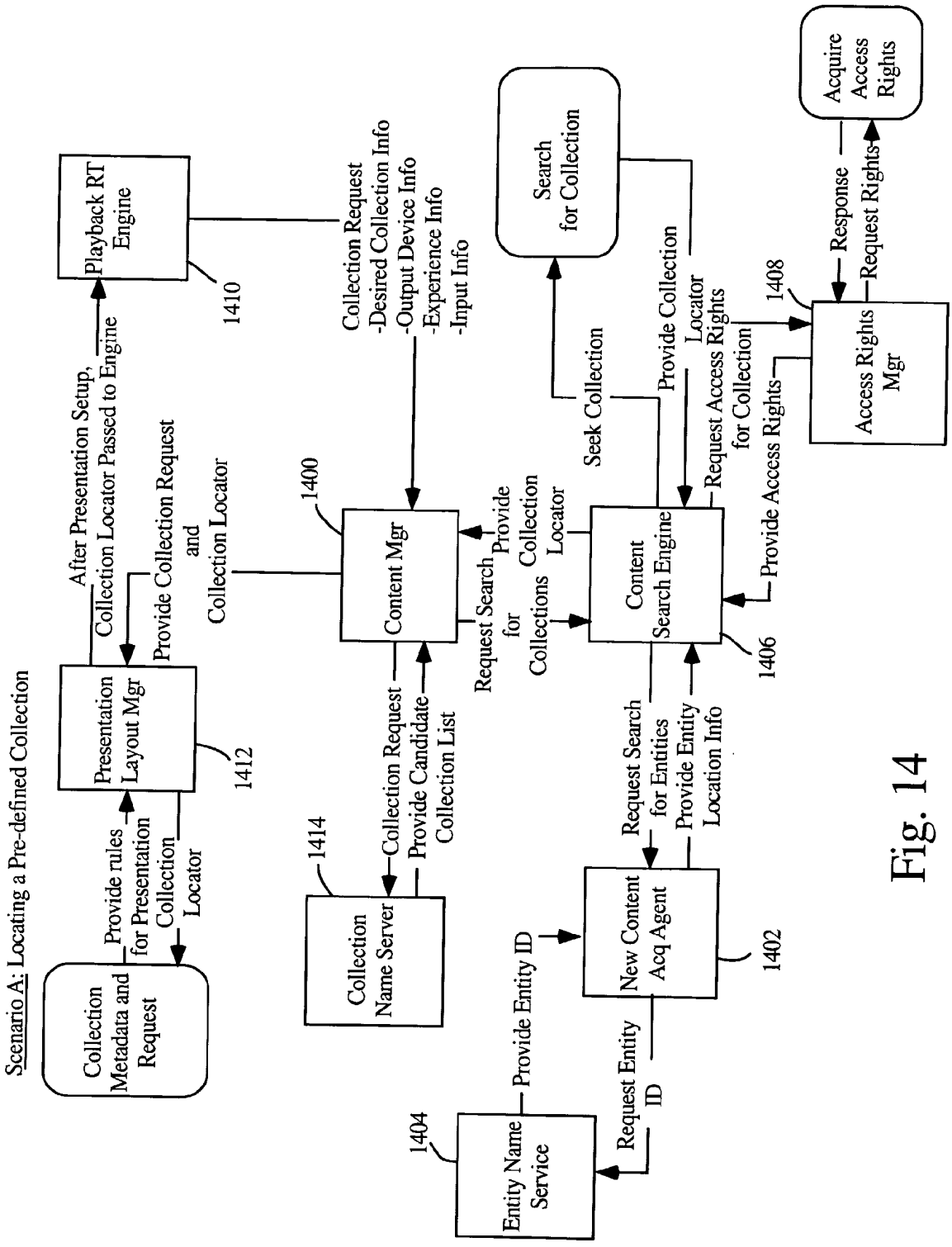

Scenario A: Locating a Pre-defined Collection
Collection Metadata and Request
Provide rules for Presentation Collection Locator
Presentation Layout Mgr
1412
After Presentation Setup, Collection Locator Passed to Engine
Provide Collection Request and Collection Locator
Playback RT Engine
1410
Collection Request -Desired Collection Info -Output Device Info -Experience Info -Input Info
1400
Content Mgr
Collection Request Provide Candidate Collection List
Collection Name Server
1414
Request Search for Collections
Provide Collection Locator
Content Search Engine
1406
Seek Collection
Search for Collection
Provide Collection Locator
Request Access Rights for Collection
Provide Access Rights
1408
Access Rights Mgr
Response Request Rights
Acquire Access Rights
Request Search for Entities
Provide Entity Location Info
New Content Acq Agent
1402
Provide Entity ID
Request Entity ID
Entity Name Service
1404

Fig. 14

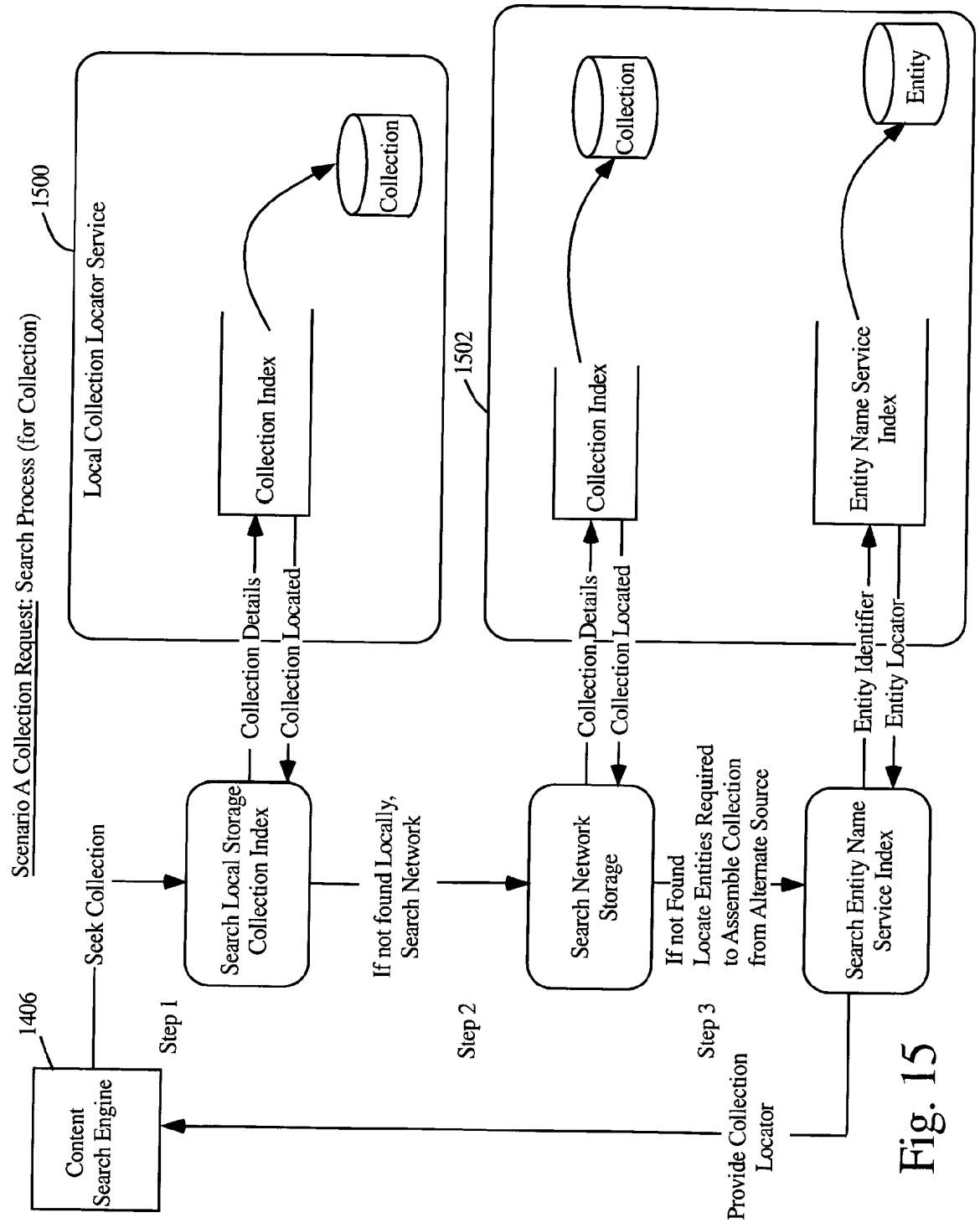

Scenario A Collection Request: Search Process (for Collection)
1500
Local Collection Locator Service
Collection
Collection Index
1502
Collection
Collection Index
Entity
Entity Name Service Index
1406
Content Search Engine
Seek Collection
Step 1
Search Local Storage Collection Index
Collection Details
Collection Located
If not found Locally, Search Network
Step 2
Search Network Storage
Collection Details
Collection Located
If not Found Locate Entities Required to Assemble Collection from Alternate Source
Step 3
Search Entity Name Service Index
Entity Identifier
Entity Locator
Provide Collection Locator

Fig. 15

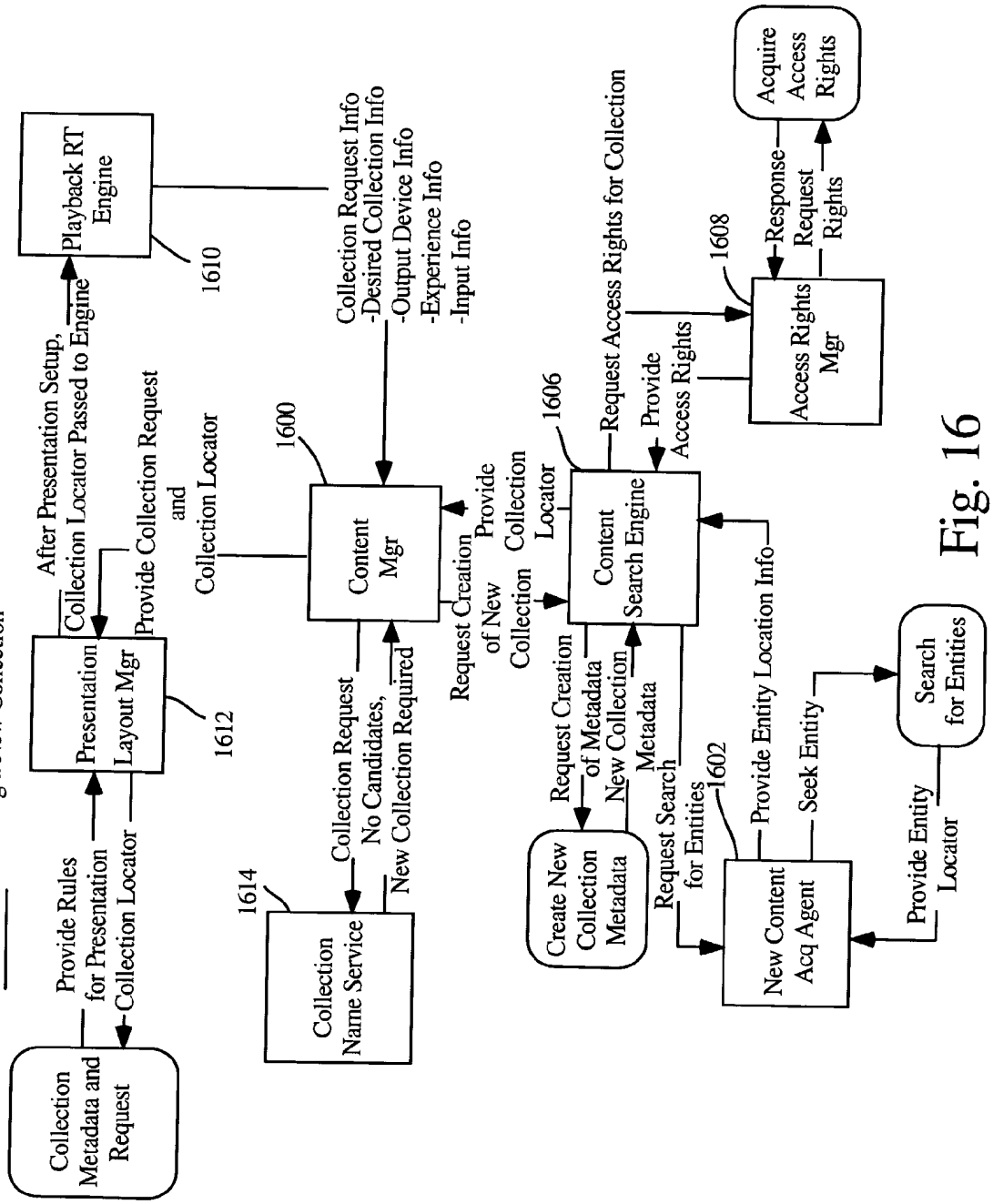

Scenario B: Creating a New Collection
Collection Metadata and Request
Provide Rules for Presentation
Collection Locator
Presentation Layout Mgr
1612
After Presentation Setup, Collection Locator Passed to Engine
Playback RT Engine
1610
Provide Collection Request and Collection Locator
Collection Request Info
-Desired Collection Info
-Output Device Info
-Experience Info
-Input Info
1600
Content Mgr
Collection Request
No Candidates, New Collection Required
Collection Name Service
1614
Request Creation of New Collection
Provide Collection Locator
1606
Content Search Engine
Request Creation of Metadata New Collection
Metadata
Create New Collection Metadata
Request Search for Entities
1602
Provide Entity Location Info
Seek Entity
New Content Acq Agent
Search for Entities
Provide Entity Locator
Request Access Rights for Collection
Provide Access Rights
1608
Access Rights Mgr
Response Request Rights
Acquire Access Rights

Fig. 16

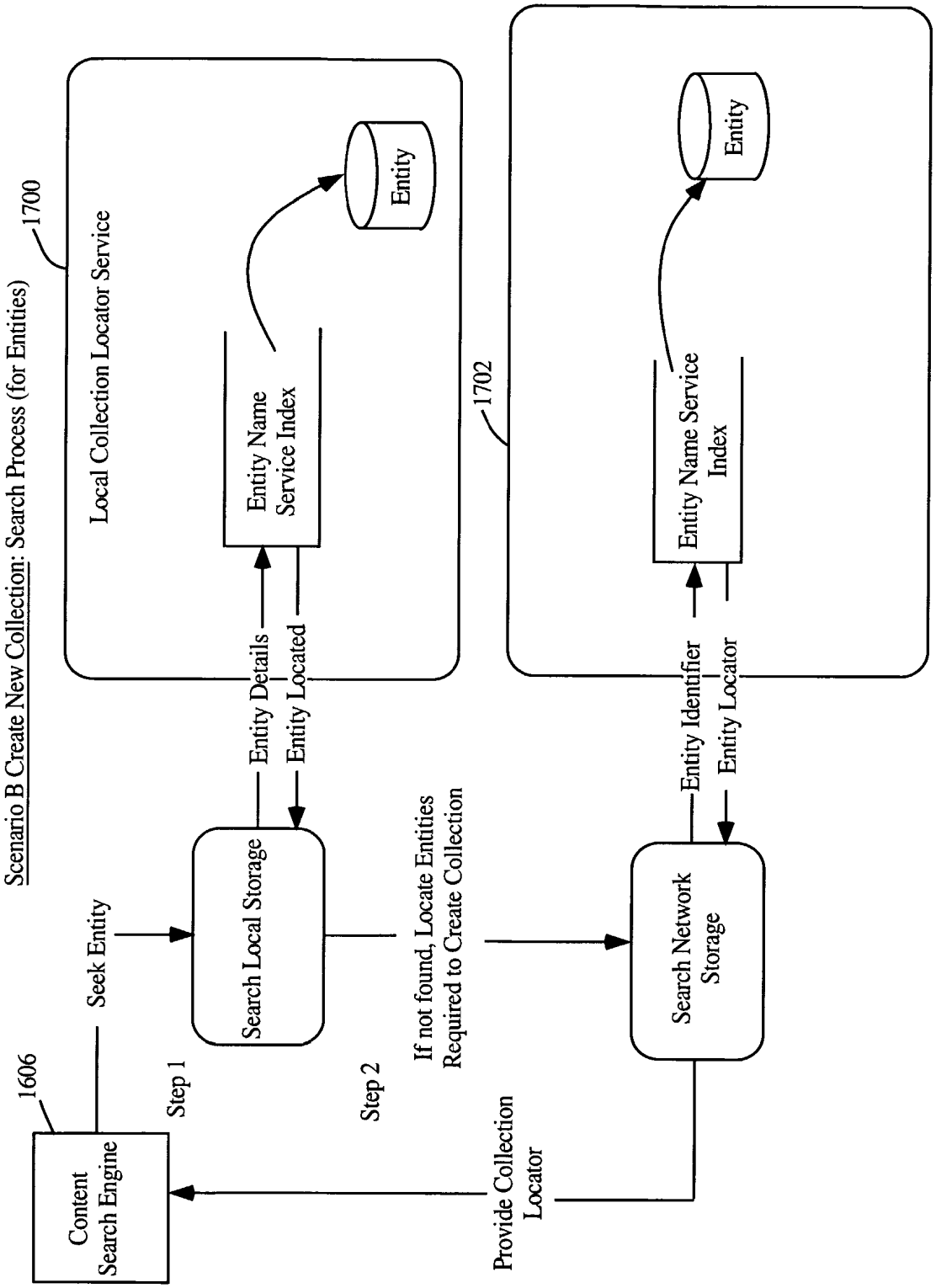

Scenario B Create New Collection: Search Process (for Entities)
1700
Local Collection Locator Service
Entity Name Service Index
Entity
1702
Entity Name Service Index
Entity
Entity Details
Entity Located
Entity Identifier
Entity Locator
Seek Entity
Search Local Storage
Search Network Storage
If not found, Locate Entities Required to Create Collection
Provide Collection Locator
1606
Content Search Engine
Step 1
Step 2

Fig. 17

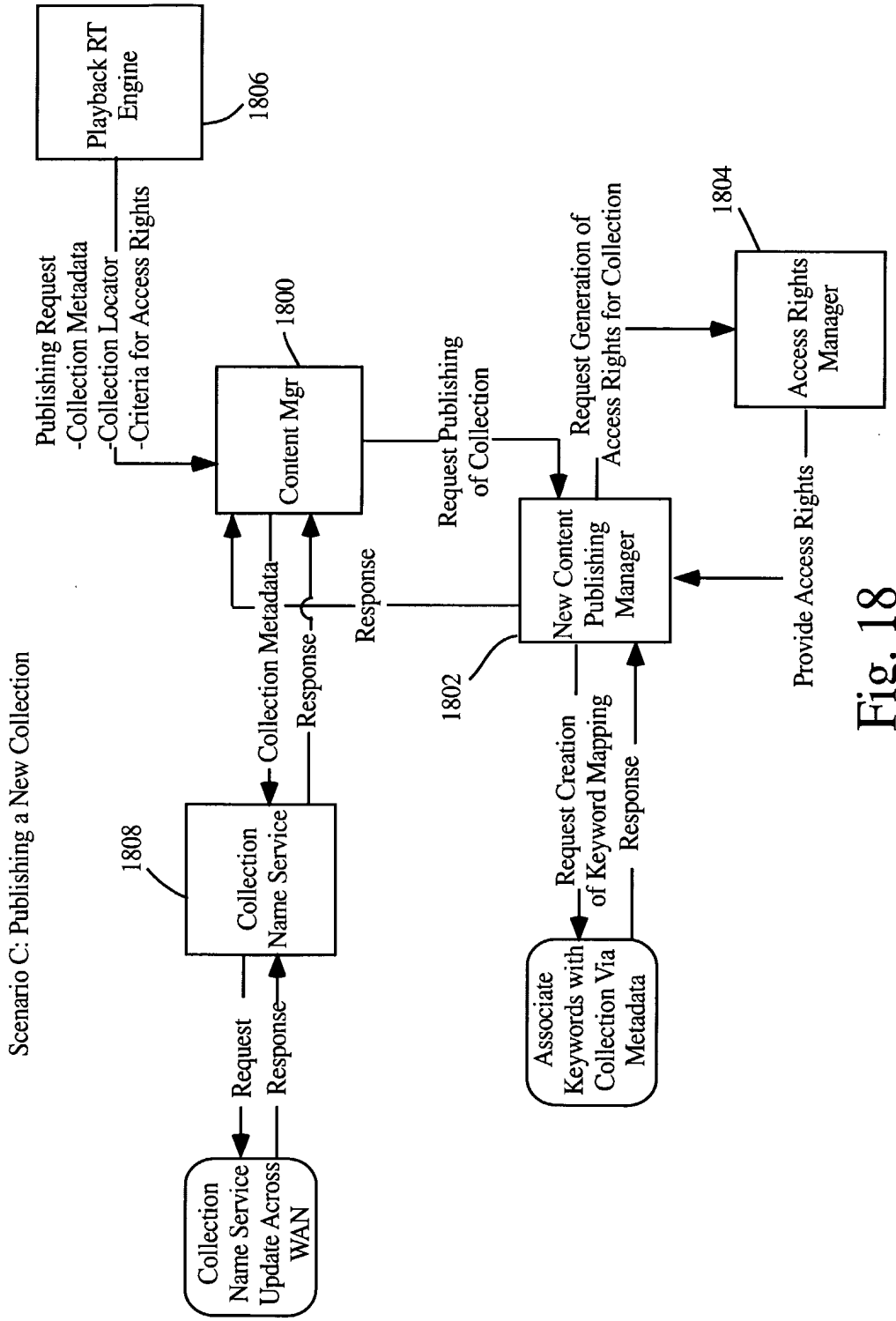

Scenario C: Publishing a New Collection
Playback RT Engine
1806
Publishing Request
-Collection Metadata
-Collection Locator
-Criteria for Access Rights
Content Mgr
1800
Request Publishing of Collection
Request Generation of Access Rights for Collection
Access Rights Manager
1804
Collection Metadata
Response
Response
New Content Publishing Manager
1802
Provide Access Rights
1808
Collection Name Service
Request Creation of Keyword Mapping
Response
Request
Response
Associate Keywords with Collection Via Metadata
Collection Name Service Update Across WAN

Fig. 18

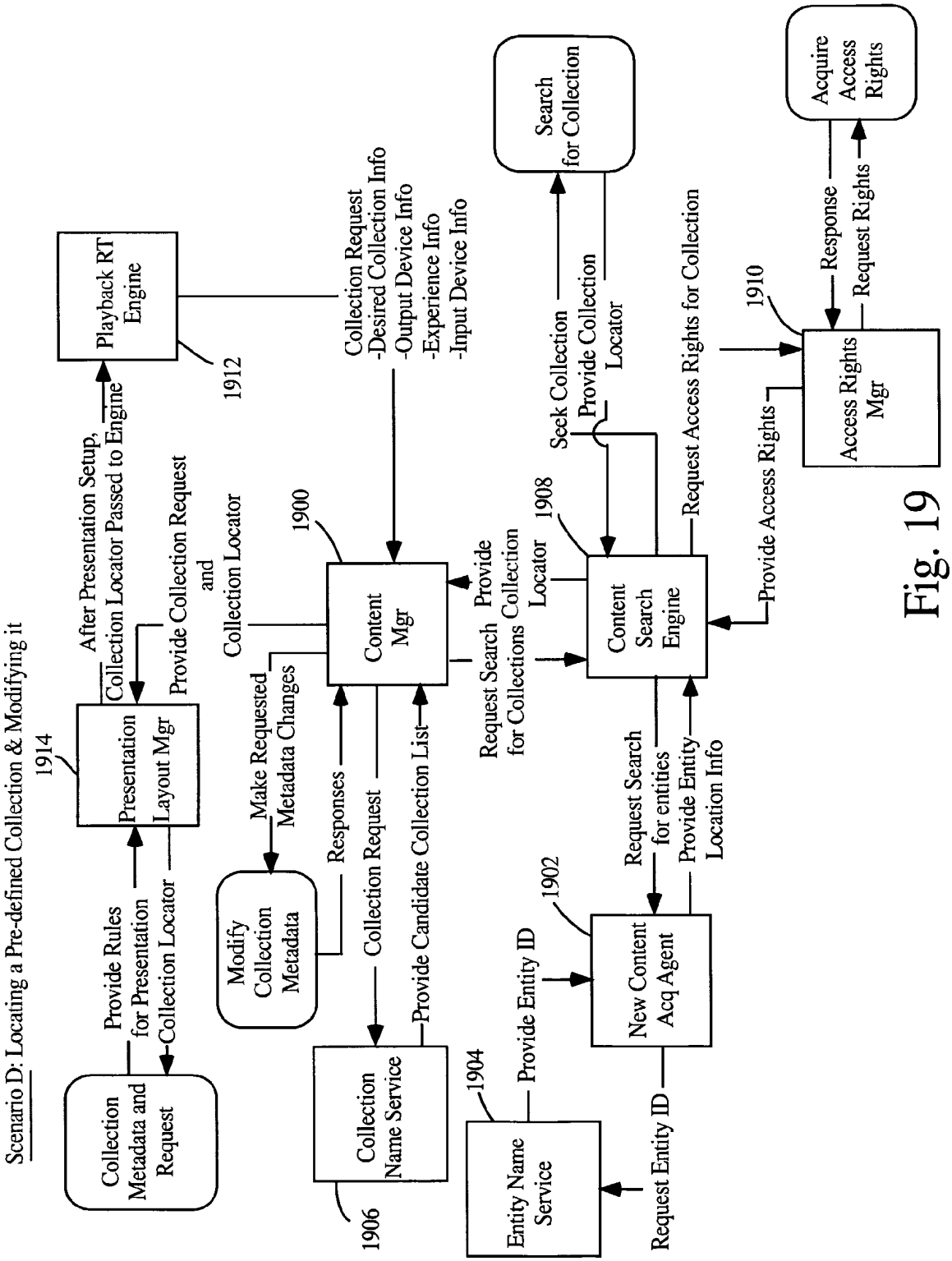

Scenario D: Locating a Pre-defined Collection & Modifying it
Collection Metadata and Request
Provide Rules for Presentation
Collection Locator
1914
Presentation Layout Mgr
After Presentation Setup, Collection Locator Passed to Engine
Provide Collection Request and Collection Locator
Playback RT Engine
1912
Collection Request
-Desired Collection Info
-Output Device Info
-Experience Info
-Input Device Info
1900
Content Mgr
Make Requested Metadata Changes
Modify Collection Metadata
Responses
Collection Request
Provide Candidate Collection List
Collection Name Service
1906
Request Search for Collections
Provide Collection Locator
1908
Content Search Engine
Seek Collection
Provide Collection Locator
Search for Collection
Request Access Rights for Collection
1910
Access Rights Mgr
Provide Access Rights
Response
Request Rights
Acquire Access Rights
Request Search for entities
Provide Entity Location Info
1902
New Content Acq Agent
Provide Entity ID
Request Entity ID
1904
Entity Name Service

Fig. 19

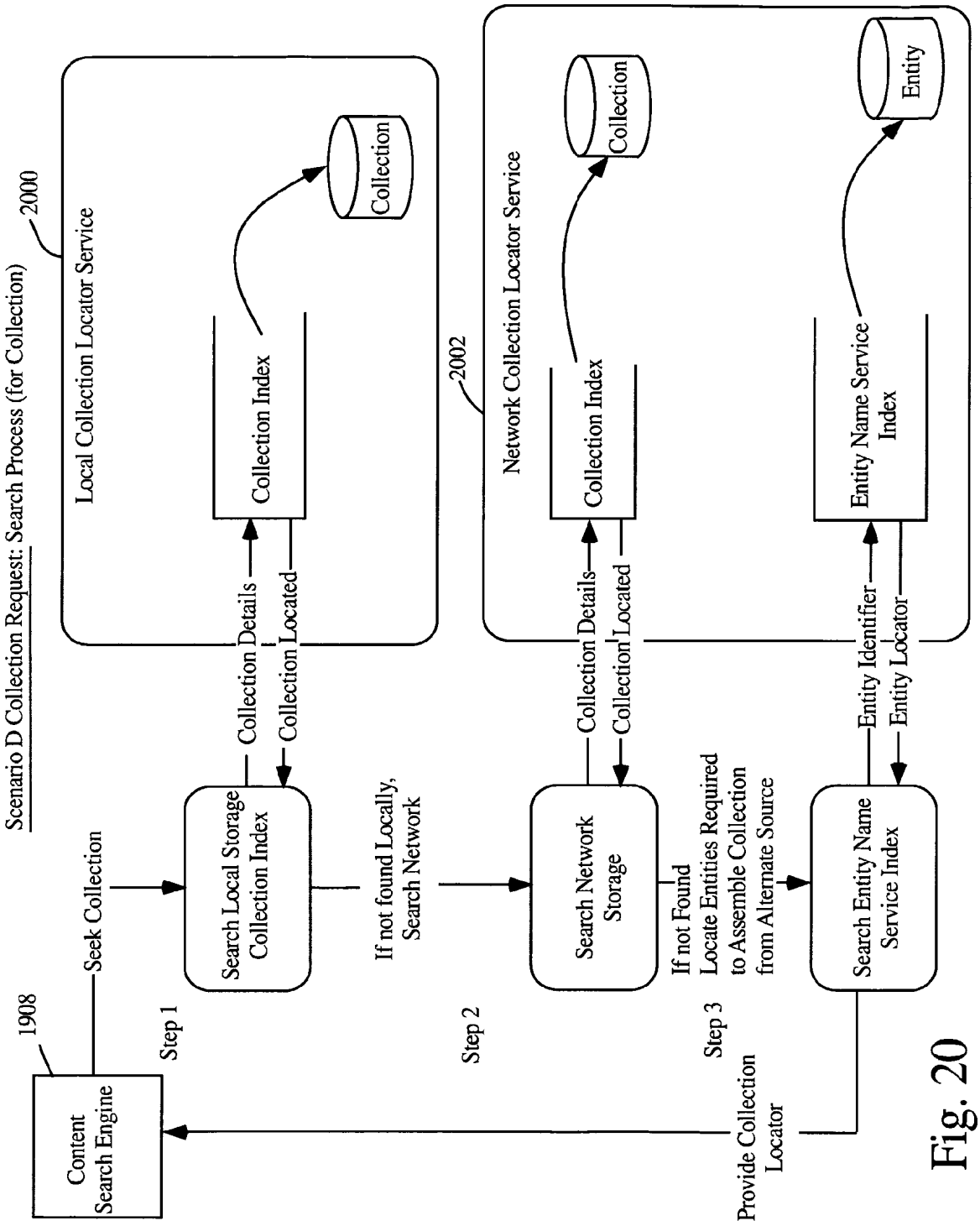

Scenario D Collection Request: Search Process (for Collection)
2000
Local Collection Locator Service
Collection
Collection Index
2002
Network Collection Locator Service
Collection
Collection Index
Entity
Entity Name Service Index
1908
Content Search Engine
Seek Collection
Step 1
Search Local Storage Collection Index
Collection Details
Collection Located
If not found Locally, Search Network
Step 2
Search Network Storage
Collection Details
Collection Located
If not Found Locate Entities Required to Assemble Collection from Alternate Source
Step 3
Search Entity Name Service Index
Entity Identifier
Entity Locator
Provide Collection Locator

Fig. 20

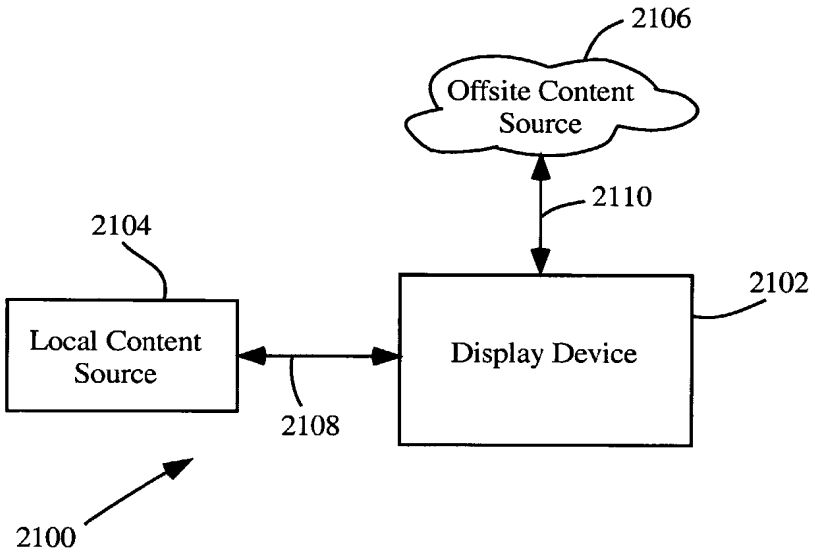

2106
Offsite Content Source
2110
2104
2102
Local Content Source
Display Device
2108
2100

Fig. 21

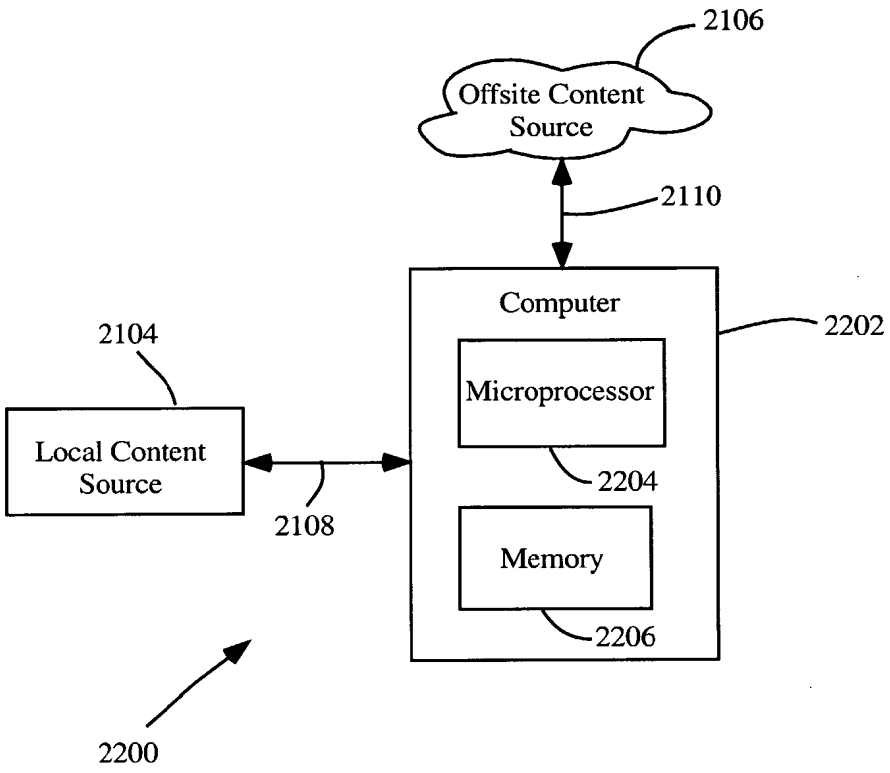

2106
Offsite Content Source
2110
Computer
2202
2104
Microprocessor
Local Content Source
2204
2108
Memory
2206
2200

Fig. 22

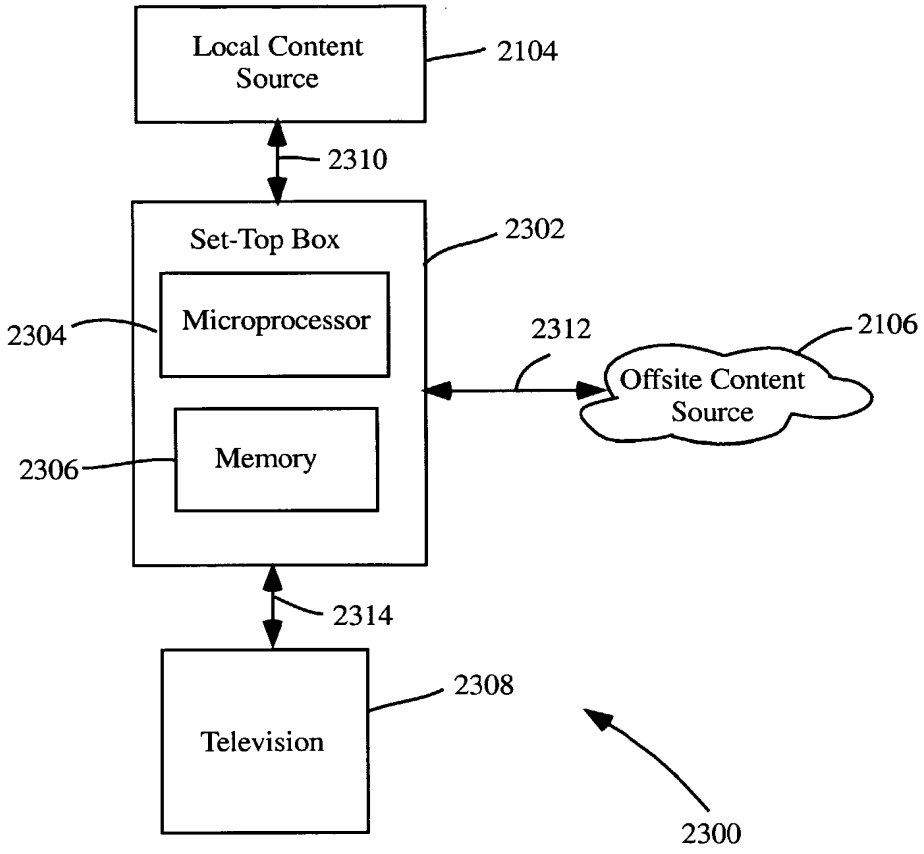

Local Content Source
2104
2310
Set-Top Box
2302
Microprocessor
2304
2312
2106
Offsite Content Source
Memory
2306
2314
Television
2308
2300

Fig. 23

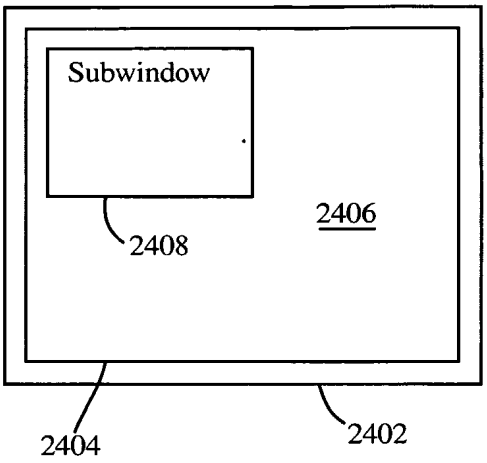


Fig. 24

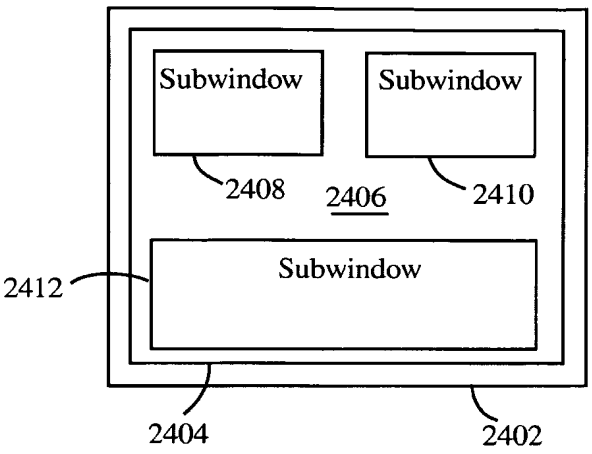


Fig. 25

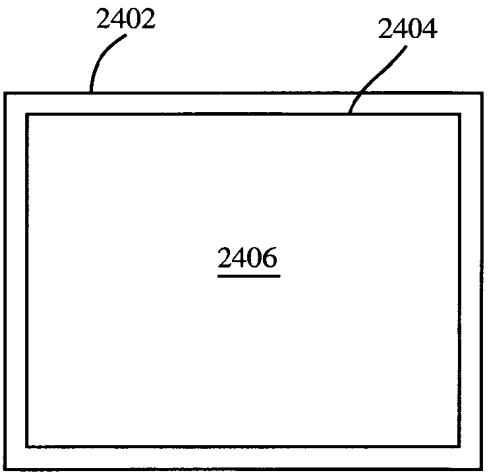


Fig. 26

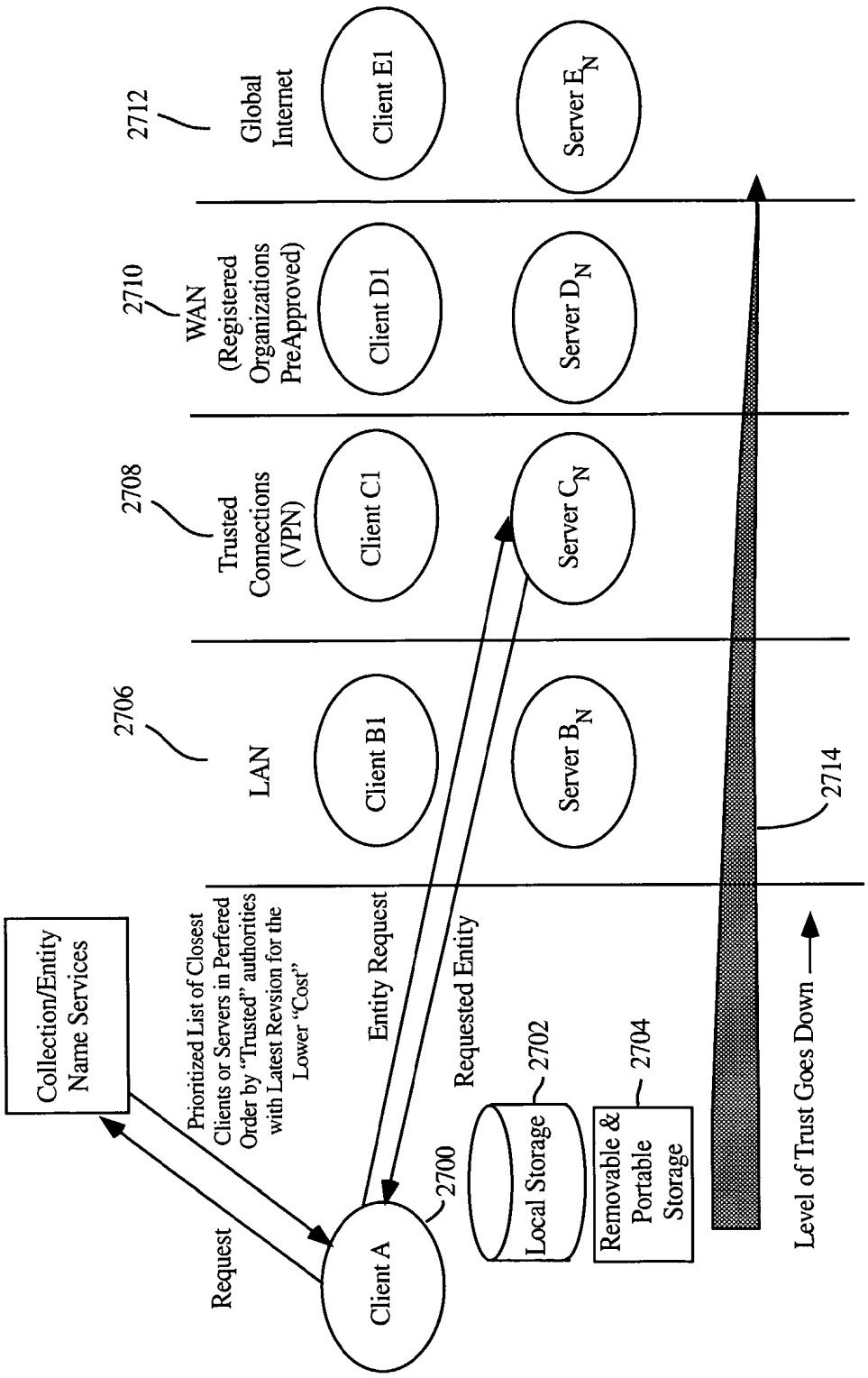

Collection/Entity Name Services
Prioritized List of Closest Clients or Servers in Perfered Order by "Trusted" authorities with Latest Revsion for the Lower "Cost"
Request
Client A
2700
Entity Request
Requested Entity
Local Storage
2702
Removable & Portable Storage
2704
2706
LAN
Client B1
Server B_N
2708
Trusted Connections (VPN)
Client C1
Server C_N
2710
WAN (Registered Organizations PreApproved)
Client D1
Server D_N
2712
Global Internet
Client E1
Server E_N
2714
Level of Trust Goes Down

Fig. 27

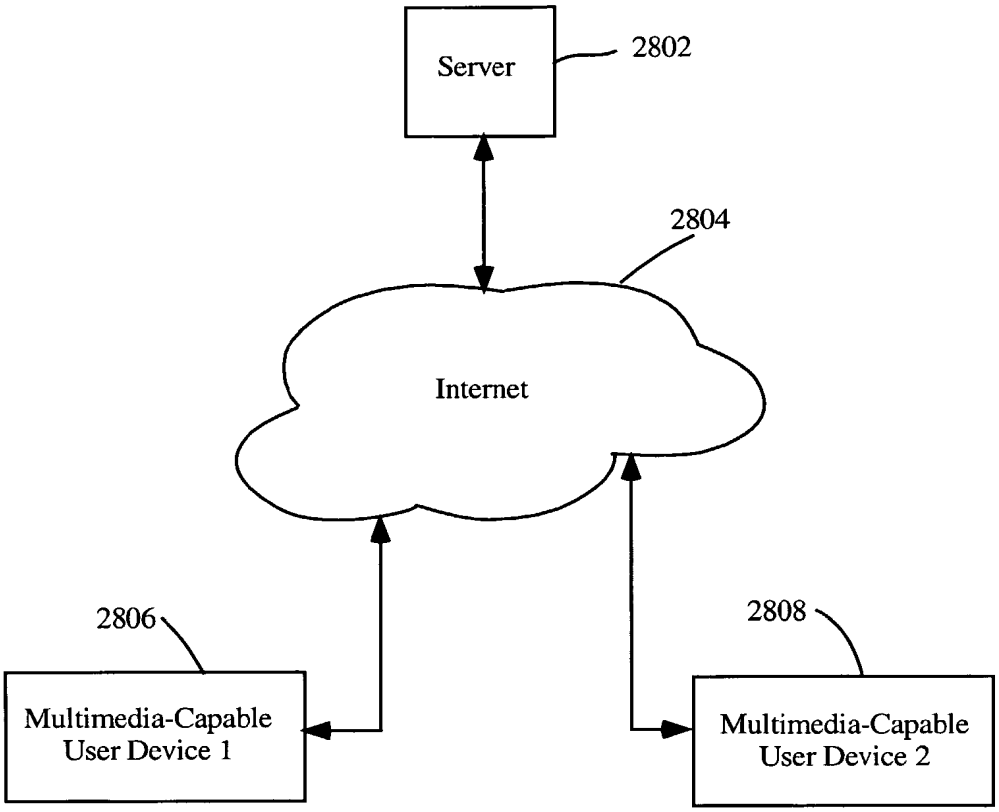

Server
2802
2804
Internet
2806
Multimedia-Capable User Device 1
2808
Multimedia-Capable User Device 2

Fig. 28

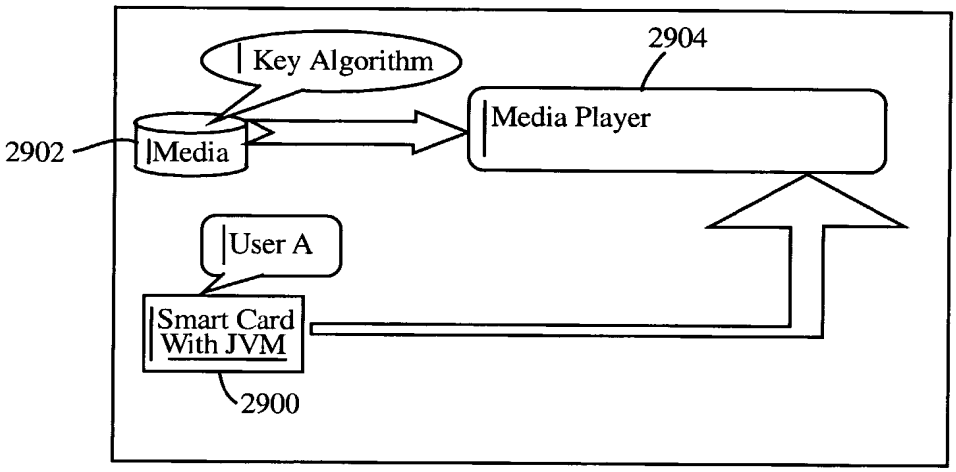

Key Algorithm
2904
Media Player
2902
Media
User A
Smart Card
With JVM
2900

Fig. 29

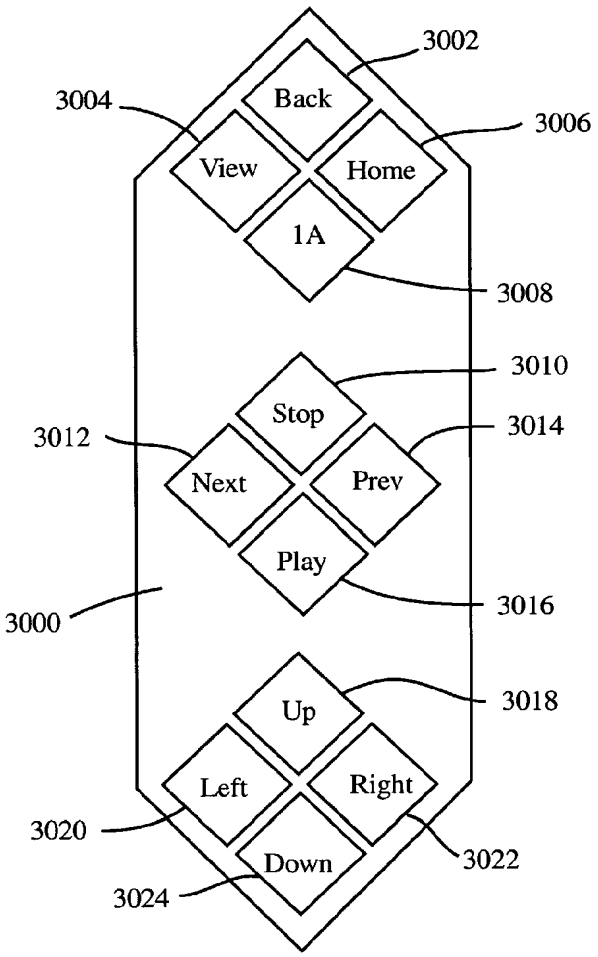

3002
3004
Back
3006
View
Home
1A
3008
3010
Stop
3012
3014
Next
Prev
Play
3016
3000
3018
Up
Left
Right
3020
3022
Down
3024

Fig. 30

Electronic Acknowledgement Receipt

EFS ID:	48027410
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Jans
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	19-MAY-2023
Filing Date:	19-JUL-2022
Time Stamp:	12:34:33
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	Information Disclosure Statement (IDS) Form (SB08)	9608-05-SB08A-3.pdf	1267472 48144dad9aa452b875da64968fc2fc7fcf3c1b3a	no	14

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2	Foreign Reference	JP2000-206949-wABS.pdf	1121919 47fed896cd5ee1fd1d69d2742a64135ad9a2ab99	no	10
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3	Foreign Reference	JP2003-209710-wABS.pdf	2103371 ee0df25d21f0212ebd86598ee202040af891eb1a	no	18
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4	Foreign Reference	WO03026275A2.pdf	2671960 675f3d98217f22bf20c1e5c727c6a0d3f4ea34f2	no	41
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5	Foreign Reference	WO2005065166A2.pdf	6761540 6cb95d75ff68094f33ffa92fdfdabcd5fd1cad05	no	170
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6	Non Patent Literature	NPL1_03VIZIO337-TA-1338_0014892.pdf	4660613 52d673baa43d3f94f043fa5facb25972affb7257	no	5
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7	Non Patent Literature	NPL2_02VIZIO337-TA-1338_0012927.pdf	1015116 5eb2d89bb599a0972f8b5fd42cf3013858a608ef	no	4
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9	Non Patent Literature	NPL4_04VIZIO337-TA-1338_0022505.pdf	4627324 73dcb54eb3ac1f4a20a04efa09efa6710dde72f6	no	51
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16	Non Patent Literature	NPL10_13VIZIO337-TA-1338_0010161-1of2.pdf	13104974 709bb64aac3f23ea5f0391f9e693581d2ce1147f	no	155
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55	Non Patent Literature	NPL27_51VIZIO337-TA-1338_0008840-2of5.pdf	20204127 0160f6d4b3bdf20f226bfa62f662ab7c8682c9be	no	183
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58	Non Patent Literature	NPL27_51VIZIO337-TA-1338_0008840-5of5.pdf	19875044 f2530795ab1a0101f79905b0c284709f373f32d0	no	182

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Total Files Size (in bytes):	539499930

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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.

Electronic Acknowledgement Receipt

EFS ID:	48028370
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Jans
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	19-MAY-2023
Filing Date:	19-JUL-2022
Time Stamp:	12:39:01
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	Non Patent Literature	NPL26_50VIZIO337-TA-1338_0013064-1of7.pdf	22088677 99b186579cdf512f633573fdca91a5bf7e7b4344	no	204

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Information:					
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Information:					
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		Total Files Size (in bytes):	165966808		

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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.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/868,139	07/19/2022	2481	1820	ASA-9608-05	20	2

CONFIRMATION NO. 2706

CORRECTED FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

OC000000137749238

Date Mailed: 04/14/2023

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Yoshihiro MACHIDA, YOKOHAMA, JAPAN;
Nobuhiro TSUTSUMI, YOKOHAMA, JAPAN;
Kouji KAMOGAWA, YOKOHAMA, JAPAN;

Applicant(s)

MAXELL, LTD., Kyoto, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 15/670,155 08/07/2017 PAT 11470379
which is a CON of 15/287,074 10/06/2016 PAT 9743129
which is a CON of 13/443,955 04/11/2012 PAT 9489985
which is a CON of 11/508,209 08/23/2006 PAT 8170394

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
JAPAN 2005-248576 08/30/2005 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

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If Required, Foreign Filing License Granted: 07/27/2022

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/868,139**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

Title

MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

Preliminary Class

386

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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IPR2025-01311; Samsung
Ex. 1002 - Page 368

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Maxell, Ltd.

Appl. No.: 17/868,139 Confirmation No.: 2706

Filed: July 19, 2022

Title: MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

Docket No.: ASA-9608-05

Customer No.: 24956

REQUEST FOR CORRECTED FILING RECEIPT

Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

April 11, 2023

Sir:

This is a Request for a Corrected Filing Receipt and corrects the errors as shown on the attached marked-up filing receipt.

The patent number of the parent application, U.S. Serial No. 15/670,155, should correctly read U.S. Patent No. 11,470,379, not U.S. Patent No. 11,432,032. Applicant notes that U.S. Patent No. 11,432,032 was the first patent number assigned to the parent application, U.S. Serial No. 15/670,155. U.S. Patent No. 11,432,032 was withdrawn due to the filing of a Petition to Withdraw from Issue associated with a Quick Path Information Disclosure Statement filed by Applicant. Afterward, U.S. Patent No. 11,470,379 was assigned to the parent application, U.S. Serial No. 15/670,155, and the patent was issued as U.S. Patent No. 11,470,379.

Accordingly, correction of the filing receipt with the correct patent number is requested.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/868,139	07/19/2022	2827	1820	ASA-9608-05	20	2

CONFIRMATION NO. 2706

UPDATED FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

OC000000136027860

Date Mailed: 08/25/2022

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Applicant(s)

MAXELL, LTD., Kyoto, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

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which is a CON of 13/443,955 04/11/2012 PAT 9489985
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If Required, Foreign Filing License Granted: 07/27/2022

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/868,139**

Projected Publication Date: 12/01/2022

Non-Publication Request: No

Early Publication Request: No

Title

MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

Preliminary Class

365

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Electronic Acknowledgement Receipt

EFS ID:	47821111
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	11-APR-2023
Filing Date:	19-JUL-2022
Time Stamp:	15:00:01
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	Request for Corrected Filing Receipt	9608-05-RequestforCorrFilingReceipt.pdf	14838 8fc8e2b860bd01e4283046a9ceeb073f3314b4df	no	2

Warnings:

Information:					
2	Request for Corrected Filing Receipt	9608-05-CorrFilingReceipt-.pdf	188413 84c3d5154b0b07cc9d0bbe976720915799 23e94a	no	4
Warnings:					
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		Total Files Size (in bytes):	203251		

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Electronic Acknowledgement Receipt

EFS ID:	47786399
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Jans
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	04-APR-2023
Filing Date:	19-JUL-2022
Time Stamp:	11:05:37
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	Non Patent Literature	NPL8_MOTO_ITC_0219877.pdf	22571233 4c5beccc1672b071380bd3947781726578dec3ee	no	219

Warnings:

Information:					
2	Non Patent Literature	NPL9_MOTO_ITC_0222795.pdf	20494385 d326f551739ab021afecc434b6a492fdb4d35ee9	no	291
Warnings:					
Information:					
3	Non Patent Literature	NPL14_MOTO_ITC_0223086.pdf	8247758 d06adf82374c8e3d56dab5a2cffdcd13be9890bc	no	36
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Information:					
4	Non Patent Literature	NPL17_MOTO_ITC_0220477DirecTVTiVoUserGuide.pdf	16281256 d6ef05de01422048c573d0fe8c9254b6b8a04243	no	191
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5	Non Patent Literature	NPL33_MOTO_ITC_0221703.pdf	14624446 30edddd4eb1aa67c534fb0e43981a7399d484d25	no	84
Warnings:					
Information:					
6	Non Patent Literature	NPL35_MOTO_ITC_0221794.pdf	22059079 f9cc10ff58d033835ed649fddc04869873f8cff8	no	188
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Information:					
7	Non Patent Literature	NPL15_MOTO_ITC_0220294-1of3.pdf	15986386 f2e615e6dca2072a8532b37eab081781f14c05a6	no	60
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8	Non Patent Literature	NPL15_MOTO_ITC_0220294-2of3.pdf	17053333 645bbf3f9f359a791b66a0be38f0798f5c2194c2	no	60
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9	Non Patent Literature	NPL15_MOTO_ITC_0220294-3of3.pdf	16337575 8ec7e9d9b19ab69814d8326d05ca245b6b0257ce	no	60
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Information:					
10	Non Patent Literature	NPL41_MOTO_ITC_0222100-1of3.pdf	13463046 1ce6f5581094a0ada4ae3e5889c9d5483ad0080f	no	60
Warnings:					
Information:					
11	Non Patent Literature	NPL41_MOTO_ITC_0222100-2of3.pdf	11375482 ba4a05cc0036c131b1c1327c1ce77626efaed285	no	60
Warnings:					
Information:					
12	Non Patent Literature	NPL41_MOTO_ITC_0222100-3of3.pdf	6080517 435e3400f47febcc5d97fe5d8a43425a50664702	no	56
Warnings:					
Information:					
13	Non Patent Literature	NPL42_MOTO_ITC_0222298-1of3.pdf	13995136 5649f856c569b87a85aba3e4c3485893c6d7fec6	no	60
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Information:					
14	Non Patent Literature	NPL42_MOTO_ITC_0222298-2of3.pdf	11721556 aa30c0ef8cad3259d0836ec4561effd6568b3f6c	no	60
Warnings:					
Information:					
15	Non Patent Literature	NPL42_MOTO_ITC_0222298-3of3.pdf	6319563 f33b0cd343eeba87d5eafad7575f6a5a404c0b59	no	56
Warnings:					
Information:					

16	Non Patent Literature	NPL43_MOTO_ITC_0222474-1of2.pdf	12530369 ed5328cf4ae4dbca5db9856249b51cfe313f3149	no	90
Warnings:					
Information:					
17	Non Patent Literature	NPL43_MOTO_ITC_0222474-2of2.pdf	17167801 9f12fb3ff2d60088529269ca706b0c79da4fbd0e	no	96
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PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17868139
Filing Date	2022-07-19
First Named Inventor	MACHIDA, Y.
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-9608-05

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	1	Vizio, Inc. v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,170,394, Inter Partes Review No. IPR2023-00316 filed March 3, 2023, pp. 1-86
	2	Certain Mobile Electronic Devices' Respondents' Initial Invalidity Contentions which were filed in the following Investigation No. 337-TA-1324 (Washington, D.C.), filed December 7, 2022, pp. 1-93
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	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Jans
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Attorney Docket Number:	ASA-9608-05
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/868,139	07/19/2022	Yoshihiro MACHIDA	ASA-9608-05

CONFIRMATION NO. 2706

PUBLICATION NOTICE

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

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Title:MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

Publication No.US-2022-0385965-A1
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Application Number	17868139
Filing Date	2022-07-19
First Named Inventor	MACHIDA, Y.
Art Unit	2481
Examiner Name	
Attorney Docket Number	ASA-9608-05

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7293276	B2	2007-11-06	PHILLIPS et al.	
	2	8112711	B2	2012-02-07	ACKLEY	
	3	8181205	B2	2012-05-15	RUSS et al.	
	4	7073189	B2	2006-07-04	MCELHATTEN et al.	
	5	8773360	B2	2014-07-08	UCHIDA et al.	
	6	7667123	B2	2010-02-23	PHILLIPS et al.	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	2481
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Motorola Mobility LLC v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,170,394, Inter Partes Review No. IPR2022-01348 filed August 18, 2022	
	2	MYERS, B. A., "A Taxonomy of Window Manager User Interfaces", IEEE Computer Graphics & Applications, September 1988, pp. 65-84	
	3	PRESS, L., "Personal Computing: Compuvision or Teleputer?", Communication of the ACM, September 1990, pp. 29-36, Vol. 33, No. 9	
	4	"ARIB Technical Report TR-B14 Version 2.8", Association of Radio Industries and Businesses, May 29, 2006, pp. 1-564, Vol. 3	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	2481
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	5	Blackberry Corporation v. Maxell, Ltd., Petition for Inter Partes Review of U.S. Patent No. 8,170,394, Inter Partes Review No. IPR2019-00089, March 29, 2019
	6	Excerpts from File History of U.S. Patent No. 8,170,394
	7	Excerpts from Sony's Digital Dreams Publication, 1999
	8	Excerpts from Apple's Macintosh Human Interface Guidelines, 1992
	9	Overview and Amendment History of Amendment HIstory of ARIB Technical Report TRB14, 2018

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17868139
	Filing Date	2022-07-19
	First Named Inventor	MACHIDA, Y.
	Art Unit	2481
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2022-08-30
Name/Print	John R. Mattingly	Registration Number	30,293

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 1 hour 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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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.

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Electronic Acknowledgement Receipt

EFS ID:	46505258
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	30-AUG-2022
Filing Date:	19-JUL-2022
Time Stamp:	08:06:07
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	Information Disclosure Statement (IDS) Form (SB08)	9608-05-SB08A-.pdf	1264245 12f51448deec74c4aa4e7a290061b1f56a5a5476	no	5

Warnings:

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2	Non Patent Literature	NPL1-IPRPetition.pdf	1528883 fd08ecff1b8c97267d49b0046f2b72681749e25a	no	90
Warnings:					
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3	Non Patent Literature	NPL2-ATaxonomyOfWindowManagerUserInterfaces.pdf	4496811 b318ca7227f0c9228fe2ec48a26bd5b6b0f57518	no	20
Warnings:					
Information:					
4	Non Patent Literature	NPL3-PersonalComputing.pdf	2197195 ef35a0dfd2582948f90bfc488fc63f88ec1a3eb6	no	8
Warnings:					
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5	Non Patent Literature	NPL4-ARIBTechnicalReport.pdf	10608186 2ba8b03068dbb4a374384e598ae4e69ec464b352	no	589
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6	Non Patent Literature	NPL5-Blackberry.pdf	2936027 bb57dc8b10b68b054a9f1d1a84417ab39aa64fdd	no	55
Warnings:					
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7	Non Patent Literature	NPL6-ExcerptsfromFileHistory8170394.pdf	6840948 f5f82ee71d46e612047ec6273194e7e3762d9698	no	127
Warnings:					
Information:					
8	Non Patent Literature	NPL7-ExcerptfromSonysDigitalDreams.pdf	15699120 f0e58f77f46d0348d0553cd70703c302924424ad	no	21
Warnings:					
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9	Non Patent Literature	NPL8-ExcerptsfromApplesMacintosh.pdf	5032942 f7f0bcd1e924047bea7fe3b413e44a50470f3946	no	39
Warnings:					
Information:					
10	Non Patent Literature	NPL9-OverviewandAmendmentHistory.pdf	12115581 1f97e142ee94fc37da1b9cc04fe7ff787b06725d	no	21
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		Total Files Size (in bytes):	62719938		

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/868,139

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	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*				x 480 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 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).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

		(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($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	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	

		(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($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	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".
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/868,139	07/19/2022	2827	1820	ASA-9608-05	20	2

CONFIRMATION NO. 2706

UPDATED FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

OC000000136027860

Date Mailed: 08/25/2022

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Yoshihiro MACHIDA, YOKOHAMA, JAPAN;
Nobuhiro TSUTSUMI, YOKOHAMA, JAPAN;
Kouji KAMOGAWA, YOKOHAMA, JAPAN;

Applicant(s)

MAXELL, LTD., Kyoto, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 15/670,155 08/07/2017 PAT 11432032
which is a CON of 15/287,074 10/06/2016 PAT 9743129
which is a CON of 13/443,955 04/11/2012 PAT 9489985
which is a CON of 11/508,209 08/23/2006 PAT 8170394

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
JAPAN 2005-248576 08/30/2005 No Access Code Provided

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Permission to Access Search Results: Yes

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If Required, Foreign Filing License Granted: 07/27/2022

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/868,139**

Projected Publication Date: 12/01/2022

Non-Publication Request: No

Early Publication Request: No

Title

MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

Preliminary Class

365

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Y. MACHIDA, et al.
		Confirmation No.: 2706
Serial No.	:	17/868,139
Filed	:	July 19, 2022
For	:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
Group	:	2827
Examiner	:	
Docket No.	:	ASA-9608-05
Customer No.:		24956

APPLICANT RESPONSE TO PRE-EXAM FORMALITIES NOTICE

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

August 23, 2022

Sir:

In response to the Notice to File Corrected Application Papers mailed July 29, 2022, Applicant submits herewith a Marked-Up Substitute Specification and Clean Substitute Specification. No new matter has been added by the changes made in the substitute specification.

No fees are believed to be due for this submission. However, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, to our Deposit Account No. 50-1417 (referencing Attorney Docket No. ASA-9608-05).

Respectfully submitted,

MATTINGLY & MALUR, P.C.

/John R. Mattingly/
John R. Mattingly
Reg. No. 30293
(703) 684-1120

IPR2025-01311; Samsung
Ex. 1002 - Page 411

SPECIFICATION – MARKED-UP

MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

CROSS REFERENCE TO RELATED APPLICATION

This is a continuation of U.S. application Serial No. 15/670,155, filed August 7, 2017, which is a continuation of U.S. application Serial No. 15/287,074, filed October 6, 2016, now U.S. Patent No. 9,743,129, which is a continuation of U.S. application Serial No. 13/443,955, filed April 11, 2012, now U.S. Patent No. 9,489,985, which is a continuation of U.S. application Serial No. 11/508,209, filed August 23, 2006, now U.S. Patent No. 8,170,394. This application relates to and claims priority from Japanese Patent Application No. 2005-248576, filed on August 30, 2005. The entirety of the contents and subject matter of all of the above is incorporated herein by reference.

BACKGROUND OF THE INVENTION

The present invention relates to image rendering techniques for an apparatus which reproduces digital contents multiplexing a plurality of contents having different information, and more particularly to image rendering techniques for reproduction control of digital contents by using user operation interfaces.

A conventional digital broadcasting compatible HOD/DVD decoder which is a digital content reproduction apparatus requires, in addition to channel tuning, reproduction control keys for linear contents such as video and audio, the keys including "reproduce", "stop", "fast forward", "fast backward", "temporary stop" and other operation keys. The apparatus further requires "up", "down", "right", "left", "decide" and four-color keys for operation control of data broadcasting. In order to deal with all

IPR2025-01311; Samsung
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functions, a number of remote keys are required. It takes learning time in order for a user master an operation method, or there is an issue of not easy to use.

As described in JP-A-2005-73022, there is known a broadcast receiving apparatus which provides a user with illumination of a usable key of a remote controller in accordance with information on digital contents. Typical apparatus which perform reproduction control by graphical user interface (GUI) digital include a digital broadcasting compatible personal computer and a DVD reproduction compatible personal computer. In these apparatus, reproduction keys for linear contents and interactive contents are displayed on a screen and unusable keys are disabled so that it is possible to improve user easy to use performance. However, in order to display all keys, a large panel rendering area is required. Since linear contents and interactive contents are multiplexed and transmitted for digital broadcasting, these contents are also recorded in a multiplexed state.

SUMMARY OF THE INVENTION

The apparatus described in JP-A-2005-73022 is required to mount all keys so that a remote controller having a large area is used. Similarly, the apparatus using GUI is also required to display all keys so that a wide operation panel rendering area is used.

Information on data added digital broadcasting includes up-to-date news, weather forecast and the like. There arises an issue of a lapse of an appreciation term, when reproduction is made.

It is therefore an object of the present invention to display automatically only usable operation keys in accordance with information on digital contents. Accordingly, a

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user operation learning time can be shortened, since the panel rendering area is made small, a mouse motion distance can be shortened, and an easy to use performance can be improved. It is an object of the present invention to provide a digital content reproduction apparatus capable of having a relatively large image display area by making small a panel rendering area. It is another object of the present invention to provide a digital content reproduction apparatus capable of reproduction within an appreciation term by monitoring information on digital contents.

According to the digital content reproduction apparatus of the present invention, a plurality of user operation interfaces of the same size are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the user operation interfaces are automatically and exclusively displayed in the same panel rendering area so that only usable operation keys can be displayed. Information on digital contents is monitored and display is controlled in accordance with digital content attributes.

According to the present invention, a plurality of user operation interfaces of the same size are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the user operation interfaces are automatically and exclusively displayed in the same panel rendering area so that only usable operation keys can be displayed and a user operation learning time can be shortened.

According to the present invention, since the panel rendering area is made small, a mouse motion distance can be shortened so that a user easy to use performance can be improved.

According to the present invention, since the panel rendering area is made small,

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the image display area can be made relatively large.

According to the present invention, only information within an appreciation term can be presented by controlling the display state in accordance with information on digital contents.

Other objects, features and advantages of the invention will become apparent from the following description of the embodiments of the invention taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram showing the structure of a digital content reproduction apparatus according to an embodiment of the present invention.

FIG. 2 is an illustrative diagram showing the layout of a screen of the apparatus shown in FIG. 1.

FIG. 3 is an illustrative diagram showing a linear content operation panel of the apparatus shown in FIG. 1.

FIG. 4 is an illustrative diagram showing an interactive content operation panel of the apparatus shown in FIG. 1.

FIG. 5 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 6 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 7 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

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FIG. 8 is an illustrative diagram showing the layout of screens of the apparatus shown in FIG. 9.

FIG. 9 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 10 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 11 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 12 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 13 is an illustrative diagram showing digital content attributes according to another embodiment of the present invention.

DESCRIPTION OF THE EMBODIMENTS

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

FIG. 1 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

Referring to FIG. 1, the digital content reproduction apparatus records broadcast data received at a broadcast receiving unit 1 in a data record unit 3 with involvement of a data input/output control unit 2. The data input/output control unit 2 reads data from the data record unit 3 and supplies the read data via a data extraction (demultiplex) unit 4 to a content decode unit 6 which decodes the supplied data and sends the decoded

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data to an image rendering unit 7. A data monitor unit 5 always monitors information on digital contents in the data extraction unit 4, and in accordance with a change in the information, instructs the image rendering unit 7 to perform rendering of an user operation interface corresponding to the information on the contents. The decoded contents and the user operation interface are superposed and output as image data by the image rendering unit 7. A user input to the displayed user operation interface from a mouse, a keyboard or a remote controller is sent to a user operation input unit 8 which transfers the user operation information to a system control unit 9. In accordance with the user operation information, the system control unit 9 controls the broadcast receiving unit 1, data input/output control unit 2, data extraction unit 4, content decode unit 6 and image rendering unit 7.

Next, description will be made on the user operation interface during digital broadcast reproduction.

FIGS. 2 to 4 show image display states during digital broadcast reproduction. A monitor Al has a content display area A2 and an operation panel display area A3. During reproduction of linear contents such as moving image contents, a linear content operation panel A4 is displayed in the operation panel display area A3, the linear content operation panel providing functions of reproduce, stop, temporary stop, fast forward, fast backward, previous skip, next skip and the like.

During reproduction of interactive contents such as data broadcast contents, an interactive content operation panel A5 is displayed in the operation panel display area A3, the interactive content operation panel providing functions of numerical keys from 0 to 9, up/down/right/left keys, a decide key, blue/red/green/yellow keys and other keys.

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The linear content operation panel A4 and interactive content operation panel AS are displayed exclusively and are not displayed at the same time. The functions provided by the linear content operation panel A4 and interactive content operation panel A5 are not limited to those described above, but the functions may be increased or decreased in accordance with the apparatus function.

Next, by taking Japanese terrestrial digital broadcasting as an example, description will be made on a specific digital content monitoring method.

TV type services, data broadcasting services and data added TV services are defined for Japanese terrestrial digital broadcasting (Association of Radio Industries and Businesses: Terrestrial Digital Television Broadcasting Operational Guideline TR-B14). Program specific information (PSI) on digital broadcasting contains a program map table (PMT). PMT contains a data encode descriptor which contains an auto_start_flag.

In data added TV services, if the auto_start_flag is "1", data broadcasting is automatically displayed, whereas if it is "0", data broadcasting is displayed upon instruction from a user. The data monitor unit monitors the auto_start_flag, and when the flag becomes "1", the interactive content operation panel A5 is displayed, and when the flat becomes "0", the linear content operation panel A4 is displayed.

In this embodiment, the linear content operation panel and interactive content operation panel are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the panels are automatically and exclusively displayed in the operation panel display area A3 of the same panel rendering area size. Accordingly, only usable operation keys can be displayed, a user operation learning time can be shortened, since the panel rendering area is made small, a mouse motion

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distance can be shortened, and an easy to use performance can be improved. Further, since the panel rendering area is made small, the image display area can be made relatively large.

In this embodiment, although terrestrial digital broadcasting has been described, the embodiment is also used for reproduction of other digital contents. Also in this case, the operation panel can be switched automatically by monitoring the content switching flag.

FIG. 5 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the description described so far.

In the above description, although data is supplied to the apparatus by using broadcasting waves, in this embodiment, digital content services via a network B1 are assumed. In this case, data can be acquired via a network connection unit B2 connected to the network B1. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 6 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the foregoing description.

In the foregoing description, although data acquired by the network connection unit B2 connected to the network B1 is recorded in the data record unit 3, in this embodiment, video on demand (VOD) type services are assumed and a data record unit is not provided in the reproduction apparatus. The data input/output unit 2 requests a VOD service center about necessary data via the network connection unit B2 and

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network B1. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 7 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the foregoing description.

In the foregoing description, although data acquired by using broadcasting waves is recorded in the data record unit 3, in this embodiment, the broadcast receiving unit 1 is not provided and only data recorded beforehand in the data record unit 3 is reproduced. This embodiment assumes an apparatus dedicated only to reproduction. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 8 is an illustrative diagram showing the layout of screens of the apparatus shown in FIG. 9. In the foregoing description, although a single monitor is used which has both the content display area and operation panel display area, in this embodiment, a first monitor A6 has a content display area A2 and a second monitor A7 has an operation panel display area A3. If a remote controller or the like has the operation panel display area A3, the number of keys of the remote controller can be reduced. FIG. 9 is a diagram showing the structure of the digital content reproduction apparatus of this embodiment.

A different point from the foregoing description resides in that a content rendering unit 7b and an operation panel rendering unit 7c are independent. Other points are similar to the foregoing description, and the description thereof is omitted. FIGS. 10 to 12 show the structures that the content rendering unit 7b and operation panel rendering

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unit 7c are made independent as different from the foregoing description. Other points are similar to the foregoing description, and the description thereof is omitted.

FIGS. 10 to 12 are similar to those figures described above. In the foregoing description, although the data monitor unit monitors the auto_start_flag, in this embodiment, attributes of digital contents are recorded and a data broadcasting descriptive language BML (Broadcast Markup Language) is analyzed.

FIG. 13 shows examples of the attributes and language analysis results. Information on data added digital broadcasting includes up-to-date news, weather forecast and the like. These contents have a nature of an appreciation term and it is difficult to consider that these contents are referred to after, e.g., one month. In this embodiment, therefore, a content appreciation term is set beforehand in accordance with record days and times and information on the contents. If contents are ~~within~~ outside the appreciation term, data broadcasting is not displayed even if the auto_start_flag is "1", but the linear content operation panel is displayed. If the contents are within the appreciation term and a user does not still view the contents, the data broadcasting is automatically displayed even if the auto_start_flag is "0" and the interactive content operation panel is displayed. Only new information can be presented for viewing, by controlling the display state in accordance with information on digital contents.

It should be further understood by those skilled in the art that although the foregoing description has been made on embodiments of the invention, the invention is not limited thereto and various changes and modifications may be made without departing from the spirit of the invention and the scope of the appended claims.

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Abstract of the Disclosure

A digital content operating apparatus, including: a communication unit which communicates with an external device which has a display for displaying the digital content; a user operation interface which receives a user operation to control the digital content which is displayed on the external device; a display which displays either a linear content operation panel or an interactive content operation panel; and a controller which controls the user operation interface corresponding to information on the digital content which is displayed on the external device; wherein either the linear content operation panel or the interactive content operation panel is displayed alternatively as the user operation interface on the display.

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1	Applicant Response to Pre-Exam Formalities Notice	9608-05-ResponsetoNTFCAP.pdf	14182 86b127b036a9103f4945cf79e3adfc124f9449a4	no	2

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2	Specification	9608-05-SPEC-marked-up.pdf	55666 b6d779cc1ea4763f1eb52b9af9d3420aa7865228	no	11
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SUBSTITUE SPECIFICATION - CLEAN

MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

CROSS REFERENCE TO RELATED APPLICATION

This is a continuation of U.S. application Serial No. 15/670,155, filed August 7, 2017, which is a continuation of U.S. application Serial No. 15/287,074, filed October 6, 2016, now U.S. Patent No. 9,743,129, which is a continuation of U.S. application Serial No. 13/443,955, filed April 11, 2012, now U.S. Patent No. 9,489,985, which is a continuation of U.S. application Serial No. 11/508,209, filed August 23, 2006, now U.S. Patent No. 8,170,394. This application relates to and claims priority from Japanese Patent Application No. 2005-248576, filed on August 30, 2005. The entirety of the contents and subject matter of all of the above is incorporated herein by reference.

BACKGROUND OF THE INVENTION

The present invention relates to image rendering techniques for an apparatus which reproduces digital contents multiplexing a plurality of contents having different information, and more particularly to image rendering techniques for reproduction control of digital contents by using user operation interfaces.

A conventional digital broadcasting compatible HOD/DVD decoder which is a digital content reproduction apparatus requires, in addition to channel tuning, reproduction control keys for linear contents such as video and audio, the keys including "reproduce", "stop", "fast forward", "fast backward", "temporary stop" and other operation keys. The apparatus further requires "up", "down", "right", "left", "decide" and four-color keys for operation control of data broadcasting. In order to deal with all

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functions, a number of remote keys are required. It takes learning time in order for a user master an operation method, or there is an issue of not easy to use.

As described in JP-A-2005-73022, there is known a broadcast receiving apparatus which provides a user with illumination of a usable key of a remote controller in accordance with information on digital contents. Typical apparatus which perform reproduction control by graphical user interface (GUI) digital include a digital broadcasting compatible personal computer and a DVD reproduction compatible personal computer. In these apparatus, reproduction keys for linear contents and interactive contents are displayed on a screen and unusable keys are disabled so that it is possible to improve user easy to use performance. However, in order to display all keys, a large panel rendering area is required. Since linear contents and interactive contents are multiplexed and transmitted for digital broadcasting, these contents are also recorded in a multiplexed state.

SUMMARY OF THE INVENTION

The apparatus described in JP-A-2005-73022 is required to mount all keys so that a remote controller having a large area is used. Similarly, the apparatus using GUI is also required to display all keys so that a wide operation panel rendering area is used.

Information on data added digital broadcasting includes up-to-date news, weather forecast and the like. There arises an issue of a lapse of an appreciation term, when reproduction is made.

It is therefore an object of the present invention to display automatically only usable operation keys in accordance with information on digital contents. Accordingly, a

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user operation learning time can be shortened, since the panel rendering area is made small, a mouse motion distance can be shortened, and an easy to use performance can be improved. It is an object of the present invention to provide a digital content reproduction apparatus capable of having a relatively large image display area by making small a panel rendering area. It is another object of the present invention to provide a digital content reproduction apparatus capable of reproduction within an appreciation term by monitoring information on digital contents.

According to the digital content reproduction apparatus of the present invention, a plurality of user operation interfaces of the same size are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the user operation interfaces are automatically and exclusively displayed in the same panel rendering area so that only usable operation keys can be displayed. Information on digital contents is monitored and display is controlled in accordance with digital content attributes.

According to the present invention, a plurality of user operation interfaces of the same size are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the user operation interfaces are automatically and exclusively displayed in the same panel rendering area so that only usable operation keys can be displayed and a user operation learning time can be shortened.

According to the present invention, since the panel rendering area is made small, a mouse motion distance can be shortened so that a user easy to use performance can be improved.

According to the present invention, since the panel rendering area is made small,

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the image display area can be made relatively large.

According to the present invention, only information within an appreciation term can be presented by controlling the display state in accordance with information on digital contents.

Other objects, features and advantages of the invention will become apparent from the following description of the embodiments of the invention taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram showing the structure of a digital content reproduction apparatus according to an embodiment of the present invention.

FIG. 2 is an illustrative diagram showing the layout of a screen of the apparatus shown in FIG. 1.

FIG. 3 is an illustrative diagram showing a linear content operation panel of the apparatus shown in FIG. 1.

FIG. 4 is an illustrative diagram showing an interactive content operation panel of the apparatus shown in FIG. 1.

FIG. 5 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 6 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 7 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

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FIG. 8 is an illustrative diagram showing the layout of screens of the apparatus shown in FIG. 9.

FIG. 9 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 10 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 11 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 12 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 13 is an illustrative diagram showing digital content attributes according to another embodiment of the present invention.

DESCRIPTION OF THE EMBODIMENTS

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

FIG. 1 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

Referring to FIG. 1, the digital content reproduction apparatus records broadcast data received at a broadcast receiving unit 1 in a data record unit 3 with involvement of a data input/output control unit 2. The data input/output control unit 2 reads data from the data record unit 3 and supplies the read data via a data extraction (demultiplex) unit 4 to a content decode unit 6 which decodes the supplied data and sends the decoded

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data to an image rendering unit 7. A data monitor unit 5 always monitors information on digital contents in the data extraction unit 4, and in accordance with a change in the information, instructs the image rendering unit 7 to perform rendering of an user operation interface corresponding to the information on the contents. The decoded contents and the user operation interface are superposed and output as image data by the image rendering unit 7. A user input to the displayed user operation interface from a mouse, a keyboard or a remote controller is sent to a user operation input unit 8 which transfers the user operation information to a system control unit 9. In accordance with the user operation information, the system control unit 9 controls the broadcast receiving unit 1, data input/output control unit 2, data extraction unit 4, content decode unit 6 and image rendering unit 7.

Next, description will be made on the user operation interface during digital broadcast reproduction.

FIGS. 2 to 4 show image display states during digital broadcast reproduction. A monitor Al has a content display area A2 and an operation panel display area A3. During reproduction of linear contents such as moving image contents, a linear content operation panel A4 is displayed in the operation panel display area A3, the linear content operation panel providing functions of reproduce, stop, temporary stop, fast forward, fast backward, previous skip, next skip and the like.

During reproduction of interactive contents such as data broadcast contents, an interactive content operation panel A5 is displayed in the operation panel display area A3, the interactive content operation panel providing functions of numerical keys from 0 to 9, up/down/right/left keys, a decide key, blue/red/green/yellow keys and other keys.

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The linear content operation panel A4 and interactive content operation panel AS are displayed exclusively and are not displayed at the same time. The functions provided by the linear content operation panel A4 and interactive content operation panel A5 are not limited to those described above, but the functions may be increased or decreased in accordance with the apparatus function.

Next, by taking Japanese terrestrial digital broadcasting as an example, description will be made on a specific digital content monitoring method.

TV type services, data broadcasting services and data added TV services are defined for Japanese terrestrial digital broadcasting (Association of Radio Industries and Businesses: Terrestrial Digital Television Broadcasting Operational Guideline TR-B14). Program specific information (PSI) on digital broadcasting contains a program map table (PMT). PMT contains a data encode descriptor which contains an auto_start_flag.

In data added TV services, if the auto_start_flag is "1", data broadcasting is automatically displayed, whereas if it is "0", data broadcasting is displayed upon instruction from a user. The data monitor unit monitors the auto_start_flag, and when the flag becomes "1", the interactive content operation panel A5 is displayed, and when the flat becomes "0", the linear content operation panel A4 is displayed.

In this embodiment, the linear content operation panel and interactive content operation panel are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the panels are automatically and exclusively displayed in the operation panel display area A3 of the same panel rendering area size. Accordingly, only usable operation keys can be displayed, a user operation learning time can be shortened, since the panel rendering area is made small, a mouse motion

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distance can be shortened, and an easy to use performance can be improved. Further, since the panel rendering area is made small, the image display area can be made relatively large.

In this embodiment, although terrestrial digital broadcasting has been described, the embodiment is also used for reproduction of other digital contents. Also in this case, the operation panel can be switched automatically by monitoring the content switching flag.

FIG. 5 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the description described so far.

In the above description, although data is supplied to the apparatus by using broadcasting waves, in this embodiment, digital content services via a network B1 are assumed. In this case, data can be acquired via a network connection unit B2 connected to the network B1. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 6 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the foregoing description.

In the foregoing description, although data acquired by the network connection unit B2 connected to the network B1 is recorded in the data record unit 3, in this embodiment, video on demand (VOD) type services are assumed and a data record unit is not provided in the reproduction apparatus. The data input/output unit 2 requests a VOD service center about necessary data via the network connection unit B2 and

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network B1. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 7 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the foregoing description.

In the foregoing description, although data acquired by using broadcasting waves is recorded in the data record unit 3, in this embodiment, the broadcast receiving unit 1 is not provided and only data recorded beforehand in the data record unit 3 is reproduced. This embodiment assumes an apparatus dedicated only to reproduction. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 8 is an illustrative diagram showing the layout of screens of the apparatus shown in FIG. 9. In the foregoing description, although a single monitor is used which has both the content display area and operation panel display area, in this embodiment, a first monitor A6 has a content display area A2 and a second monitor A7 has an operation panel display area A3. If a remote controller or the like has the operation panel display area A3, the number of keys of the remote controller can be reduced. FIG. 9 is a diagram showing the structure of the digital content reproduction apparatus of this embodiment.

A different point from the foregoing description resides in that a content rendering unit 7b and an operation panel rendering unit 7c are independent. Other points are similar to the foregoing description, and the description thereof is omitted. FIGS. 10 to 12 show the structures that the content rendering unit 7b and operation panel rendering

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unit 7c are made independent as different from the foregoing description. Other points are similar to the foregoing description, and the description thereof is omitted.

FIGS. 10 to 12 are similar to those figures described above. In the foregoing description, although the data monitor unit monitors the auto_start_flag, in this embodiment, attributes of digital contents are recorded and a data broadcasting descriptive language BML (Broadcast Markup Language) is analyzed.

FIG. 13 shows examples of the attributes and language analysis results. Information on data added digital broadcasting includes up-to-date news, weather forecast and the like. These contents have a nature of an appreciation term and it is difficult to consider that these contents are referred to after, e.g., one month. In this embodiment, therefore, a content appreciation term is set beforehand in accordance with record days and times and information on the contents. If contents are outside the appreciation term, data broadcasting is not displayed even if the auto_start_flag is "1", but the linear content operation panel is displayed. If the contents are within the appreciation term and a user does not still view the contents, the data broadcasting is automatically displayed even if the auto_start_flag is "0" and the interactive content operation panel is displayed. Only new information can be presented for viewing, by controlling the display state in accordance with information on digital contents.

It should be further understood by those skilled in the art that although the foregoing description has been made on embodiments of the invention, the invention is not limited thereto and various changes and modifications may be made without departing from the spirit of the invention and the scope of the appended claims.

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Abstract of the Disclosure

A digital content operating apparatus, including: a communication unit which communicates with an external device which has a display for displaying the digital content; a user operation interface which receives a user operation to control the digital content which is displayed on the external device; a display which displays either a linear content operation panel or an interactive content operation panel; and a controller which controls the user operation interface corresponding to information on the digital content which is displayed on the external device; wherein either the linear content operation panel or the interactive content operation panel is displayed alternatively as the user operation interface on the display.

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SUITE 210
ALEXANDRIA, VA 22314

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Date Mailed: 07/29/2022

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Yoshihiro MACHIDA, YOKOHAMA, JAPAN;
Nobuhiro TSUTSUMI, YOKOHAMA, JAPAN;
Kouji KAMOGAWA, YOKOHAMA, JAPAN;

Applicant(s)

MAXELL, LTD., Kyoto, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 15/670,155 08/07/2017
which is a CON of 15/287,074 10/06/2016 PAT 9743129
which is a CON of 13/443,955 04/11/2012 PAT 9489985
which is a CON of 11/508,209 08/23/2006 PAT 8170394

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
JAPAN 2005-248576 08/30/2005 No Access Code Provided

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If Required, Foreign Filing License Granted: 07/27/2022

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/868,139**

Projected Publication Date: To Be Determined - pending completion of Corrected Papers

Non-Publication Request: No

Early Publication Request: No

Title

MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

Preliminary Class

365

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/868,139	07/19/2022	Yoshihiro MACHIDA	ASA-9608-05

CONFIRMATION NO. 2706

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

FORMALITIES LETTER

OC000000135462123

Date Mailed: 07/29/2022

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given **TWO MONTHS** from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- A substitute specification excluding claims in compliance with 37 CFR 1.52, 1.121(b)(3), and 1.125 is required. The substitute specification must be submitted with markings and be accompanied by a clean version (without markings) as set forth in 37 CFR 1.125(c) and a statement that the substitute specification contains no new matter (see 37 CFR 1.125(b)). Since a preliminary amendment was present on the filing date of the application and such amendment is part of the original disclosure of the application, the substitute specification must include all of the desired changes made in the preliminary amendment. See 37 CFR 1.115 and 1.215.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

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Commissioner for Patents
P.O. Box 1450
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- A separate document having the document description, "**Applicant response to Pre-Exam Formalities Notice**"; and

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• the item(s) for which a reply period is set forth above.

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NOTE: If the reply is not being submitted electronically, a copy of this notice must be included.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/mteklemichael/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/868,139

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	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*				x 480 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 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).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

		(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($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	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	

		(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($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	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 found in the appropriate box in column 1.

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(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2022-07-19
First Named Inventor	Y. MACHIDA
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-9608-05

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5416535		1995-05-16	Sato et al.	
	2	7174518		2007-02-06	J. Kim	
	3	7595846		2009-09-29	H. Moon	
	4	7917933		2011-03-29	Thomas et al.	
	5	7071865		2006-07-04	Shibamiya et al.	
	6	7126587		2006-10-24	Kawakami et al.	
	7	5315999		1994-05-31	Kinicki et al.	
	8	6297856		2001-10-02	Nakamura et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	9	4825209		1989-04-25	Sasaki et al.	
	10	4746919		1988-05-24	G. Reitmeier	
	11	4825209	A	1989-04-25	Sasaki; Hiroaki	
	12	7595846	B2	2009-09-29	Moon; Han	
	13	6404418	B1	2002-06-11	Leem; Geon-Hoa	
	14	5914941		1999-06-22	Janky, James M.	
	15	7522087		2009-04-21	Shibamiya et al.	
	16	6297856		2001-10-02	Nakamura et al.	
	17	8170394		2012-05-01	Machida et al.	
	18	5416535		1995-05-16	Sato et al.	
	19	8068718		2011-11-29	Hamasaka et al.	

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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	20	6690431		2004-02-10	Yang et al.	
	21	9489985		2016-11-08	Machida; Yoshihiro	
	22	8245250	B2	2012-08-14	Casement; Marcy	
	23	6732367	B1	2004-05-04	Ellis; Micheal D.	
	24	6025869	A	2000-02-15	Stas; Stefan	
	25	5801747	A	1998-09-01	Bedard; Karen	
	26	5721829	A	1998-02-24	Dunn; Matthew W.	
	27	6055413	A	2000-04-25	Morse; Gary James	
	28	6446040	B1	2002-09-03	Socher; Gudrun	
	29	6392664	B1	2002-05-21	White; Chris M.	
	30	7899915	B2	2011-03-01	Reisman; Richard	

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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	31	6930730	B2	2005-08-16	Maxon; Brian	
	32	7797718	B2	2010-09-14	Stecyk; Polly	
	33	6636157	B1	2003-10-21	Sato; Kazuhiro	
	34	8352986	B2	2013-01-08	Uchida; Mami	
	35	5367316	A	1994-11-22	Ikezaki; Masao	
	36	6141003	A	2000-10-31	Chor; Ives	
	37	6348932	B1	2002-02-19	Nishikawa; Yuko S.	
	38	6993722	B1	2006-01-31	Greer; Frank	
	39	6603488	B2	2003-08-05	Humpleman; Richard James	
	40	5850218	A	1998-12-15	LaJoie; Mike L.	

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050262535		2005-11-24	Uchida et al.	
	2	20030050885		2003-03-13	Cohen et al.	
	3	20070003220		2007-01-14	Hamasaka et al.	
	4	20050188408		2005-08-25	Wallis et al.	
	5	20070106945		2007-05-10	J. Kim	
	6	20050097600		2005-05-05	D. Heer	
	7	20050053356		2005-03-10	Mate et al.	
	8	20040131335		2004-07-08	Halgas et al.	
	9	20080184297		2008-07-31	Ellis et al.	
	10	20060271971		2006-11-30	J. Drazin	

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	11	20110061078	A1	2001-03-10	Rothschild; Leigh M.	
	12	20040249925	A1	2004-12-09	Jeon, Seong-Joon	
	13	20050134746	A1	2005-06-23	Brandt, Nicholas C.	
	14	20060015911	A1	2006-01-19	Dean; Rick	
	15	20060256241	A1	2006-11-16	Suzuki; Hidekazu	
	16	20050172332	A1	2005-08-04	Fukuda, Tetsu	
	17	20060161954		2006-07-20	Hamada et al.	
	18	20070185968		2007-08-09	White et al.	
	19	20070003220		2007-01-04	Hamasaka et al.	
	20	20060041655	A1	2006-02-23	Holloway; Marty	
	21	20050166230	A1	2005-07-28	Gaydou, Danny R.	

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	Attorney Docket Number	ASA-9608-05

	22	20040063479	A1	2004-04-01	Kimura; Seitaro	
	23	20040059790	A1	2004-03-25	Austin-Lane, Christopher Emery	
	24	20030037068	A1	2003-02-20	Thomas, William L.	
	25	20120227075	A1	2012-09-06	Asmussen; Michael L.	
	26	20050198663	A1	2005-09-08	Chaney, John William	
	27	20060020982	A1	2006-01-26	Jerding; Dean F.	
	28	20050240961	A1	2005-10-27	Jerding; Dean F.	
	29	20020132216	A1	2002-09-19	Dohrmann, Bernhard	
	30	20030214604	A1	2003-11-20	Lee, Jae Kyung	
	31	20070044015	A1	2007-02-22	Ikeda; Shingo	
	32	20030149988	A1	2003-08-07	Ellis, Michael D.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Y. MACHIDA
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	Attorney Docket Number	ASA-9608-05

	33	20050160458	A1	2005-07-21	Baumgartner, Joseph P.	
	34	20030113100	A1	2003-06-19	Hecht, Gret	
	35	20040047588	A1	2004-03-11	Okada, Tomoyuki	
	36	20040117831	A1	2004-06-17	Ellis, Michael D.	
	37	20040060063	A1	2004-03-25	Russ, Samuel H.	
	38	20030163811	A1	2003-08-28	Luehrs, Douglas Richard	
	39	20060050059	A1	2006-03-09	Satoh; Kimiyasu	
	40	20050160465	A1	2005-07-21	Walker, Todd A.	
	41	20060020969	A1	2006-01-26	Utsuki; Shingo	
	42	20050262535	A1	2005-11-24	Uchida, Mami	

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Application Number	
Filing Date	2022-07-19
First Named Inventor	Y. MACHIDA
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-9608-05

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	11298822	JP		1999-10-29	Tsuda et al.		
	2	1376321	EP		2004-01-02	Hona		
	3	2005024828	WO		2005-03-17	Hamasaka et al.		
	4	9844732	WO		1998-10-08	Van Gestel		
	5	08079647	JP		1996-03-01	Iwamoto		
	6	2000287159	JP		2000-10-13	Miyata		
	7	2005073022	JP		2005-03-17	<NHK>		
	8	2005006144	JP		2005-01-06	Fujitsu Ltd.		
	9	09168131	JP		1997-06-24	Sony Corp.		
	10	2535309	GB	A	2016-08-17	Sally Cook		

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	Examiner Name	
	Attorney Docket Number	ASA-9608-05

	11	2482234	CA	A1	2003-11-06	Mears Mark Gilmore		
	12	0133344	WO	A2	2001-05-10	Villers Jean-Stephane		

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	1	Machine generated translation of JP 2005-006144 to Suda et al. 06/2005	

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Examiner Signature		Date Considered	

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2022-07-19
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	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-9608-05

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

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See attached certification statement.

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出願番号 Application Number	
出願日 Filing Date	July 19, 2022
第一発明者 First Named Inventor	Yoshihiro MACHIDA
名称 Title	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
技術審査部門 Art Unit	2481
審査官氏名 Examiner Name	DANIEL T TEKLE
特許弁護士整理番号 Attorney Docket Number	ASA-9608-05

出願人または特許弁護士の署名
SIGNATURE of Applicant or Patent Practitioner

署名 Signature	/John R. Mattingly/	署名日(任意) Date (Optional)	July 19, 2022
氏名 Name	John R. Mattingly	登録番号 Registration Number	30,293
役職（出願人が法人の場合） Title (if Applicant is a juristic entity)			
出願人名（出願人が法人の場合） Applicant Name (if Applicant is a juristic entity)	Maxell, Ltd.		

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I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Maxell, Ltd.

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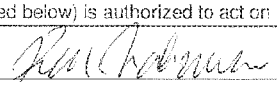
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署名 Signature		署名日（任意） Date (Optional)	January 14th, 2022
氏名 Name	Keiji Nakamura		
役職 Title	President and Representative Director		

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MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

CROSS REFERENCE TO RELATED APPLICATION

This is a continuation of U.S. application Serial No. 11/508,209, filed August 23, 2006. This application relates to and claims priority from Japanese Patent Application No. 2005-248576, filed on August 30, 2005. The entirety of the contents and subject matter of all of the above is incorporated herein by reference.

BACKGROUND OF THE INVENTION

The present invention relates to image rendering techniques for an apparatus which reproduces digital contents multiplexing a plurality of contents having different information, and more particularly to image rendering techniques for reproduction control of digital contents by using user operation interfaces.

A conventional digital broadcasting compatible HDD/DVD decoder which is a digital content reproduction apparatus requires, in addition to channel tuning, reproduction control keys for linear contents such as video and audio, the keys including "reproduce", "stop", "fast forward", "fast backward", "temporary stop" and other operation keys. The apparatus further requires "up", "down", "right", "left", "decide" and four-color keys for operation control of data broadcasting. In order to deal with all functions, a number of remote keys are required. It takes learning time in order for a user master an operation method, or there is an issue of not easy to use.

As described in JP-A-2005-73022, there is known a broadcast receiving apparatus which provides a user with illumination of a usable key of a remote controller

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in accordance with information on digital contents. Typical apparatus which perform reproduction control by graphical user interface (GUI) digital include a digital broadcasting compatible personal computer and a DVD reproduction compatible personal computer. In these apparatus, reproduction keys for linear contents and interactive contents are displayed on a screen and unusable keys are disabled so that it is possible to improve user easy to use performance. However, in order to display all keys, a large panel rendering area is required. Since linear contents and interactive contents are multiplexed and transmitted for digital broadcasting, these contents are also recorded in a multiplexed state.

SUMMARY OF THE INVENTION

The apparatus described in JP-A-2005-73022 is required to mount all keys so that a remote controller having a large area is used. Similarly, the apparatus using GUI is also required to display all keys so that a wide operation panel rendering area is used.

Information on data added digital broadcasting includes up-to-date news, weather forecast and the like. There arises an issue of a lapse of an appreciation term, when reproduction is made.

It is therefore an object of the present invention to display automatically only usable operation keys in accordance with information on digital contents. Accordingly, a user operation learning time can be shortened, since the panel rendering area is made small, a mouse motion distance can be shortened, and an easy to use performance can be improved. It is an object of the present invention to provide a digital content

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reproduction apparatus capable of having a relatively large image display area by making small a panel rendering area. It is another object of the present invention to provide a digital content reproduction apparatus capable of reproduction within an appreciation term by monitoring information on digital contents.

According to the digital content reproduction apparatus of the present invention, a plurality of user operation interfaces of the same size are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the user operation interfaces are automatically and exclusively displayed in the same panel rendering area so that only usable operation keys can be displayed. Information on digital contents is monitored and display is controlled in accordance with digital content attributes.

According to the present invention, a plurality of user operation interfaces of the same size are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the user operation interfaces are automatically and exclusively displayed in the same panel rendering area so that only usable operation keys can be displayed and a user operation learning time can be shortened.

According to the present invention, since the panel rendering area is made small, a mouse motion distance can be shortened so that a user easy to use performance can be improved.

According to the present invention, since the panel rendering area is made small, the image display area can be made relatively large.

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According to the present invention, only information within an appreciation term can be presented by controlling the display state in accordance with information on digital contents.

Other objects, features and advantages of the invention will become apparent from the following description of the embodiments of the invention taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a diagram showing the structure of a digital content reproduction apparatus according to an embodiment of the present invention.

FIG. 2 is an illustrative diagram showing the layout of a screen of the apparatus shown in FIG. 1.

FIG. 3 is an illustrative diagram showing a linear content operation panel of the apparatus shown in FIG. 1.

FIG. 4 is an illustrative diagram showing an interactive content operation panel of the apparatus shown in FIG. 1.

FIG. 5 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 6 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 7 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

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FIG. 8 is an illustrative diagram showing the layout of screens of the apparatus shown in FIG. 9.

FIG. 9 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention.

FIG. 10 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 11 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 12 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

FIG. 13 is an illustrative diagram showing digital content attributes according to another embodiment of the present invention.

DESCRIPTION OF THE EMBODIMENTS

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

FIG. 1 is a diagram showing the structure of a digital content reproduction apparatus according to the embodiment of the present invention.

Referring to FIG. 1, the digital content reproduction apparatus records broadcast data received at a broadcast receiving unit 1 in a data record unit 3 with involvement of a data input/output control unit 2. The data input/output control unit 2 reads data from the data record unit 3 and supplies the read data via a data extraction (demultiplex) unit 4 to a content decode unit 6 which decodes the supplied data and sends the decoded

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data to an image rendering unit 7. A data monitor unit 5 always monitors information on digital contents in the data extraction unit 4, and in accordance with a change in the information, instructs the image rendering unit 7 to perform rendering of an user operation interface corresponding to the information on the contents. The decoded contents and the user operation interface are superposed and output as image data by the image rendering unit 7. A user input to the displayed user operation interface from a mouse, a keyboard or a remote controller is sent to a user operation input unit 8 which transfers the user operation information to a system control unit 9. In accordance with the user operation information, the system control unit 9 controls the broadcast receiving unit 1, data input/output control unit 2, data extraction unit 4, content decode unit 6 and image rendering unit 7.

Next, description will be made on the user operation interface during digital broadcast reproduction.

FIGS. 2 to 4 show image display states during digital broadcast reproduction. A monitor Al has a content display area A2 and an operation panel display area A3. During reproduction of linear contents such as moving image contents, a linear content operation panel A4 is displayed in the operation panel display area A3, the linear content operation panel providing functions of reproduce, stop, temporary stop, fast forward, fast backward, previous skip, next skip and the like.

During reproduction of interactive contents such as data broadcast contents, an interactive content operation panel A5 is displayed in the operation panel display area A3, the interactive content operation panel providing functions of numerical keys from 0 to 9, up/down/right/left keys, a decide key, blue/red/green/yellow keys and other keys.

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The linear content operation panel A4 and interactive content operation panel AS are displayed exclusively and are not displayed at the same time. The functions provided by the linear content operation panel A4 and interactive content operation panel A5 are not limited to those described above, but the functions may be increased or decreased in accordance with the apparatus function.

Next, by taking Japanese terrestrial digital broadcasting as an example, description will be made on a specific digital content monitoring method.

TV type services, data broadcasting services and data added TV services are defined for Japanese terrestrial digital broadcasting (Association of Radio Industries and Businesses: Terrestrial Digital Television Broadcasting Operational Guideline TR-B14). Program specific information (PSI) on digital broadcasting contains a program map table (PMT). PMT contains a data encode descriptor which contains an auto_start_flag.

In data added TV services, if the auto_start_flag is "1", data broadcasting is automatically displayed, whereas if it is "0", data broadcasting is displayed upon instruction from a user. The data monitor unit monitors the auto_start_flag, and when the flag becomes "1", the interactive content operation panel A5 is displayed, and when the flat becomes "0", the linear content operation panel A4 is displayed.

In this embodiment, the linear content operation panel and interactive content operation panel are provided, information on digital contents is monitored, and upon occurrence of a change in the information, the panels are automatically and exclusively displayed in the operation panel display area A3 of the same panel rendering area size. Accordingly, only usable operation keys can be displayed, a user operation learning time can be shortened, since the panel rendering area is made small, a mouse motion

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distance can be shortened, and an easy to use performance can be improved. Further, since the panel rendering area is made small, the image display area can be made relatively large.

In this embodiment, although terrestrial digital broadcasting has been described, the embodiment is also used for reproduction of other digital contents. Also in this case, the operation panel can be switched automatically by monitoring the content switching flag.

FIG. 5 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the description described so far.

In the above description, although data is supplied to the apparatus by using broadcasting waves, in this embodiment, digital content services via a network B1 are assumed. In this case, data can be acquired via a network connection unit B2 connected to the network B1. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 6 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the foregoing description.

In the foregoing description, although data acquired by the network connection unit B2 connected to the network B1 is recorded in the data record unit 3, in this embodiment, video on demand (VOD) type services are assumed and a data record unit is not provided in the reproduction apparatus. The data input/output unit 2 requests a VOD service center about necessary data via the network connection unit B2 and

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network B1. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 7 is a diagram showing the structure of a digital content reproduction apparatus according to another embodiment of the present invention. Description will be made on only different points from the foregoing description.

In the foregoing description, although data acquired by using broadcasting waves is recorded in the data record unit 3, in this embodiment, the broadcast receiving unit 1 is not provided and only data recorded beforehand in the data record unit 3 is reproduced. This embodiment assumes an apparatus dedicated only to reproduction. The data input/output control unit 2 and other succeeding units are similar to those described above, and the description thereof is omitted.

FIG. 8 is an illustrative diagram showing the layout of screens of the apparatus shown in FIG. 9. In the foregoing description, although a single monitor is used which has both the content display area and operation panel display area, in this embodiment, a first monitor A6 has a content display area A2 and a second monitor A7 has an operation panel display area A3. If a remote controller or the like has the operation panel display area A3, the number of keys of the remote controller can be reduced. FIG. 9 is a diagram showing the structure of the digital content reproduction apparatus of this embodiment.

A different point from the foregoing description resides in that a content rendering unit 7b and an operation panel rendering unit 7c are independent. Other points are similar to the foregoing description, and the description thereof is omitted. FIGS. 10 to 12 show the structures that the content rendering unit 7b and operation panel rendering

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unit 7c are made independent as different from the foregoing description. Other points are similar to the foregoing description, and the description thereof is omitted.

FIGS. 10 to 12 are similar to those figures described above. In the foregoing description, although the data monitor unit monitors the auto_start_flag, in this embodiment, attributes of digital contents are recorded and a data broadcasting descriptive language BML (Broadcast Markup Language) is analyzed.

FIG. 13 shows examples of the attributes and language analysis results. Information on data added digital broadcasting includes up-to-date news, weather forecast and the like. These contents have a nature of an appreciation term and it is difficult to consider that these contents are referred to after, e.g., one month. In this embodiment, therefore, a content appreciation term is set beforehand in accordance with record days and times and information on the contents. If contents are within the appreciation term, data broadcasting is not displayed even if the auto_start_flag is "1", but the linear content operation panel is displayed. If the contents are within the appreciation term and a user does not still view the contents, the data broadcasting is automatically displayed even if the auto_start_flag is "0" and the interactive content operation panel is displayed. Only new information can be presented for viewing, by controlling the display state in accordance with information on digital contents.

It should be further understood by those skilled in the art that although the foregoing description has been made on embodiments of the invention, the invention is not limited thereto and various changes and modifications may be made without departing from the spirit of the invention and the scope of the appended claims.

IPR2025-01311; Samsung
Ex. 1002 - Page 467

What is Claimed is:

1. A digital content operating apparatus, comprising:

a communication unit which communicates with an external device which has a display for displaying the digital content;

a user operation interface which receives a user operation to control the digital content which is displayed on the external device;

a display which displays either a linear content operation panel or an interactive content operation panel; and

a controller which controls the user operation interface corresponding to information on the digital content which is displayed on the external device;

wherein either the linear content operation panel or the interactive content operation panel is displayed alternatively as the user operation interface on the display.

IPR2025-01311; Samsung
Ex. 1002 - Page 468

Abstract of the Disclosure

A digital content operating apparatus, including: a communication unit which communicates with an external device which has a display for displaying the digital content; a user operation interface which receives a user operation to control the digital content which is displayed on the external device; a display which displays either a linear content operation panel or an interactive content operation panel; and a controller which controls the user operation interface corresponding to information on the digital content which is displayed on the external device; wherein either the linear content operation panel or the interactive content operation panel is displayed alternatively as the user operation interface on the display.

IPR2025-01311; Samsung
Ex. 1002 - Page 469

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	:	Y. MACHIDA, et al.
		Confirmation No.:
Serial No.	:	
Filed	:	July 19, 2022
For	:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
Group	:	
Examiner	:	
Docket No.	:	ASA-9608-05
Customer No.:		24956

PRELIMINARY AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

July 19, 2022

Sir:

Prior to examination, please amend the above-identified application as follows.

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims begin on page 4 of this paper.

Remarks begin on page 11 of this paper.

IPR2025-01311; Samsung
Ex. 1002 - Page 470

Amendments to the Specification

Please replace the CROSS REFERENCE TO RELATED APPLICATION **paragraph on page 1** with the following amended paragraph:

This is a continuation of U.S. application Serial No. 15/670,155, filed August 7, 2017, which is a continuation of U.S. application Serial No. 15/287,074, filed October 6, 2016, now U.S. Patent No. 9,743,129, which is a continuation of U.S. application Serial No. 13/443,955, filed April 11, 2012, now U.S. Patent No. 9,489,985, which is a continuation of U.S. application Serial No. 11/508,209, filed August 23, 2006, now U.S. Patent No. 8,170,394. This application relates to and claims priority from Japanese Patent Application No. 2005-248576, filed on August 30, 2005. The entirety of the contents and subject matter of all of the above is incorporated herein by reference.

Please replace the paragraph at **page 10 lines 7 – 18** with the following amended paragraph:

FIG. 13 shows examples of the attributes and language analysis results. Information on data added digital broadcasting includes up-to-date news, weather forecast and the like. These contents have a nature of an appreciation term and it is difficult to consider that these contents are referred to after, e.g., one month. In this embodiment, therefore, a content appreciation term is set beforehand in accordance with record days and times and information on the contents. If contents are ~~within~~ outside the appreciation term, data broadcasting is not displayed even if the

auto_start_flag is "1", but the linear content operation panel is displayed. If the contents are within the appreciation term and a user does not still view the contents, the data broadcasting is automatically displayed even if the auto_start_flag is "0" and the interactive content operation panel is displayed. Only new information can be presented for viewing, by controlling the display state in accordance with information on digital contents.

IPR2025-01311; Samsung
Ex. 1002 - Page 472

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Cancelled).

2. (New) A digital content reproducing apparatus, comprising:

a network communication circuitry configured to receive digital contents and related information from an outside server;

a decoder configured to decode the digital contents received via the network communication circuitry;

a display; and

a controller configured to control reproduction of the digital contents decoded by the decoder and display of the reproduced digital contents on the display,

wherein the controller is configured to alternatively display either of a first operation panel including at least one of linear operation buttons, receiving user-instructions regarding linear reproduction functions of the reproduced digital contents, or a second operation panel including at least one of interactive operation buttons, receiving user-instructions of interactive functions to the outside server, together with the reproduced digital contents,

wherein the related information includes:

time related information which represents a time during which the reproduced digital contents and at least one of the interactive operation buttons are displayed, and

panel related information for deciding whether displaying the first operation panel including at least one of the linear operation buttons or the second operation panel including at least one of the interactive operation buttons,

wherein the controller, when controlling reproduction of the digital contents, is further configured to:

display at least one of the interactive operation buttons during the time represented by the time related information, and

other than the time represented by the time related information, display at least one of the linear operation buttons or at least one of the interactive operation buttons based on the panel related information.

3. (New) The digital content reproducing apparatus according to claim 2,

wherein the controller is further configured to display either the first operation panel or the second operation panel in a substantially same panel rendering area as alternative operation panels.

4. (New) The digital content reproducing apparatus according to claim 2,

wherein the controller is further configured to display either the first operation panel or the second operation panel in a lower part of the display.

5. (New) The digital content reproducing apparatus according to claim 2, wherein the controller is further configured to adjust a rendering area size of the reproduced digital contents based on whether the display displays the first operation panel or the second operation panel.

6. (New) The digital content reproducing apparatus according to claim 2, wherein the first operation panel or the second operation panel can be displayed independently from displaying the reproduced digital contents.

7. (New) The digital content reproducing apparatus according to claim 2, wherein the controller is further configured to control to maintain a rendering area size of the reproduced digital contents, even when the first operation panel or the second operation panel is displayed.

8. (New) The digital content reproducing apparatus according to claim 2, wherein all of one or more linear operation buttons and one or more interactive operation buttons provide mutually differing functions from each other.

9. (New) The digital content reproducing apparatus according to claim 2, wherein the time related information is an appreciation term corresponding to one digital content of the digital contents.

10. (New) The digital content reproducing apparatus according to claim 8, wherein the appreciation term is related to a predetermined date.

11, (New) The digital content reproducing apparatus according to claim 2, wherein the controller further configured to:

store the digital contents received from the outside server via the network communication circuitry into a storage; and

reproduce the digital contents stored in the storage.

12. (New) The digital content reproducing apparatus according to claim 2, wherein the first operation panel is a linear operation panel in which all of one or more displayed buttons are linear operation button.

13. (New) The digital content reproducing apparatus according to claim 2, wherein the second operation panel is an interactive operation panel in which all of one or more displayed buttons are interactive operation button.

14. (New) The digital content reproducing apparatus according to claim 2, wherein the outside server is a video on demand server.

15. (New) A digital content reproducing apparatus, comprising:

a network communication circuitry configured to receive digital contents and related information from a video on demand server;

a decoder configured to decode the digital contents received via the network communication circuitry;

a display; and

a controller configured to control reproduction of the digital contents decoded by the decoder and display of the reproduced digital contents on the display,

wherein the controller is configured to display at least one of linear operation buttons, receiving user-instructions regarding linear reproduction functions of the reproduced digital contents, or at least one of interactive operation buttons, receiving user-instructions of interactive functions to the video on demand server, together with the reproduced digital contents,

wherein the related information includes:

time related information which represents a time during which the reproduced digital contents and at least one of the interactive operation buttons are displayed, and

panel related information for deciding to display at least one of the linear operation buttons or at least one of the interactive operation buttons,

wherein the controller, when controlling reproduction of the digital contents, is further configured to:

display at least one of the interactive operation buttons during the time represented by the time related information, and

other than the time represented by the time related information, display at least one of the linear operation buttons or at least one of the interactive operation buttons based on the panel related information.

16. (New) The digital content reproducing apparatus according to claim 15, wherein the controller is further configured to display at least one of the linear operation buttons or at least one of the interactive operation buttons in a lower part of the display.

17. (New) The digital content reproducing apparatus according to claim 15, wherein the controller is further configured to control to maintain a rendering area size of the reproduced digital contents, even when at least one of the linear operation buttons or at least one of the interactive operation buttons are displayed.

18. (New) The digital content reproducing apparatus according to claim 15, wherein all of one or more linear operation buttons and one or more interactive operation buttons provide mutually differing functions from each other.

19. (New) The digital content reproducing apparatus according to claim 15, wherein the time related information is an appreciation term corresponding to one digital content of the digital contents.

20. (New) The digital content reproducing apparatus according to claim 19, wherein the appreciation term is related to a predetermined date.

21. (New) The digital content reproducing apparatus according to claim 15, wherein the controller further configured to:

store the digital contents received from the video on demand server via the network communication circuitry into a storage; and

reproduce the digital contents stored in the storage.

REMARKS

Entry of the above amendments prior to examination is respectfully requested. No new matter is added by the amendments.

Please charge any shortage in fees due in connection with the filing of this paper, or credit any overpayment of fees, to the deposit account of MATTINGLY & MALUR, PC, Deposit Account No. 50-1417.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- ☐ The attached application, or
- ☒ United States application or PCT international application number 15/287,074 filed on October 6, 2016.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Yoshihiro MACHIDA Date (Optional): January 16, 2017

Signature: Yoshihiro Machida

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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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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.

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This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 15/287,074 filed on October 6, 2016

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Nobuhiro TSUTSUMI Date (Optional): February 1, 2017

Signature: Nobuhiro TSUTSUMI

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: Kouji KAMOGAWA Date (Optional) January 24, 2017

Signature: Kouji Kamogawa

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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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FIG. 1

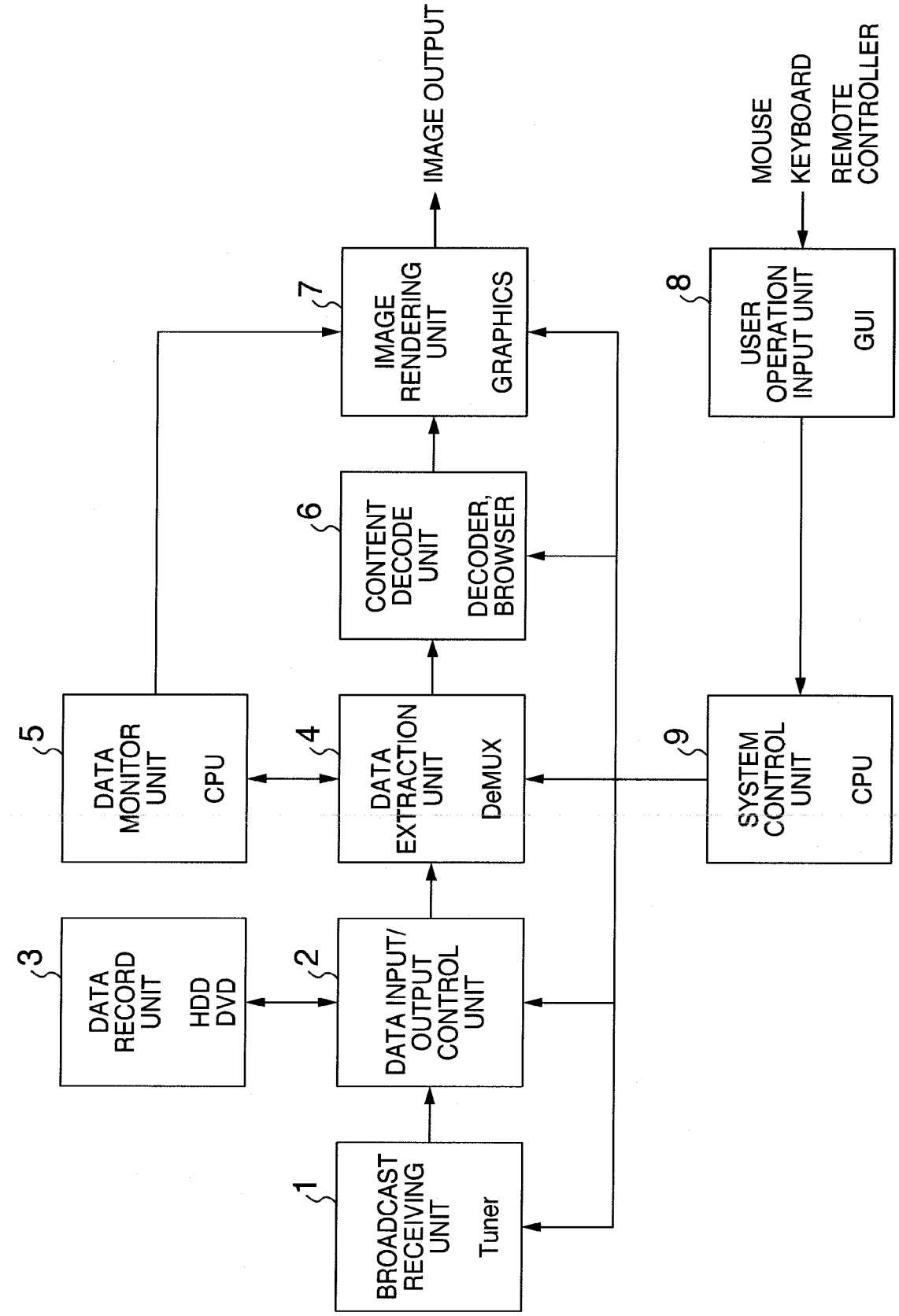

IMAGE OUTPUT
MOUSE
KEYBOARD
REMOTE CONTROLLER
1
BROADCAST RECEIVING UNIT
Tuner
2
DATA INPUT/ OUTPUT CONTROL UNIT
3
DATA RECORD UNIT
HDD
DVD
4
DATA EXTRACTION UNIT
DeMUX
5
DATA MONITOR UNIT
CPU
6
CONTENT DECODE UNIT
DECODER, BROWSER
7
IMAGE RENDERING UNIT
GRAPHICS
8
USER OPERATION INPUT UNIT
GUI
9
SYSTEM CONTROL UNIT
CPU

FIG. 2

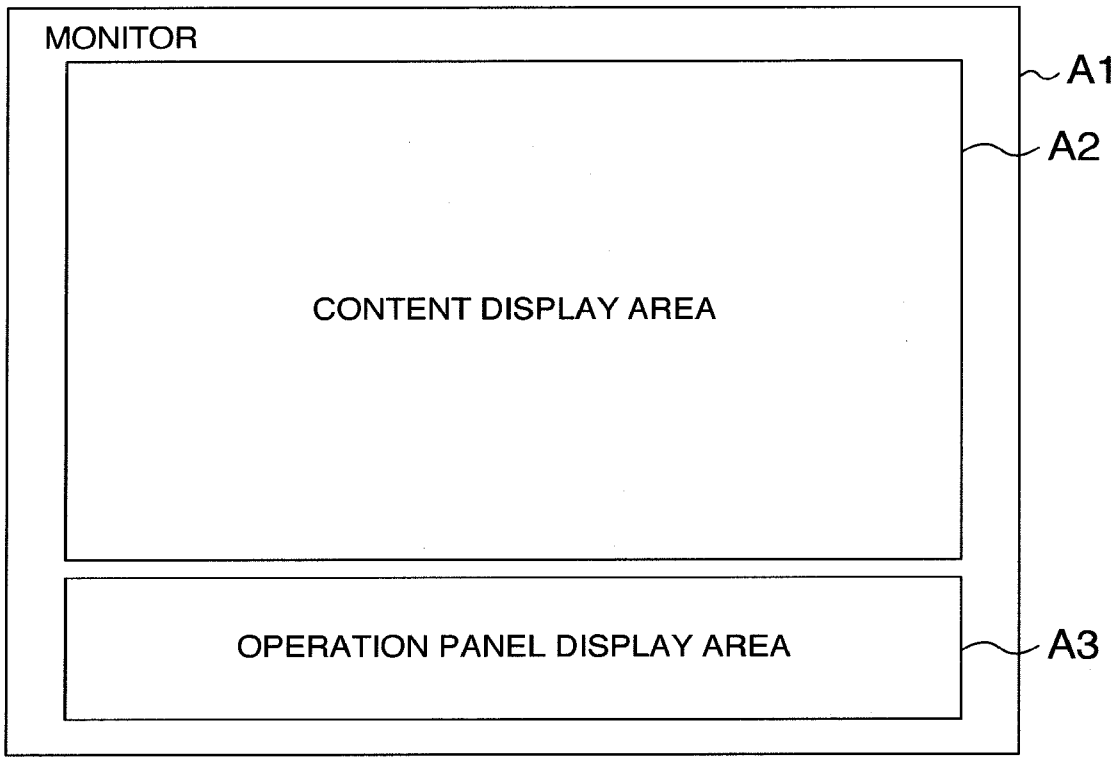


FIG. 3



FIG. 4

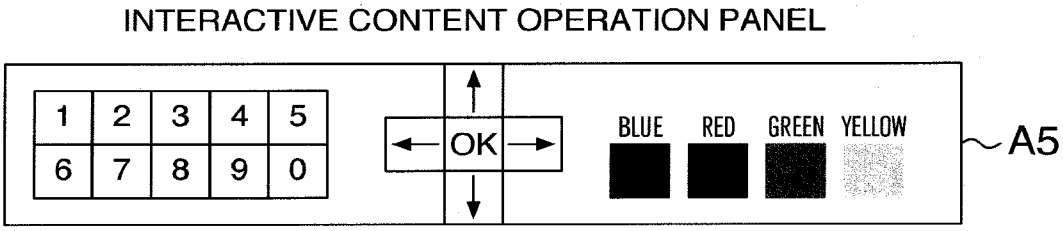


FIG. 5

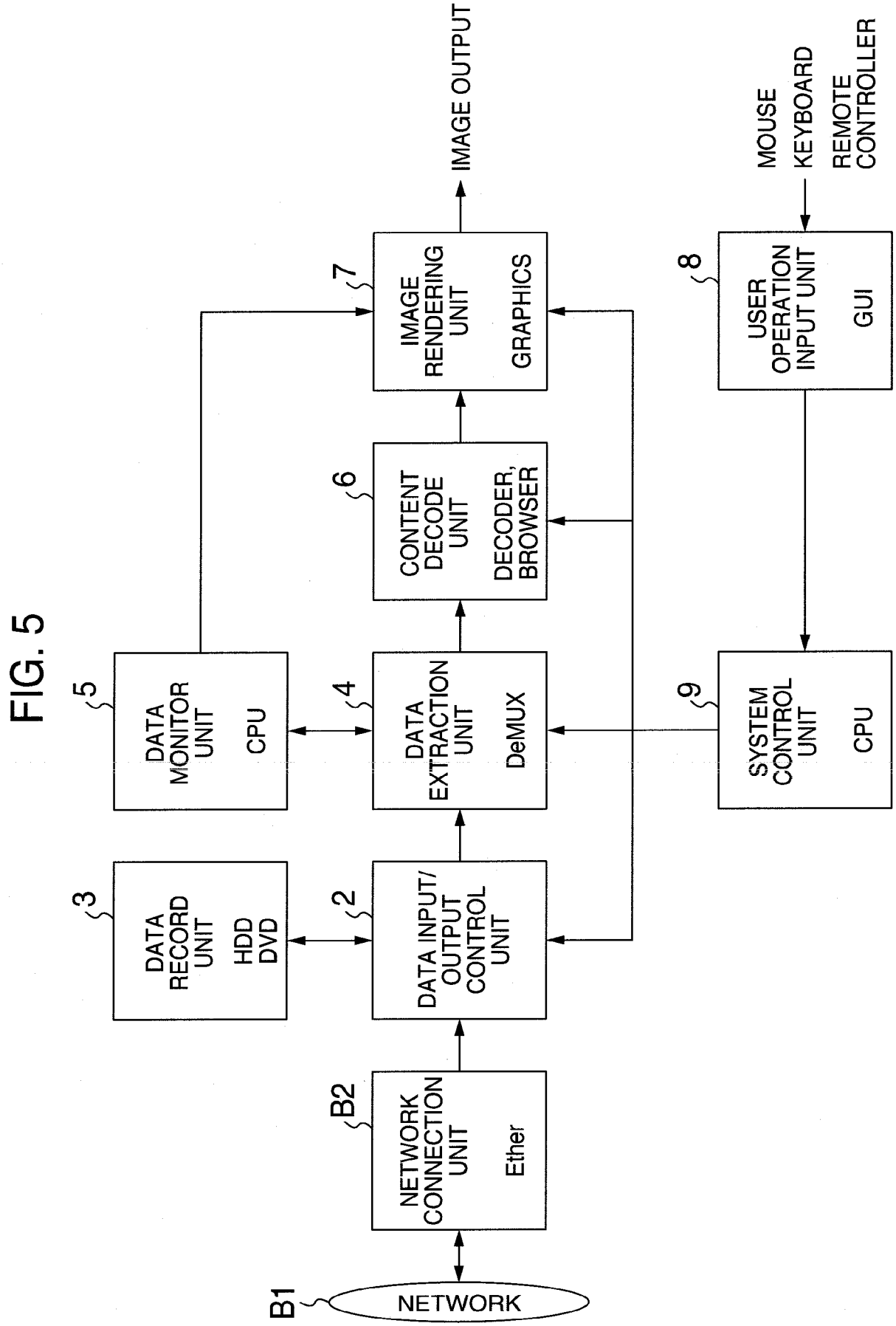

NETWORK
B1
NETWORK CONNECTION UNIT
Ether
B2
DATA INPUT/ OUTPUT CONTROL UNIT
2
DATA RECORD UNIT
HDD
DVD
3
DATA EXTRACTION UNIT
DeMUX
4
DATA MONITOR UNIT
CPU
5
CONTENT DECODE UNIT
DECODER, BROWSER
6
IMAGE RENDERING UNIT
GRAPHICS
7
IMAGE OUTPUT
USER OPERATION INPUT UNIT
GUI
8
MOUSE
KEYBOARD
REMOTE CONTROLLER
SYSTEM CONTROL UNIT
CPU
9

FIG. 6

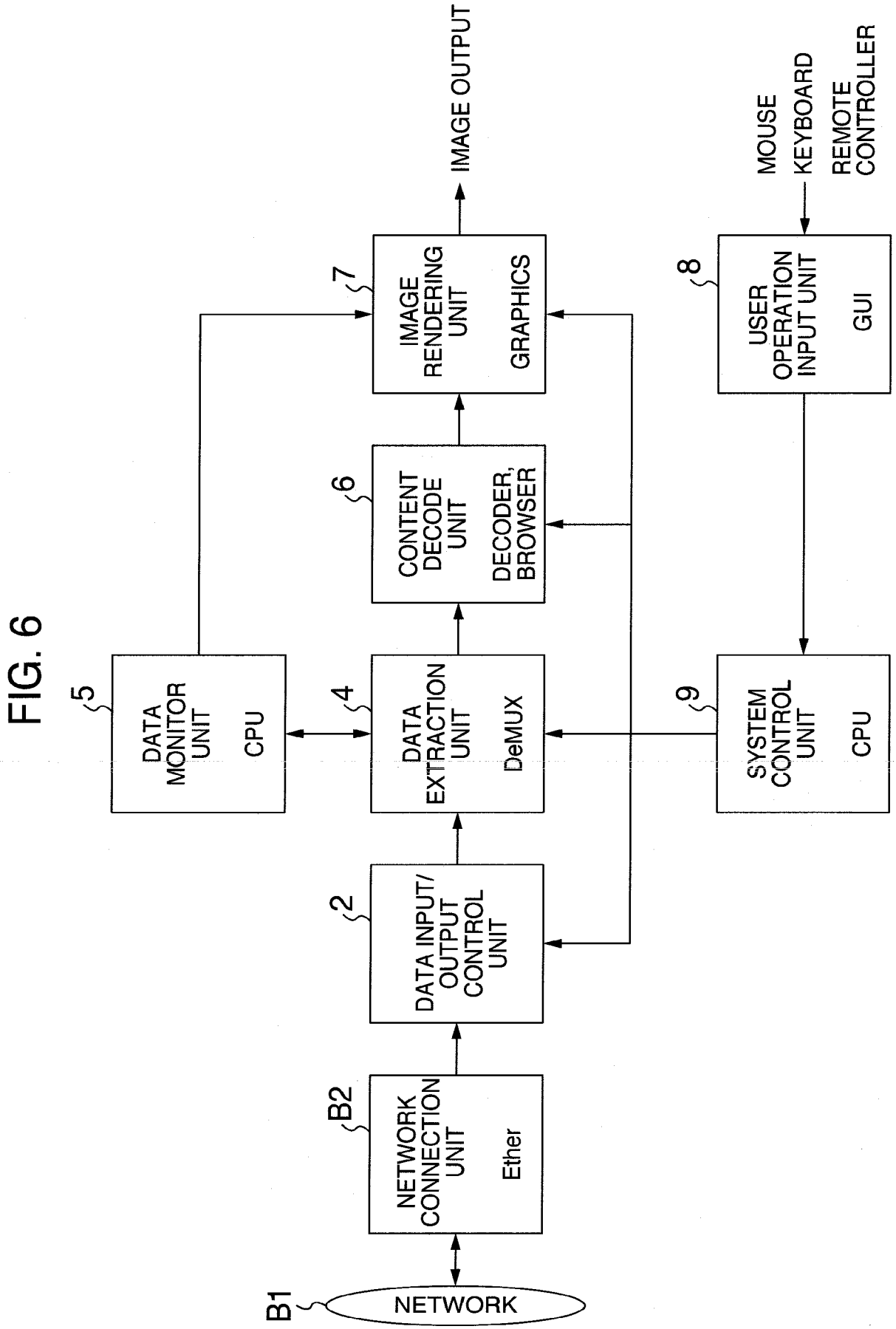

B1
NETWORK
B2
NETWORK CONNECTION UNIT
Ether
2
DATA INPUT/ OUTPUT CONTROL UNIT
4
DATA EXTRACTION UNIT
DeMUX
5
DATA MONITOR UNIT
CPU
6
CONTENT DECODE UNIT
DECODER, BROWSER
7
IMAGE RENDERING UNIT
GRAPHICS
IMAGE OUTPUT
8
USER OPERATION INPUT UNIT
GUI
MOUSE
KEYBOARD
REMOTE CONTROLLER
9
SYSTEM CONTROL UNIT
CPU

FIG. 7

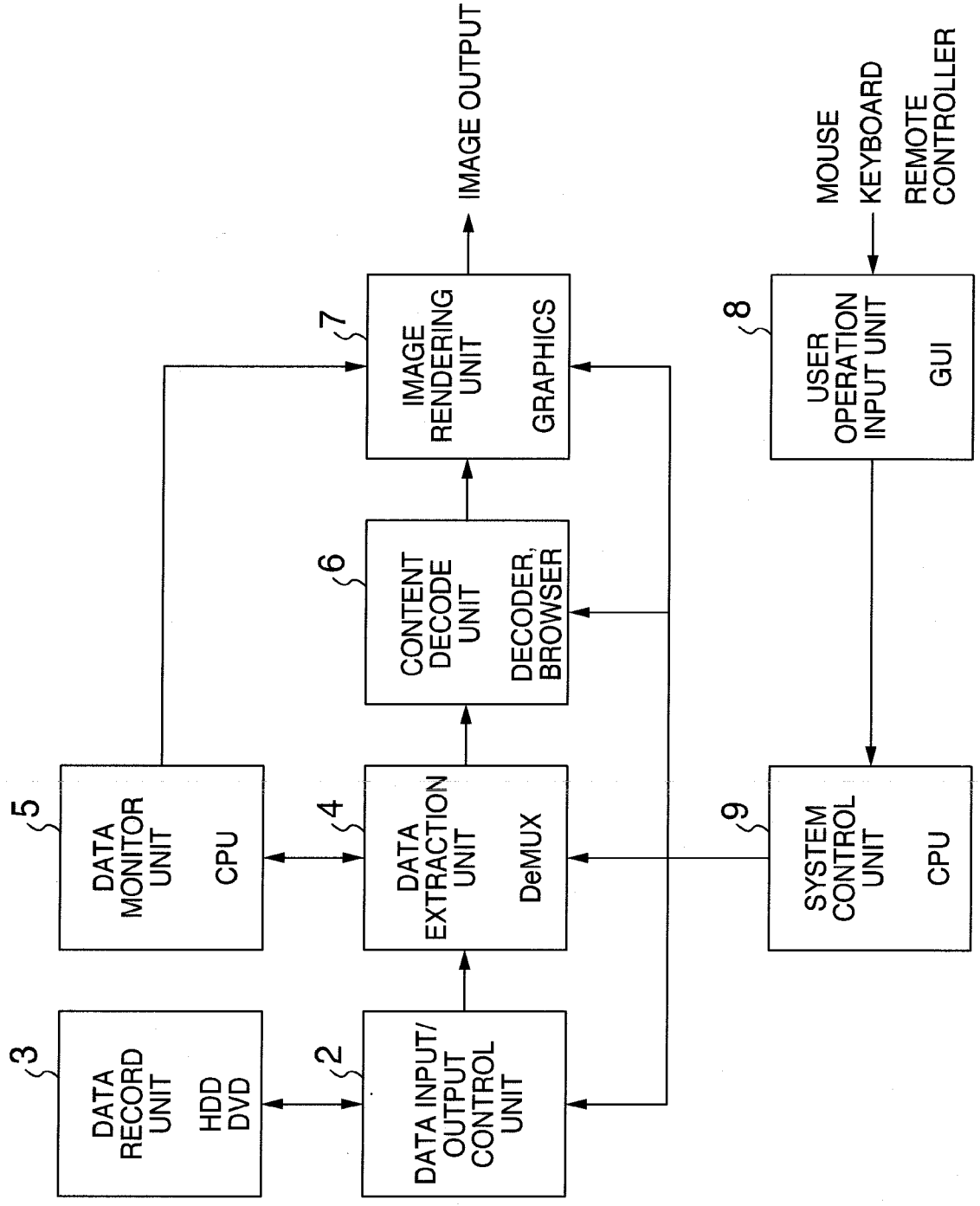

IMAGE OUTPUT
MOUSE
KEYBOARD
REMOTE CONTROLLER
7
IMAGE RENDERING UNIT
GRAPHICS
8
USER OPERATION INPUT UNIT
GUI
6
CONTENT DECODE UNIT
DECODER, BROWSER
5
DATA MONITOR UNIT
CPU
4
DATA EXTRACTION UNIT
DeMUX
9
SYSTEM CONTROL UNIT
CPU
3
DATA RECORD UNIT
HDD
DVD
2
DATA INPUT/ OUTPUT CONTROL UNIT

FIG. 8

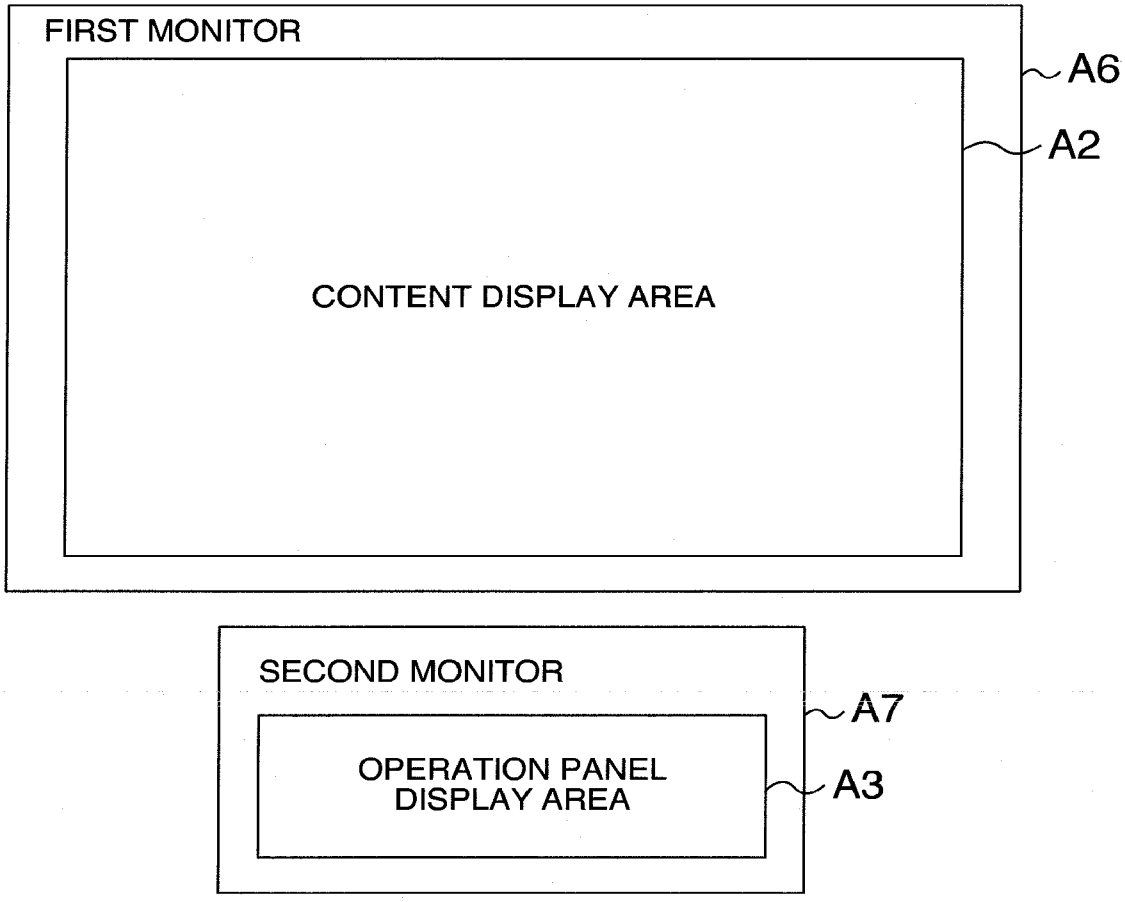

FIRST MONITOR
A6
A2
CONTENT DISPLAY AREA
SECOND MONITOR
A7
OPERATION PANEL
DISPLAY AREA
A3

FIG. 9

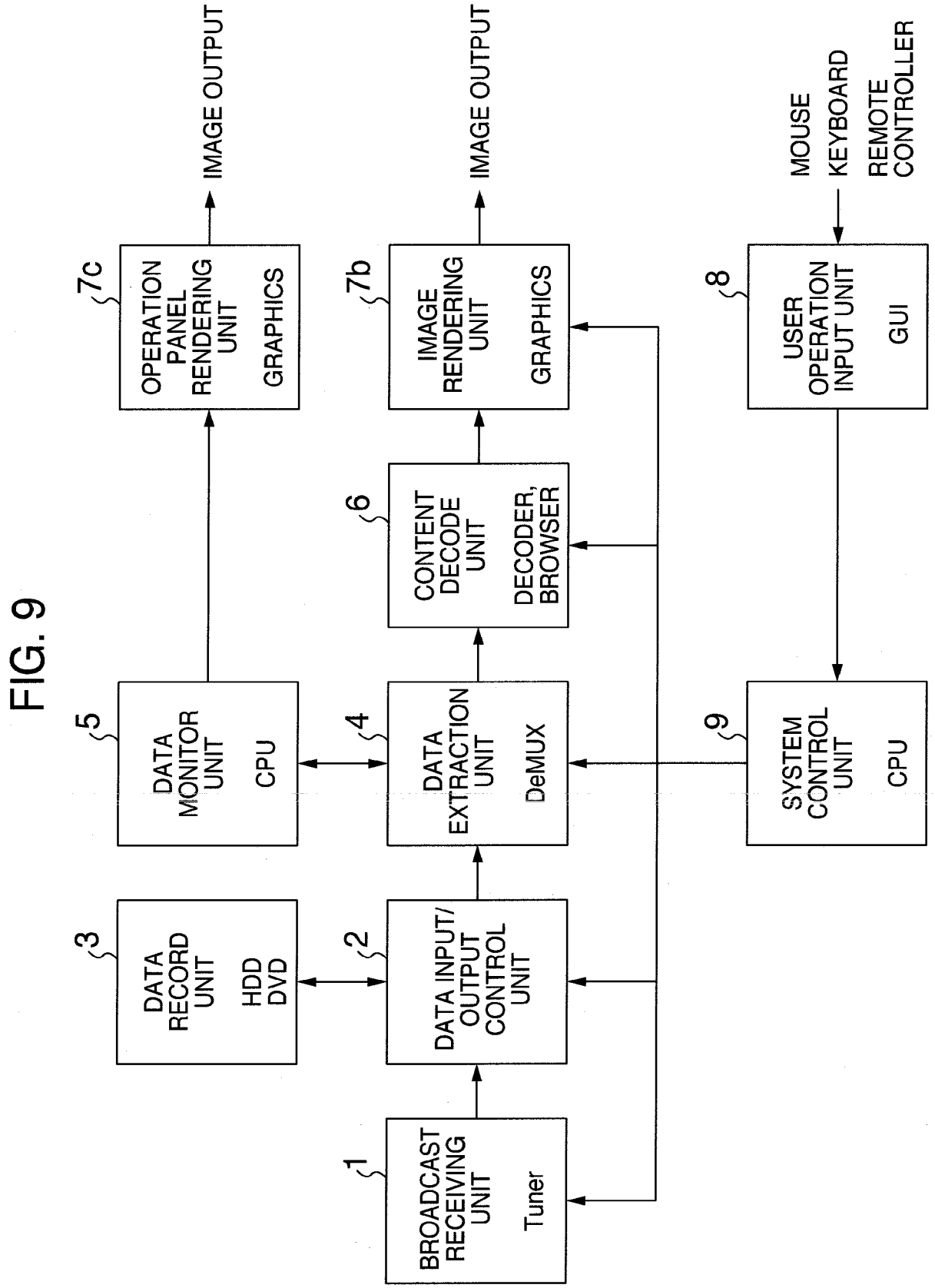

1
BROADCAST RECEIVING UNIT
Tuner
2
DATA INPUT/ OUTPUT CONTROL UNIT
3
DATA RECORD UNIT
HDD
DVD
4
DATA EXTRACTION UNIT
DeMUX
5
DATA MONITOR UNIT
CPU
6
CONTENT DECODE UNIT
DECODER, BROWSER
7b
IMAGE RENDERING UNIT
GRAPHICS
IMAGE OUTPUT
7c
OPERATION PANEL RENDERING UNIT
GRAPHICS
IMAGE OUTPUT
8
USER OPERATION INPUT UNIT
GUI
MOUSE
KEYBOARD
REMOTE CONTROLLER
9
SYSTEM CONTROL UNIT
CPU

FIG. 10

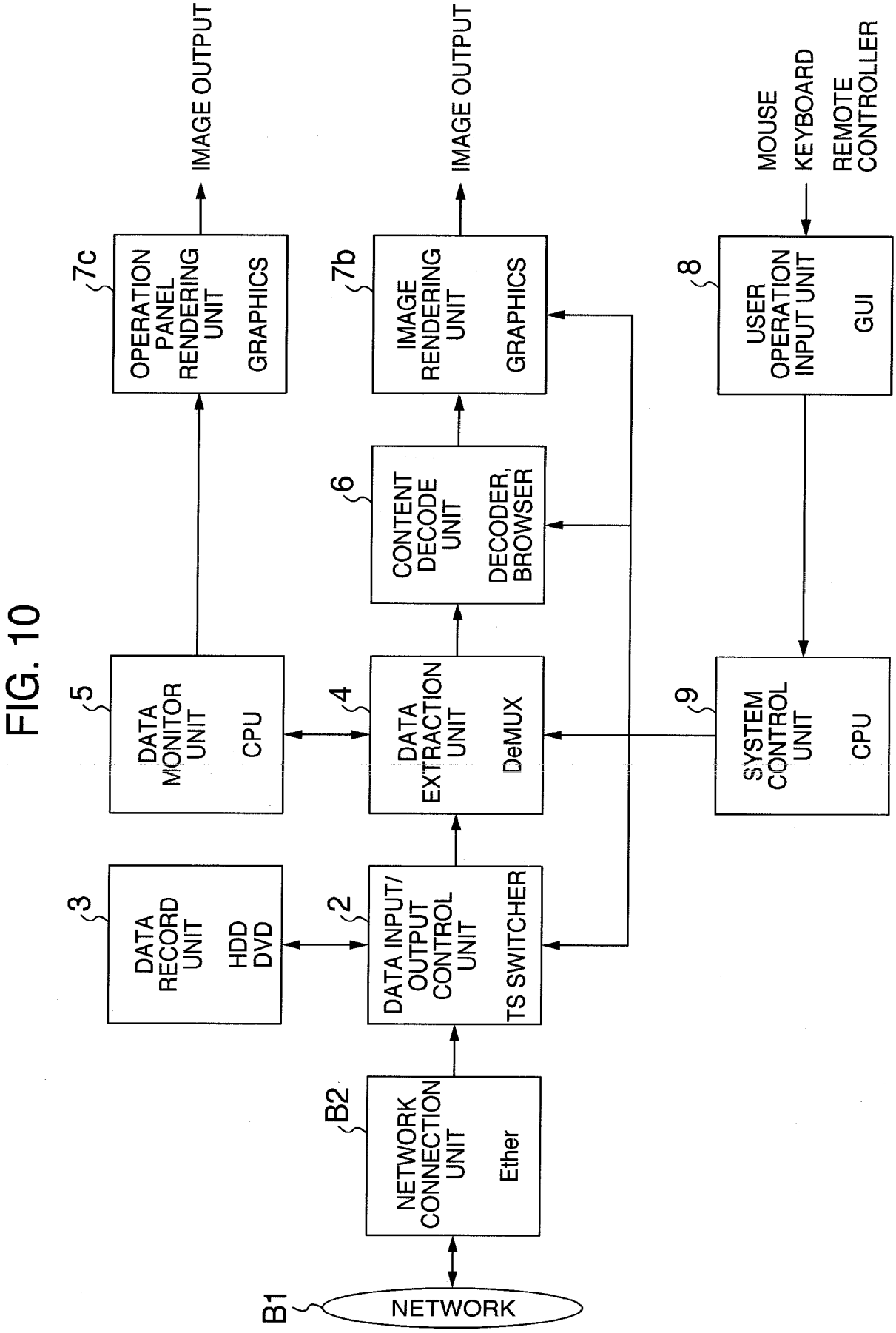

B1
NETWORK
B2
NETWORK CONNECTION UNIT
Ether
2
DATA INPUT/ OUTPUT CONTROL UNIT
TS SWITCHER
3
DATA RECORD UNIT
HDD
DVD
4
DATA EXTRACTION UNIT
DeMUX
5
DATA MONITOR UNIT
CPU
6
CONTENT DECODE UNIT
DECODER, BROWSER
7b
IMAGE RENDERING UNIT
GRAPHICS
IMAGE OUTPUT
7c
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GRAPHICS
IMAGE OUTPUT
8
USER OPERATION INPUT UNIT
GUI
MOUSE
KEYBOARD
REMOTE CONTROLLER
9
SYSTEM CONTROL UNIT
CPU

FIG. 11

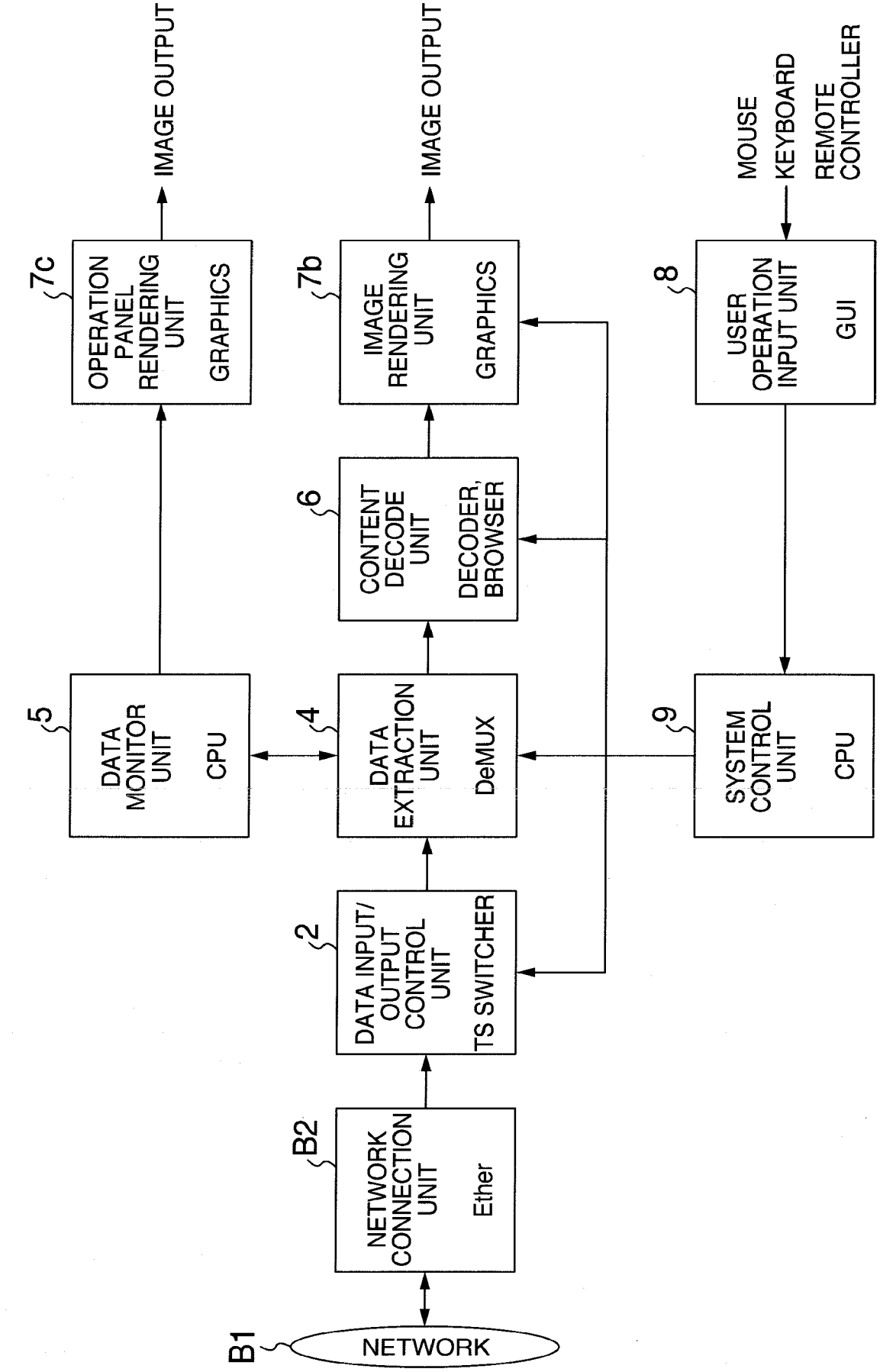

B1
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B2
NETWORK CONNECTION UNIT
Ether
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DATA INPUT/ OUTPUT CONTROL UNIT
TS SWITCHER
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DATA EXTRACTION UNIT
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DECODER, BROWSER
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OPERATION PANEL RENDERING UNIT
GRAPHICS
IMAGE OUTPUT
8
USER OPERATION INPUT UNIT
GUI
MOUSE
KEYBOARD
REMOTE CONTROLLER
9
SYSTEM CONTROL UNIT
CPU

FIG. 12

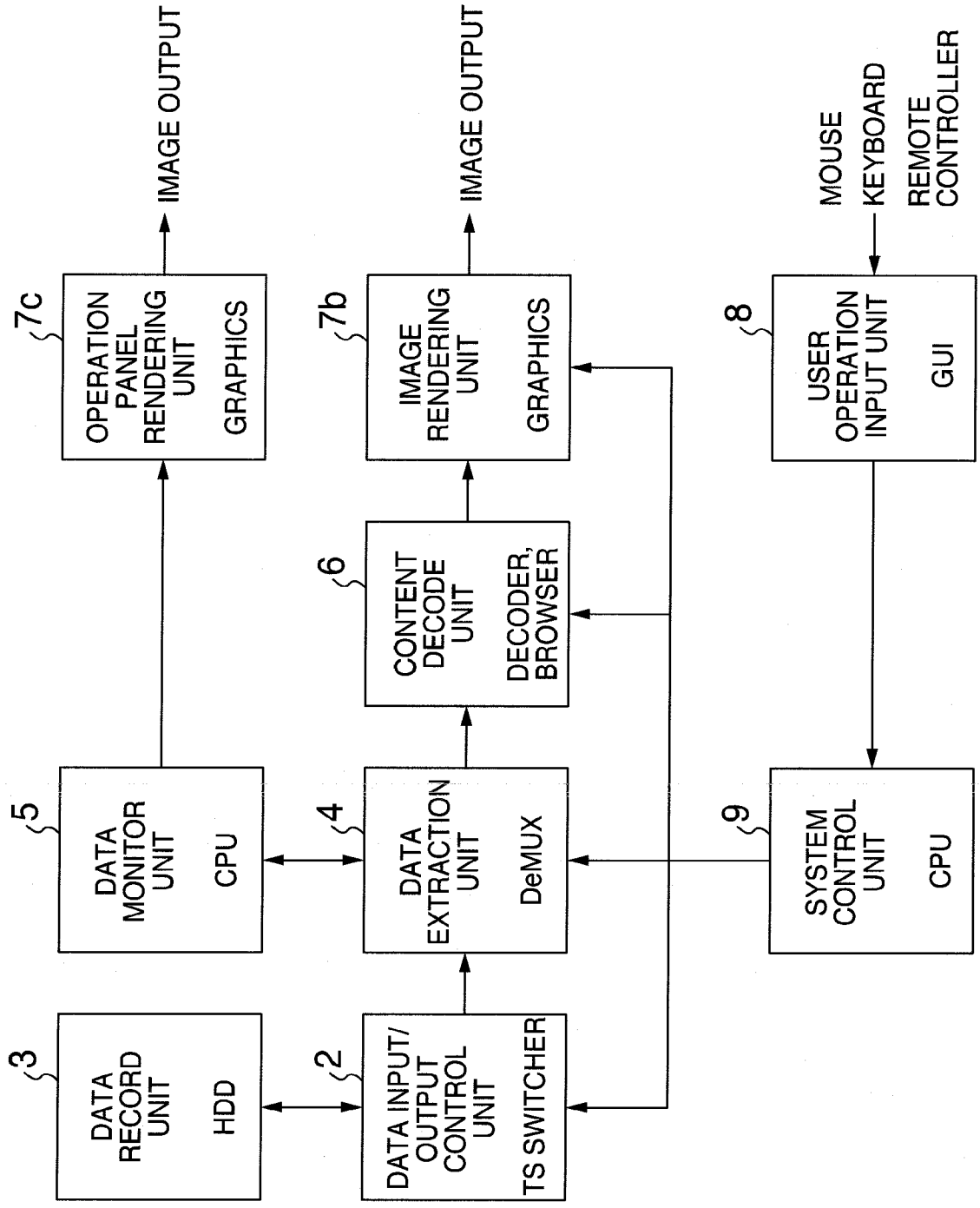

DATA RECORD UNIT
HDD
3
DATA INPUT/ OUTPUT CONTROL UNIT
TS SWITCHER
2
DATA EXTRACTION UNIT
DeMUX
4
DATA MONITOR UNIT
CPU
5
CONTENT DECODE UNIT
DECODER, BROWSER
6
IMAGE RENDERING UNIT
GRAPHICS
7b
OPERATION PANEL RENDERING UNIT
GRAPHICS
7c
IMAGE OUTPUT
IMAGE OUTPUT
USER OPERATION INPUT UNIT
GUI
8
MOUSE
KEYBOARD
REMOTE CONTROLLER
SYSTEM CONTROL UNIT
CPU
9

FIG.13

ITEM	CONTENTS
RECORD TIME DAY	2005/7/7
INFORMATION ON CONTENTS OF DATA BROADCAST	NEWS
APPRECIATION TERM	2005/7/14
VIEW HISTORY (IMAGE)	80 % DONE
VIEW HISTORY (DATA BROADCAST)	NONE

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-9608-05

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1820**

Electronic Acknowledgement Receipt

EFS ID:	46218498
Application Number:	17868139
International Application Number:	
Confirmation Number:	2706
Title of Invention:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
First Named Inventor/Applicant Name:	Yoshihiro MACHIDA
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-9608-05
Receipt Date:	19-JUL-2022
Filing Date:	
Time Stamp:	14:51:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1820
RAM confirmation Number	E20227IE52020274
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Application Data Sheet	9608-05-ADS-.pdf	2196784 f6688771f35fa42faf0d899e4a0e6886e874a5b5	no	9
Warnings:					
Information:					
2	Transmittal Letter	9608-05-ids.pdf	16141 d48925212bad8b35194f8a569cda7fc6c3d3f982	no	2
Warnings:					
Information:					
3	Information Disclosure Statement (IDS) Form (SB08)	9608-05-SB08-.pdf	1037968 57562157b5d4655c47a5e900d62a5307cc11e001	no	12
Warnings:					
Information:					
4	Power of Attorney	9608-05_POA_Maxell-.pdf	1707796 d1f0272acf822120a710bcd6f9f05231d873bc3c	no	3
Warnings:					
Information:					
5		9608-05-SPEC.pdf	412955 9783ec912f8bf77c695733b6165bf2f983e42c9f	yes	12

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	10
Claims	11	11
Abstract	12	12

Warnings:					
Information:					
6		9608-05-prelamd.pdf	40254 340a800db693f1eb80ada483a64f47b71888148a	yes	11
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Preliminary Amendment		1	1	
	Specification		2	3	
	Claims		4	10	
	Applicant Arguments/Remarks Made in an Amendment		11	11	
Warnings:					
Information:					
7	Oath or Declaration filed	9608-05-DEC.pdf	388948 d3716691df5311e881436f1dcd38a7727063b71a	no	4
Warnings:					
Information:					
8	Drawings-only black and white line drawings	9608-05-DRW.pdf	183757 183245889c3b2e49e7d2d43e9d8a4ac791c42e37	no	11
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	44036 06c5300450dce28caaf651910b5c3138cadfc182	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	6028639		

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/AIA/14 (01-22)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Yoshihiro		MACHIDA	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	YOKOHAMA	Country of Residence [i]	JP

Mailing Address of Inventor:

Address 1	c/o HITACHI, LTD.
Address 2	6-6, Marunouchi 1-chome, Chiyoda-ku
City	Tokyo
State/Province	
Postal Code	100-8280
Country [i]	JP

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Nobuhiro		TSUTSUMI	

Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

City	YOKOHAMA	Country of Residence [i]	JP

Mailing Address of Inventor:

Address 1	c/o HITACHI, LTD.
Address 2	6-6, Marunouchi 1-chome, Chiyoda-ku
City	Tokyo
State/Province	
Postal Code	100-8280
Country [i]	JP

Inventor 3 Remove

Legal Name

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kouji		KAMOGAWA	

Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

City	YOKOHAMA	Country of Residence [i]	JP

Mailing Address of Inventor:

Address 1	c/o HITACHI, LTD.		
Address 2	6-6, Marunouchi 1-chome, Chiyoda-ku		
City	Tokyo	**State/Province**	
Postal Code	100-8280	**Country** [i]	JP

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	24956		
Email Address	ptomail@mmiplaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS		
Attorney Docket Number	ASA-9608-05	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	11	**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country [i]

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	24956		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15670155	2017-08-07

Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15670155	Continuation of	15287074	2016-10-06	9743129	2017-08-22

Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15287074	Continuation of	13443955	2012-04-11	9489985	2016-11-08

Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13443955	Continuation of	11508209	2006-08-23	8170394	2012-05-01

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
2005-248576	JP	2005-08-30	

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	MAXELL, LTD.		
Mailing Address Information For Applicant:			
Address 1	1, Koizumi, Oyamazaki, Oyamazaki-cho Otokuni-gun		
Address 2			
City	Kyoto	**State/Province**	
Country	JP	Postal Code	618-8525
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/JOHN R. MATTINGLY/			Date (YYYY-MM-DD)	2022-07-19
First Name	JOHN	Last Name	MATTINGLY	Registration Number	30293

Additional Signature may be generated within this form by selecting the Add button. Add

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	ASA-9608-05
	Application Number	
Title of Invention	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS	

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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Y. MACHIDA, et al.
		Confirmation No.: TBD
Serial No.	:	To be assigned
Filed	:	July 19, 2022
For	:	MULTIMEDIA PLAYER DISPLAYING OPERATION PANEL DEPENDING ON CONTENTS
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Examiner	:	To be assigned
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Customer No.:		24956

INFORMATION DISCLOSURE STATEMENT (IDS)
UNDER § 1.97 AND § 1.98

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450 July 19, 2022
Sir:

In the matter of the above-identified application, Applicants are submitting herewith a copy, where required, of the documents listed in the attached form PTO/SB/08a. It is requested that the information be considered by the Examiner during prosecution of the application, and that the references be made of record therein.

Applicants note that:

One or more references cited on the attached PTO/SB/08a was cited by or submitted to the U.S. Patent and Trademark Office in parent application No. 15/670,155, filed August 7, 2017, which is relied upon for an earlier filing date under 35 U.S.C. §120. No copies of the references are attached pursuant to 37 CFR §1.98(d).

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417.

If the PTO determines that part(s) of the required content is inadvertently omitted, then it is requested that the Applicant(s) be given additional time and specific identification of such omission(s) to enable full compliance.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120