ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 198 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

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

Myunghee OH, Seongnam-si, KOREA, REPUBLIC OF;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.
**PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail**

Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

**Fax**
(571)-273-2885

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 3 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate “FEE ADDRESS” for maintenance fee notifications.

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

34610 7590 04/11/2013
KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

**APPLICATION NO.**

13/033,964

**FILING DATE**

02/24/2011

**FIRST NAMED INVENTOR**

Myunghee OH

**ATTORNEY DOCKET NO.**

RPL-0409

**CONFIRMATION NO.**

9900

**TITLE OF INVENTION:** METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).
   - Change of correspondence address (or Change of Correspondence Address form PTOSB/122) attached.
   - "Fee Address" indication (or "Fee Address" Indication form PTOSB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
   - the names of up to 3 registered patent attorneys or agents or, alternatively,
   - 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.

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

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

   (A) NAME OF ASSIGNEE

   HUMAX CO., LTD.

   (B) RESIDENCE: (CITY and STATE OR COUNTRY)

   SEONGNAM-SI, GEYEONGGI-DO, REPUBLIC OF KOREA

   Please check the appropriate assignee category or categories (will not be printed on the patent):

   - Individual
   - Corporation or other private group entity
   - Government

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

   - Issue Fee
   - Publication Fee (No small entity discount permitted)
   - Advance Order - # of Copies

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

   - A check is enclosed.
   - Payment by credit card.
   - The Director is hereby authorized to charge the required fees, any deficiency, or credit any overpayment, to Deposit Account Number 16-0607 (enclose an extra copy of this form).
5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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

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.

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

Authorized Signature

[Signature]

Typed or printed name

Paul H. Kang

Date

July 10, 2013

Registration No.

66,545

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

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

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

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**Utility under 35 USC 111(a) Filing Fees**

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**Title of Invention:** METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

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**Application Type:** Utility under 35 USC 111(a)

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- Submitted with Payment: yes
- Payment Type: Credit Card
- Payment was successfully received in RAM: $2080
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- Deposit Account: 
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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.
NOTICE OF ALLOWANCE AND FEE(S) DUE

34610 7590 04/11/2013

KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

EXAMINER
TRAN, TRANG U

ART UNIT 2422
PAPER NUMBER

DATE MAILED: 04/11/2013

APPLICATION NO. FILING DATE FIRST NAMED INVENTOR ATTORNEY DOCKET NO. CONFIRMATION NO.
13/033,964 02/24/2011 Myunghee OH RPL-0409 9900

TITLE OF INVENTION: METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

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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 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity 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 and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

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

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

Complete and send this form, together with applicable fee(s), to: Mail

Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

or Fax

(571)-273-885

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

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

34610 7590 04/11/2013
KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

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

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571)-273-885, on the date indicated below.

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TITLE OF INVENTION: METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
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2. For printing on the patent front page, list:
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   (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. 2
   (3) ☐

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

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

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

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

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

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

Page 2 of 4

PTOL-85 (Rev. 02/11)
5. **Change in Entity Status** (from status indicated above)

- [ ] Applicant certifying micro entity status. See 37 CFR 1.29
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---

Authorized Signature ___________________________ Date ___________________________

Typed or printed name ___________________________ Registration No. ___________________________

This collection of information is required by 37 CFR 1.314. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 198 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 198 day(s).

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

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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

-- 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 the amendment filed on February 08, 2013.
   - ☐ 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 1-20. 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: ________.

Interim copies:
- a) ☐ All  b) ☐ Some  c) ☐ None of the: Interim copies of the priority documents have been 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 ________
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 ________.

/Trang U Tran/
Primary Examiner, Art Unit 2422

U.S. Patent and Trademark Office
PTOL-37 (Rev. 03-13) Notice of Allowability Part of Paper No./Mail Date 20130408
### Issue Classification

**Application/Control No.**  
13033964

**Applicant(s)/Patent Under Reexamination**  
OH, MYUNGHEE

**Examiner**  
TRANG U TRAN

**Art Unit**  
2422

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(Date)

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**Claims renumbered in the same order as presented by applicant**

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(Date)  

(Assistant Examiner)  
(Date)  

U.S. Patent and Trademark Office  
Part of Paper No. 20130408
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In reply to the Office Action of November 8, 2012, please amend the above-identified application as follows:

**Amendments to the Claims** are reflected in the listing of claims.

**Remarks/Arguments** begin after the listing of the claims.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for monitoring video provided from a content source, the method comprising:
   
   outputting a first video signal provided from a first content source; and

   displaying a video from a second video signal intermittently with a video from the first video signal on a single screen, the second video signal being provided from a second content source other than the first second content source, by:

   causing the single screen to be in a multi-view state where a video from the second video signal is displayed with a video from the first video signal on the single screen for a first time period;

   causing the single screen to be in a single-view state, after the first time period, where a video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period; and

   causing the multi-view state and the single-view state to be automatically repeated in an alternate manner on the single screen after the second time period.
2. (Original) The method of claim 1, further comprising:

switching between a video area for the first video signal and a video area for the second video signal on the single screen according to a request of a user; and

causing the single screen to display a video from the first video signal intermittently with a video from the second video signal,

wherein the switching comprises causing the single screen to display a video from the first video signal with a video from the second video signal during a particular time equal to or shorter than the first time period, and

the causing the single screen to display a video from the first video signal intermittently with a video from the second video signal comprises:

causing the single screen to be in a first single-view phase, after the particular time, where a video from the second video signal is displayed alone on the single screen for the second time period;

causing the single screen to be in a multi-view phase, after the second time period, where a video from the first video signal is displayed with a video from the second video signal on the single screen for the first time period;

causing the single screen to be in a second single-view phase, after the first time period, where a video from the second video signal is displayed alone on the single screen for the second time period; and
causing the multi-view phase and the second single-view phase to be repeated in an alternate manner.

3. (Original) The method of claim 2, wherein the switching comprises ignoring the request if the request is not made while the first time period passes.

4. (Original) The method of claim 1, further comprising:
causing the single screen to display a video from the second video signal alone for a time equal to or longer than the second time period according to a request of a user; and
causing the single screen to display a video from the first video signal intermittently with a video from the second video signal after the time,
wherein the causing the single screen to display a video from the first video signal intermittently with a video from the second video signal comprises:
causing the single screen to be in a multi-view phase, after the second time period, where a video from the first video signal is displayed with a video from the second video signal on the single screen for the first time period;
causing the single screen to be in a single-view phase, after the first time period, where a video from the second video signal is displayed alone on the single screen for the second time period; and
causing the multi-view phase and the single-view phase to be repeated in an alternate manner.

5. (Original) The method of claim 1, wherein the second content source is a source of which a video signal is being displayed at a time when a monitoring request is made from a user, and the first content source is a source of which a video signal is being displayed right before a video signal provided from the second content source is displayed.

6. (Original) The method of claim 1, wherein the first content source is a source of which a video signal is being displayed at a time when a monitoring request is made from a user, and the second content source is a source of which a video signal is being displayed right before a video signal provided from the first content source is displayed.

7. (Original) The method of claim 1, wherein the second content source is a source being designated as a monitoring object by information entered by a user through a provided selection menu screen.

8. (Original) The method of claim 1, wherein the second content source corresponds to a program item being designated as a monitoring object from a broadcasting
program schedule provided on a screen based on an electronic program guide received through broadcasting signals.

9. (Original) The method of claim 1, wherein the displaying a video from the second video signal intermittently with a video from the first video signal on the single screen is started automatically at a time that is specified by time information entered directly from a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals.

10. (Currently Amended) An apparatus for outputting video signals of contents, the apparatus comprising:

   a receiver adapted for obtaining a plurality of contents;

   a decoder adapted for decoding data of at least one of the plurality of contents obtained by the receiver and outputting one or more video signals of the at least one content;

   a video formatter adapted for outputting the one or more video signals of which corresponding videos are disposed in a specified layout on a single screen; and

   a controller adapted for controlling the video formatter for a video from a second video signal belonging to the one or more video signals to be displayed intermittently on the
single screen with a video from a first video signal belonging to the one or more video signals,

the controller being further adapted for controlling the video formatter to:

cause the single screen to be in a multi-view state where a video from the second video signal is displayed with a video from the first video signal on the single screen for a first time period;

cause the single screen to be in a single-view state, after the first time period, where a video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period; and

cause the multi-view state and the single-view state to be automatically repeated in an alternate manner.

11. (Original) An apparatus of claim 10, wherein the controller is further adapted for controlling the video formatter to:

switch between a video area for the first video signal and a video area for the second video signal on the single screen according to a request of a user; and

cause the single screen to be in an intermittent multi-view phase where a video from the first video signal is displayed intermittently with a video from the second video signal on the single screen,
wherein the controlling to switch comprises causing the single screen to display a video from the first video signal with a video from the second video signal during a particular time equal to or shorter than the first time period, and

operations conducted in the intermittent multi-view phase comprises:

caus[ing] the single screen to display a video from the second video signal alone for the second time period after the particular time; and

caus[ing] a first-type of view phase lasting for the first time period and the second-type of view phase lasting for the second time period to be repeated in an alternate manner, the first-type of view phase being a phase where a video from the first video signal is displayed with a video from the second video signal on the single screen, the second-type of view phase being a phase where a video from the second video signal is displayed alone on the single screen.

12. (Original) The apparatus of claim 10, wherein the controller is further adapted for controlling the video formatter to:

display a video from the second video signal alone for a time equal to or longer than the second time period on the single screen according to a request of a user; and

cause the single screen to be in an intermittent multi-view phase, after the time, where a video from the first video signal is displayed intermittently with a video from the second
video signal on the single screen,

wherein operations conducted in the intermittent multi-view phase comprises causing
a first-type of view phase lasting for the first time period and the second-type of view phase
lasting for the second time period to be repeated in an alternate manner, the first-type of
view phase being a phase where a video from the first video signal is displayed with a video
from the second video signal on the single screen, the second-type of view phase being a
phase where a video from the second video signal is displayed alone on the single screen.

13. (Original) The apparatus of claim 12, wherein the controller is further
adapted for ignoring the request if the request is not made while the first time period passes.

14. (Original) The apparatus of claim 10, wherein either the first content source
or the second content source is a source of which a video signal is being displayed at a time
when a monitoring request is made from a user, and either the second content source or the
first content source is a source of which a video signal is being displayed right before a video
signal provided from the second content source is displayed.

15. (Original) The apparatus of claim 10, wherein the second content source is a
source being designated as a monitoring object by information entered by a user through a
selection menu screen provided by the controller.

16. (Original) The apparatus of claim 10, wherein the second content source corresponds to a program item being designated as a monitoring object from a broadcasting program schedule provided on a screen based on an electronic program guide received through broadcasting signals.

17. (Original) The apparatus of claim 10, wherein the controller is further adapted for starting a control operation at a specific time to display a video from the second video signal intermittently with a video from the first video signal on the single screen, the specific time being specified by time information entered directly from a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals.

18. (Original) The apparatus of claim 10, wherein the receiver is adapted for comprising at least one of:

a signal demodulator configured to tune to and demodulate a broadcasting signal to output a broadcasting program;

a storage device configured to store recoded broadcasting programs;
a video device connecting unit configured to receive video signals inputted through connecting terminals;

a storage media interfacing unit configured to read out content data from a portable storage medium connected detachably; and

a communication unit configured to receive video contents from an external server through a data communication network.

19. (Original) The apparatus of claim 10, wherein the controller is adapted for providing an input screen through which a user enters a monitoring interval and a monitoring window display time individually, and assigning the entered monitoring window display time to the first time period and the entered monitoring interval subtracted by the monitoring window display time to the second time period.

20. (Original) The apparatus of claim 10, wherein the controller is adapted for providing an input screen through which a user enters a monitoring interval, and assigning a time corresponding to a predetermined ratio of the entered monitoring interval to the first time period and the entered monitoring interval subtracted by the assigned time to the second time period.
REMARKS/ARGUMENTS

Claims 1-20 are pending in this application. By this Amendment, claims 1 and 10 are amended. No new matter is added. Support for the claims can be found throughout the specification, including the original claims and the drawings. Withdrawal of the rejections in view of the above amendments and the following remarks is respectfully requested.

I. Rejection Under 35 U.S.C. §102(b)


Kim fails to disclose all the claimed features, as required under Section 102. For example, Kim fails to disclose or suggest “causing the single screen to be in a single-view state, after the first time period, where a video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period; and causing the multi-view state and the single-view state to be automatically repeated in an alternate manner on the single screen after the second time period,” and the combination thereof, as recited in independent claim 1. Independent claim 10 recites similar features in varying scope.

The Patent Office concludes that the displayed broadcast of Figure 3E (and Figure
3A) corresponds to the claimed single-view state and the PIP form of Figure 3B corresponds to the claimed multi-view state. In Kim, while a first channel is being viewed (Figure 3A), if a command is received to change the channel to a second channel, the second channel is first displayed in a PIP format (Figures 3B and 3C) rather than immediately changing the channel. If a predetermined amount of time has elapsed, the channel is changed to the second channel (Figure 3D). However, if the user manually presses a button on the input unit 185 prior to expiration of the predetermined time period, the first channel may be continuously viewed (Figure 3E). The process ends until another command to change the channel is received. That is, Kim only displays the second channel after the predetermined time period and only displays the first channel after the user manually inputs a command prior to expiration of the predetermined time period. Hence, the process for displaying the first channel of Kim (i.e., Figure 3E) is not correctly corresponded to causing the single screen to be in a single-view state after the first time period, where a video from the first video signal is displayed alone on the single screen, as claimed.

Moreover, because the process of displaying the first channel (Figure 3E) requires a manual user input, and because the PIP is not displayed again until a command to change the channel is received, this process of Kim is not correctly corresponded to causing the multi-view state and the single-view state to be automatically repeated in an alternate manner on the single screen after the second time period, as claimed.
For at least these reasons, it is respectfully submitted that independent claims 1 and 10 are allowable over Kim. Dependent claims 2-7, 11-15 and 18-20 are allowable over Kim at least for the reasons set forth above with respect to independent claims 1 and 10, from which they respectively depend, as well as for their added features. Accordingly, it is respectfully submitted that this rejection should be withdrawn.

II. Rejections Under 35 U.S.C. §103(a)

Claims 8, 9, 16 and 17 stand rejected under 35 U.S.C. §103(a) over Kim. The rejection is respectfully traversed.

The Patent Office takes Official Notice merely for the features regarding the use of an EPG to conclude that such use is allegedly obvious. Hence, dependent claims 8, 9, 16 and 17 are allowable over Kim at least for the reasons set forth above with respect to independent claims 1 and 10, from which they respectively depend, as well as for their added features. Accordingly, it is respectfully submitted that this rejection should be withdrawn.

III. Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is
invited to contact the undersigned attorney, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
Paul H. Kang
Registration No. 66,545

Correspondence Address:
P.O. Box 8638
Reston, VA  20195
703 766-3777  DYK:PHK:Jhd
Date:  February 8, 2013
Please direct all correspondence to Customer Number 34610

Q:\Documents\2028-419\565268
# Electronic Acknowledgement Receipt

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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.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Myunghee OH

Serial No: 13/033,964

Filed: February 24, 2011

Confirmation No.: 9900

Group Art Unit: 2422

Examiner: Trang U. TRAN

Customer No.: 34610

For: METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AMENDMENT
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.

☐ No additional fee is required.

☐ Also attached:

The fee has been calculated as shown below:

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If multiple claims newly presented, add $460.00 $0.00

Fee for extension of time $0.00

TOTAL FEE DUE $0.00

☐ Please charge my Deposit Account No. 16-0607 in the amount of $_____. An additional copy of this transmittal sheet is submitted herewith.

☐ Please charge my Credit Card. (Please see completed form PTO-2038 attached).

☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R.§1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777
Date: February 8, 2013

Please direct all correspondence to Customer Number 34610
# Patent Application Fee Determination Record

**Application asFiled—Part I**

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**Multiple Dependent Claim Present (37 CFR 1.16(j)):**

* If the difference in column 1 is less than zero, enter "0" in column 2.

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**First Presentation of Multiple Dependent Claim (37 CFR 1.16(j)):**

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

**Legal Instrument Examiner: RUBY JOHNSON**

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

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

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

Application No. 13/033,964
Applicant(s) OH, MYUNGHEE
Examiner Trang U. Tran
Art Unit 2422

Period for Reply
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply to the final office action will result in ABANDONMENT of the application. 35 U.S.C. § 133.

Status
1)☐ Responsive to communication(s) filed on _____.
2a)☐ This action is FINAL. 2b)☒ This action is non-final.
3)☐ 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.
4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims
5)☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
6)☐ Claim(s) _____ is/are allowed.
7)☒ Claim(s) 1-20 is/are rejected.
8)☐ Claim(s) _____ is/are objected to.
9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, 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.

Application Papers
10)☐ The specification is objected to by the Examiner.
11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

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

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
3)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
4)☐ Other: _____.
DETAILED ACTION

Claim Rejections - 35 USC § 102

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

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.


In considering claim 1, Kim discloses all the claimed subject matter, note 1) the claimed outputting a first video signal provided from a first content source is met by step S210 display first broadcast (Figs. 1-3, page 3, paragraph #0050 to paragraph #0051), 2) the claimed displaying a video from a second video signal intermittently with a video from the first video signal on a single screen, the second video signal being provided from a second content source other than the first second content source, by: causing the single screen to be in a multi-view state where a video from the second video signal is displayed with a video from the first video signal on the single screen for a first time period is met by step S230 display first broadcast as a main image with the second broadcast as a sub-image (Figs. 1-3B, page 3, paragraph #0051 to paragraph #0053), 3) the claimed causing the single screen to be in a single-view state, after the first time period, where a video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period is met by the display of Fig. 3E (Figs. 1-2 and 3E, page 3, paragraph #0053 to page 4, paragraph #0068), and 4) the
claimed causing the multi-view state and the single-view state to be repeated in an alternate manner on the single screen after the second time period is met by the switching between the displays of Fig. 3B and Fig. 3E according to the user input unit 185 (Figs. 1-2 and 3E, page 3, paragraph #0053 to page 4, paragraph #0068).

In considering claim 2, Kim discloses all the claimed subject matter, note 1) the claimed further comprising: switching between a video area for the first video signal and a video area for the second video signal on the single screen according to a request of a user is met by the switch the area of the main channel and sub-channel of Fig. 3C (Figs. 1-2 and 3B, page 4, paragraph #0064 to page 5, paragraph #0069), 2) the claimed causing the single screen to display a video from the first video signal intermittently with a video from the second video signal, wherein the switching comprises causing the single screen to display a video from the first video signal with a video from the second video signal during a particular time equal to or shorter than the first time period, and the causing the single screen to display a video from the first video signal intermittently with a video from the second video signal comprises: causing the single screen to be in a first single-view phase, after the particular time, where a video from the second video signal is displayed alone on the single screen for the second time period is met by the switching between the displays of Fig. 3C and Fig. 3D according to the user input unit 185 (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068), 3) the claimed causing the single screen to be in a multi-view phase, after the second time period, where a video from the first video signal is displayed with a video from the second video signal on the single screen for the first time period is met
by step S230 display first broadcast as a main image with the second broadcast as a sub-image (Figs. 1-3B, page 3, paragraph #0051 to paragraph #0053), 4) the claimed causing the single screen to be in a second single-view phase, after the first time period, where a video from the second video signal is displayed alone on the single screen for the second time period is met by the display of Fig. 3D (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068), and 5) the claimed causing the multi-view phase and the second single-view phase to be repeated in an alternate manner is met by the switching between the displays of Fig. 3C and Fig. 3D according to the user input unit 185 (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068).

In considering claim 3, the claimed wherein the switching comprises ignoring the request if the request is not made while the first time period passes is met by the step S250 which predetermines period of time has elapsed and step S255 which output only second broadcast (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068).

In considering claim 4, Kim discloses all the claimed subject matter, note 1) the claimed further comprising: causing the single screen to display a video from the second video signal alone for a time equal to or longer than the second time period according to a request of a user is met by the display of Fig. 3D (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068), 2) the claimed causing the single screen to display a video from the first video signal intermittently with a video from the second video signal after the time, wherein the causing the single screen to
display a video from the first video signal intermittently with a video from the second video signal comprises: causing the single screen to be in a multi-view phase, after the second time period, where a video from the first video signal is displayed with a video from the second video signal on the single screen for the first time period is met by the displays of Fig. 3C (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068), 3) the claimed causing the single screen to be in a single-view phase, after the first time period, where a video from the second video signal is displayed alone on the single screen for the second time period is met by the display of Fig. 3D (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068), and 4) the claimed causing the multi-view phase and the single-view phase to be repeated in an alternate manner is met by the switching between the displays of Fig. 3C and Fig. 3D according to the user input unit 185 (Figs. 1-2 and 3C-3D, page 3, paragraph #0053 to page 4, paragraph #0068).

In considering claim 5, the claimed wherein the second content source is a source of which a video signal is being displayed at a time when a monitoring request is made from a user, and the first content source is a source of which a video signal is being displayed right before a video signal provided from the second content source is displayed is met by the broadcast receiver 110 and image providing unit 120 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0048).

In considering claim 6, the claimed wherein the first content source is a source of which a video signal is being displayed at a time when a monitoring request is made from a user, and the second content source is a source of which a video signal is being
displayed right before a video signal provided from the first content source is displayed is met by the broadcast receiver 110 and image providing unit 120 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0048).

In considering claim 7, the claimed wherein the second content source is a source being designated as a monitoring object by information entered by a user through a provided selection menu screen is met by the image providing unit 120 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0045).

Claim 10 is rejected for the same reason as discussed in claim 1 above and further 1) the claimed a receiver adapted for obtaining a plurality of contents is met by the image receiver unit 110 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0045), 2) the claimed a decoder adapted for decoding data of at least one of the plurality of contents obtained by the receiver and outputting one or more video signals of the at least one content is met by the decoder unit 130 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0045), 3) the claimed a video formatter adapted for outputting the one or more video signals of which corresponding videos are disposed in a specified layout on a single screen is met by the image combiner 150 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0045), and 4) the claimed a controller adapted for controlling the video formatter for a video from a second video signal belonging to the one or more video signals to be displayed intermittently on the single screen with a video from a first video signal belonging to the one or more video signals is met by the controller 190 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0045).
Claim 11 is rejected for the same reason as discussed in claim 2 above.

Claim 12 is rejected for the same reason as discussed in claim 4 above.

Claim 13 is rejected for the same reason as discussed in claim 3 above.

Claim 14 is rejected for the same reason as discussed in claims 5-6 above.

Claim 15 is rejected for the same reason as discussed in claim 7 above.

In considering claim 18, Kim discloses all the claimed subject matter, note 1) the claimed wherein the receiver is adapted for comprising at least one of: a signal demodulator configured to tune to and demodulate a broadcasting signal to output a broadcasting program is met by the decoder unit 130 (Figs. 1-2, page 2, paragraph #0032 to page 3, paragraph #0045), 2) the claimed a storage device configured to store recoded broadcasting programs is met by the providing unit 120 (Figs. 1-2, page 2, paragraph #0032 to paragraph #0034), 3) the claimed a video device connecting unit configured to receive video signals inputted through connecting terminals is met by the providing unit 120 which may be a communication interface through which the image apparatus is communicably connected to an external apparatus which provide images (Figs. 1-2, page 2, paragraph #0032 to paragraph #0034), 4) the claimed a storage media interfacing unit configured to read out content data from a portable storage medium connected detachably is met by the providing unit 120 which may be a communication interface through which the image apparatus is communicably connected to an external apparatus which provide images (Figs. 1-2, page 2, paragraph #0032 to paragraph #0034), and 5) the claimed a communication unit configured to receive video contents from an external server through a data communication network
is met by the providing unit 120 which may be a communication interface through which 
the image apparatus is communicably connected to an external apparatus which 
provide images (Figs. 1-2, page 2, paragraph #0032 to paragraph #0034).

In considering claim 19, the claimed wherein the controller is adapted for 
providing an input screen through which a user enters a monitoring interval and a 
monitoring window display time individually, and assigning the entered monitoring 
window display time to the first time period and the entered monitoring interval 
subtracted by the monitoring window display time to the second time period is met by 
the controller 190 (Figs. 1-2, page 3, paragraph #0045 to page 4, paragraph #0063).

In considering claim 20, the claimed wherein the controller is adapted for 
providing an input screen through which a user enters a monitoring interval, and 
assigning a time corresponding to a predetermined ratio of the entered monitoring 
interval to the first time period and the entered monitoring interval subtracted by the 
assigned time to the second time period is met by the controller 190 (Figs. 1-2, page 3, 
paragraph #0045 to page 4, paragraph #0063).

Claim Rejections - 35 USC § 103

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

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

4. Claims 8-9 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable 
In considering claim 8, Kim discloses all the limitations of the instant invention as discussed in claim 1 above, except for providing the claimed wherein the second content source corresponds to a program item being designated as a monitoring object from a broadcasting program schedule provided on a screen based on an electronic program guide received through broadcasting signals. The capability using of wherein the second content source corresponds to a program item being designated as a monitoring object from a broadcasting program schedule provided on a screen based on an electronic program guide received through broadcasting signals is old and well known in the art. Therefore, the Official Notice is taken. It would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the old and well known using of wherein the second content source corresponds to a program item being designated as a monitoring object from a broadcasting program schedule provided on a screen based on an electronic program guide received through broadcasting signals into Kim’ system in order to watch the program at appropriate time.

In considering claim 9, Kim discloses all the limitations of the instant invention as discussed in claim 1 above, except for providing the claimed wherein the displaying a video from the second video signal intermittently with a video from the first video signal on the single screen is started automatically at a time that is specified by time information entered directly from a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals. The capability using of wherein the displaying a video from the second video signal intermittently with a video from the first video signal on the single screen is started
automatically at a time that is specified by time information entered directly from a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals is old and well known in the art. Therefore, the Official Notice is taken. It would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the old and well known using of wherein the displaying a video from the second video signal intermittently with a video from the first video signal on the single screen is started automatically at a time that is specified by time information entered directly from a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals into Kim’ system in order to watch the program at appropriate time.

Claim 16 is rejected for the same reason as discussed in claim 8 above.

Claim 17 is rejected for the same reason as discussed in claim 9 above.

**Conclusion**

5. The prior art made of record and not relied upon is considered pertinent to applicant’s disclosure.


Yun et al. (US Patent No. 7,948,561 B2) disclose video playback apparatus and method for controlling the same.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (571)272-7358. The examiner can normally be reached on 10:00 AM - 6:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Jefferey F. Harold can be reached on (571) 272-7519. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

November 5, 2012

/Trang U Tran/
Primary Examiner, Art Unit 2422
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**FOREIGN PATENT DOCUMENTS**

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**NON-PATENT DOCUMENTS**

* Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages*
**Index of Claims**

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- ✓ Rejected
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- ± Restricted
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- I Interference
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- □ Claims renumbered in the same order as presented by applicant
- □ CPA
- □ T.D.
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**APPLICANTS**
Myunghee OH, Seongnam-si, KOREA, REPUBLIC OF;

**CONTINUING DATA**

**FOREIGN APPLICATIONS**
REPUBLIC OF KOREA 10-2010-0068768 07/16/2010

**IF REQUIRED, FOREIGN FILING LICENSE GRANTED**
03/10/2011

Foreign Priority claimed Yes ☐ No ☑
35 USC 119(a-d) conditions met Yes ☑ No ☐
Met after Allowance ☐

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**ADDRESS**
KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195
UNITED STATES

**TITLE**
METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

**FILING FEE RECEIVED**
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- ☐ All Fees
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**Search Notes**

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This is to certify that the following application annexed hereto is a true copy from the records of the Korean Intellectual Property Office.

Application Number: 10-2010-0068768
Filing Date: JUL. 16, 2010
Applicant(s): Humax Co., Ltd.
제출 일자 : 2010-07-16

【서지사항】
【서류명】 주요출원서
【출원구분】 특허출원
【출원인】
【명칭】 (주)휴맥스
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【대리인코드】 9-2007-100122-0
【포괄위임등록번호】 2009-099050-4
【발명의 국문명칭】 타 영상 소스를 모니터링하는 방법 및 장치
【발명의 영문명칭】 Method and apparatus for monitoring another video source

【발명자】
【성명】 오영희
【성명의 영문표기】 Myunghee Oh
【주민등록번호】 771213-2XXXXX
【우편번호】 443-812
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【국적】 KR
【취지】 위와 같이 특허청장에게 제출합니다.

대리인 특허법인로얄 (서명 또는 인)

【수수료】

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【명세서】

【발명의 명칭】

타 영상 소스를 모니터링하는 방법 및 장치 {Method and apparatus for monitoring another video source}

【기술분야】

본 발명은, 방송 채널과 같은 영상 소스에 의한 컨텐츠의 시청 중에 시청자가 다른 영상 소스의 영상을 모니터링할 수 있게 하는 방법 및 장치에 관한 것이다.

【배경기술】

지상파, 케이블, 그리고 위성방송 등에 의한 방송 서비스의 증가로 방송 채널이 다양해져 시청자는 종부한 영상 컨텐츠를 즐길 수 있게 되었다.

영상 컨텐츠가 종부해짐에 따라, 시청자가 보고 싶어 하는 프로그램들의 방송시간대가 중첩되는 경우가 반복히 발생하게 되고, 이런 경우 시청자는 최대한 광고를 피하면서 원하는 방송 프로그램만을 시청하기 위해, 현재 채널과 원하는 방송 프로그램이 시작하는 채널간의 채널전환 조작을 어느 정도 반복하게 된다.

그리고, 방송 서비스가 디지털화가 되면서 방송신호에 방송 프로그램의 스케줄(EPG: Electronic Program Guide) 정보가 포함되어 제공되고 있기는 하나, 이 EPG 정보 또한 정확한 프로그램 시작시간을 제공하고 있지 않아서 EPG를 근거로 채널전환을 하더라도 전환된 채널에서 원하는 방송 프로그램이 시작하고 있지 않는
경우가 보통이다. 따라서, 이 때도 이전채널로 돌아가 시청하고 있던 방송 프로그램을 보면서 다시 채널전환 조작을 어느 정도 반복하게 된다.

**시청자의 이탈 채널 전환 비율과 관련해 현재 시청하는 채널의 악성 방송**

장기 후에 자신이 전환하고자 하는 타 채널이, 도 1에 예시된 바와 같이 보조채널(1b)으로서 주위(1a)에 함께 보도하고자 하는 목표채널에서의 방송 프로그램 시작을 계속적으로 확인하기도 한다. 하지만, 도 1에 예시된 바와 같은 동시화면 출력상태는, 현재 시청하고 있는 영상(1c)의 일부분(1b)을 지속적으로 가리켜 되므로 시청자는 가려진 부분의 영상으로 인해 답답함을 느끼게 된다.

**발명의 내용**

**해결하려는 과제**

본 발명은, 컨텐츠 소스의 시청장애를 최소화하면서 타 영상소스를 모니터링(monitoring)할 수 있게 하는 방법 및 장치를 제공하는 데 일 목적이 있다.

본 발명은, 복수 컨텐츠 소스들을 각각의 주요 장면들을 가능한 높이지 않고 변할어 시청가능하도록 하는 영상소스의 모니터링 방법 및 장치를 제공하는 데 다른 목적이 있다.

본 발명의 목적은 상기 설명된 채널전환 목적에 국한되는 것은 아니며, 본 발명에 대한 구체적이고 예시적인 하는 설명에서 도출될 수 있는 효과를 달성하는 것을 그 목적이 닥연히 포함한다.
【과제의 해결 수단】

본 발명의 일측면에 따르면 상상소스를 모니터링하는 방법은, 제 1컨텐츠 소스에서 제공되는 제 1영상신호를 출력하는 1단계와, 제 2컨텐츠 소스에서 제공되는 제 2영상신호에 의한 영상이 상기 제1영상신호에 의한 영상과 함께 단일 화면상에 제 1시간동안 표시되는 단독영상 상태가 되게 하고, 상기 제 1시간 경과 후, 상기 제 1영상신호에 의한 영상이 상기 제 1시간보다 긴 제 2시간 동안 단독으로 상기 단일 화면상에 표시되는 단독영상 상태가 되게 하며, 상기 제 2시간 경과 후 상기 단일 화면상과 상기 단독영상 상태가 순차적으로 반복되도록 함으로써, 상기 제 2영상신호에 의한 영상이 간헐적으로 상기 제 1영상신호에 의한 영상과 함께 상기 단일 화면상에 표시되도록 하는 2단계를 포함한다.

본 발명에 따른 일 실시예에서는, 사용자의 요청에 따라, 상기 2단계에서 표시되는 단일 화면상에서 상기 제 1영상신호에 의한 영상의 영역과 상기 제 2영상신호에 의한 영상의 영역을 상호 전환시키는 3단계와, 상기 제 1영상신호에 의한 영상이, 간헐적으로 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 표시되도록 하는 4단계를 더 포함하여 이루어진다. 그리고, 상기 3단계는, 상기 제 1영상신호에 의한 영상이, 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간이하의 시간동안 표시되도록 하고, 상기 4단계는, 상기 제 1시간이하의 상기 시간경과 후, 상기 제 2영상신호에 의한 영상이 상기 제 2시간동안 단독으로 상기 단일 화면상에 표시되도록 하는 제 1단독영상 단계와, 상기 제 2시간경과 후, 상기 제 1영상신호에 의한 영상이, 상기 제 2영상신호에 의한 영상과 함께 상
기 단일 화면상에 상기 제 1시간동안 표시되도록 하는 다영상 단계와, 상기 제 1시간동안 표시되도록 하는 다영상 단계의 순차적으로 반복하여 수행하는 단계를 포함한다.

본 발명에 따른 다른 일 실시예에서는, 사용자의 요청에 따라, 상기 2단계에서 표시되는 단일 화면상에 상기 제 2영상선호에 의한 영상이 상기 제 2시간동안 단독으로 표시되도록 하는 3단계와, 상기 제 1영상선호에 의한 영상이, 간헐적으로 상기 제 2영상선호에 의한 영상과 함께 상기 단일 화면상에 표시되도록 하는 4단계를 더 포함하여 이루어진다. 그리고, 상기 4단계는, 상기 제 2시간경과 후, 상기 제 1영상선호에 의한 영상이, 상기 제 2영상선호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간동안 표시되도록 하는 다영상 단계와, 상기 제 1시간경과 후, 상기 제 2시간동안, 상기 제 2영상선호에 의한 영상이 단독으로 상기 단일 화면상에 표시되도록 하는 단독영상 단계와, 상기 다영상 단계와 상기 단독영상 단계의 순차적으로 반복하여 수행하는 단계를 포함한다.

본 발명에 따른 일 실시예에서는, 상기 사용자 요청이, 상기 제 1시간의 경과 중에 이루어진 것이 아니면 그 요청은 무시되고, 상기 다영상 단계와 상기 제 2단독영상 단계의 순차적 반복 수행 또는 상기 다영상 단계와 상기 단독영상 단계의 순차적 반복 수행은 이루어지지 않는다.

본 발명에 따른 일 실시예에서는, 상기 제 2건텐츠 소스는 그에 의한 영상선호가 사용자의 모니터링 요청시점에 화면상에 출력되고 있었던 것이고, 상기 제 1시간 동안, 단일 화면상에 표시되도록 하는 다영상 단계의 순차적으로 반복하여 수행하는 단계를 포함한다.
컨텐츠 소스는 그에 의한 영상신호가, 상기 제 2컨텐츠 소스에 의한 영상신호가 출력되기 직전에 화면상에 출력되고 있었던 것이다.

본 발명에 따른 단일 실시예에서는, 상기 제 1컨텐츠 소스는 그에 의한 영상신호가 사용자의 모니터링 요청시점에 화면상에 출력되고 있었던 것이고, 상기 제 2컨텐츠 소스는 그에 의한 영상신호가, 상기 제 1컨텐츠 소스에 의한 영상신호가 출력되기 직전에 화면상에 출력되고 있었던 것이다.

본 발명에 따른 또 다른 실시예에서는, 상기 제 2컨텐츠 소스는, 제공된 선택화면을 통해 사용자가 입력한 정보에 의해 모니터링 대상으로 지정된 것이다.

본 발명에 따른 또 다른 실시예에서는, 상기 제 2컨텐츠 소스는, 방송신호로부터 제공되는 전자 프로그램 가이드에 근거하여 화면상에 제공된 방송 프로그램 시간표에서 모니터링 대상으로 지정된 프로그램 항목에 해당하는 것이다.

본 발명에 따른 실시예에서는, 상기 2단계는, 지정된 시간에 자동적으로 시작되어 수행된다. 본 실시예에서는, 상기 지정된 시간은, 사용자가 직접 입력한 시간정보에 의해 지정된 것이다. 다르게는, 상기 지정된 시간은, 방송신호로부터 제공되는 전자 프로그램 가이드내의 프로그램 항목의 방송 시작시간으로부터 지정된 것이다.

본 발명에 따른 실시예에서는, 상기 제 1 및 제 2컨텐츠 소스의 각각은, 방송 채널, 연결결속된 외부 영상기기로부터의 영상신호, 캡쳐식으로 접속된 휴대용 저장매체에 저장된 영상 컨텐츠, 녹화된 방송 프로그램, 그리고 통신망을 통해
수신하여 저장된 영상 컨텐츠 중의 어느 하나에 속하는 것이다.

본 발명의 다른 일 측면에 따른, 컨텐츠를 영상신호로 출력하는 장치는, 복수의 컨텐츠를 획득할 수 있는 수신부와, 상기 수신부에 의해 획득된 하나 또는 복수의 컨텐츠의 데이터를 디코딩하여 하나 이상의 영상신호로 출력하기 위한 디코더와, 상기 하나 이상의 영상신호를, 단일화면상에 지정된 방식으로 해당 영상이 배치되어 표시되는 신호로 출력하기 위한 영상 구성부와, 상기 하나 이상의 영상신호에 속하는 제 1영상 신호에 의한 영상과 함께, 상기 하나 이상의 영상신호에 속하는 제 2영상신호에 의한 영상이 간헐적으로 상기 단일화면상에 표시되도록 하기 위해 상기 영상 구성부를 제어하도록 구성된 제어부를 포함하여 구성된다. 그리고, 상기 제어부는, 상기 제 1영상신호에 의한 영상과, 상기 제 1영상신호에 의한 영상과 함께 상기 단일화면상에 제 1시간동안 표시되는 다영상 상태가 되게 하고, 상기 제 1시간경과 후에는, 상기 제 1영상신호에 의한 영상이 단독으로 상기 단일화면상에 상기 제 1시간보다 긴 제 2시간동안 표시되는 단독영상 상태가 되게 하며, 상기 제 2시간의 경과 후에는, 상기 다영상 상태와 상기 단독영상 상태가 순차적으로 반복되도록 상기 영상 구성부를 제어한다.

본 발명에 따른 일 실시예에서는, 상기 수신부는, 방송신호를 동조하여 방송 프로그램을 복조하는 신호복조부와, 방송 프로그램이 녹화되어 있는 저장장치와, 연결된 단자를 통해 입력되는 영상신호를 수신하는 영상기기 접속부와, 차단식으로 접속되는 유대용 저장매체로부터 컨텐츠 데이터를 얻어내는 저장매체 접속부와, 데이터 통신망을 통해 외부 서버로부터 영상 컨텐츠를 수신하는 통신부로 구성되어 하
나를 포함한다.

본 발명에 따른 실시예에서는, 상기 제어부는 사용자가 개별적으로 모니터 주기와 모니터링 화면 표시시간을 입력할 수 있도록 입력화면을 제공하고, 입력된 상기 모니터링 화면 표시시간을 상기 제 1시간으로, 상기 모니터 주기에서 상기 모니터링 화면 표시시간을 차감한 시간을 상기 제 2시간으로 할당하도록 구성된다.

본 발명에 따른 다른 실시예에서는, 상기 제어부는 사용자가 모니터 주기를 입력할 수 있도록 입력화면을 제공하고, 입력된 상기 모니터 주기의 소정비율에 해당하는 시간을 상기 제 1시간으로 할당하고, 그 할당된 시간을 상기 입력된 모니터 주기에서 차감한 시간을 상기 제 2시간으로 할당한다.

【발명의 효과】

상기에서 설명된 본 발명과 기기에서 상세히 설명되는 본 발명에 대한 적어도 하나의 실시예는, 사용자로 하여금, 현재 영상의 시청에 최대한 방해받지 않는 범위에서 다른 콘텐츠 소스에서 어떤 내용이 제공되고 있는 지를 확인할 수 있게 한다. 이로서, 사용자는 현재의 영상 콘텐츠 시청을 최대한 즐기면서 다른 콘텐츠 소스에서 원하는 영상이 제공되는 시점을 놓치지 않을 수 있다.

또한, 제공되는 영상 콘텐츠가 지속적인 시청보다는 특정 장면들(예를 들어 스포츠 중계에서의 점수 특정 장면 등)을 발췌해서 볼 수 있는 콘텐츠들에 대해서는, 모니터링을 통해 특정 장면들이 발생되는 영상 콘텐츠 구간들을 놓치지 않으면서 해당 콘텐츠 소스들을 변경가가면서 시청할 수 있게 한다.
【도면의 간단한 설명】

도 1은, 북수의 컨텐츠 소스가 대화면과 소화면을 통해 함께 보여지고 있는 화면의 예이고, 도 2는, 본 발명의 일 실시예에 따른, 타 영상소스를 모니터링하는 방법이 구현된 디지털 방송수신기에 대한 구성을 도시한 것이고, 도 3은, 본 발명의 일 실시예에 따른, 타 영상소스를 모니터링하는 방법의 흐름도의 일 예이고, 도 4는, 본 발명의 일 실시예에 따라, 현재 출력되는 주영상에 더하여 타채널의 방송 영상이, 사용자의 모니터링을 위해 간헐적으로 소화면으로 함께 출력되는 과정을 예시한 것이고, 도 5a 내지 5c는, 본 발명의 실시예들에 따라, 사용자의 채널전환 요청시에, 주채널 영상과 모니터 채널의 영상이 상호 전환되는 예를 각기 예시한 것이고, 도 6은, 본 발명의 일 실시예에 따라, 모니터 채널을 설정받기 위해 제공되는 입력창의 예를 도시한 것이고, 도 7a 및 7b는, 본 발명의 다른 일 실시예에 따라, 모니터링 시각시각과 모니터 채널이 지정되는 것을 보여주는 화면의 예이다.

【발명을 실시하기 위한 구체적인 내용】

본 발명에 따른, 타 영상소스를 모니터링하는 방법 및 장치의 실시예에 대해 철저도면을 참조하여 상세히 설명한다.

도 2는, 본 발명의 일 실시예에 따른, 영상 소스의 하나인 방송채널의 시청 중에 타 방송채널을 모니터링하는 방법이 구현된 디지털 방송수신기에 대한 구성을 도시한 것이다.

도 2의 디지털 방송수신기는, 방송신호, 예를 들어 지상파, 케이블 또는 위
성방중 신호에서 읽는 하나 또는 복수의 신호데이터를 동조하고 그 동조된 데이터의
신호를 복조하여 디지털 스트림(stream)으로 출력하기 위한 신호 복조부(9)와, 상
기 복조출력되는 각 디지털 스트림내의 다중화된 프로그램의 트랜스포트 스트림
(MPTS: Multi-Program TS) 중 선택된 단일 프로그램 및 관리용 정보( 예를 들어, PSI )에 속하는 트랜스포트 스트림(Transport Stream)을 선택 출력하기 위한 디멀
데미플렉서(Demultiplexer)(10)와, 상기 디멀데미플렉서(10)로부터 출력되는 각 트랜스
포트 스트림의 트랜스포트 패킷들을 비디오, 오디오, 그리고 PSI 데이터( 예를 들
어, PES 패킷 ) 등으로 구분하여 출력하기 위한 파서(Paser)(11)와, 상기 파서(1
1)를 통해 구분 출력되는 유형별 PES 패킷 등이 해당 스트림별로 영역 구분되어 임
시 저장되는 버퍼 메모리(12)와, 상기 버퍼 메모리(12)에 저장되는 영역별로 구분
된 데이터들을 각각 디코딩하여, 원래의 AV (비디오 및 오디오) 신호로 복원 출력
하는 디코더(15)와, 상기 디코더(15)로부터 출력되는 하나 이상의 AV 신호를 저장
된 방식에 따라 선택/구성하여 출력하는 출력신호 구성부(21)와, 상기 디멀데미플렉
서(10)로부터 출력되는 하나 이상의 트랜스포트 스트림을 저장하기 위한 하드 디스
크(13)와, 문자, 기호 또는 그래픽 쓰임 등에 대한 영상신호를 생성하는 화면신호
생성기(18)와, 영상신호를 합성하여 출력하는 믹서(mixer)(19)와, 사용자의 요청
및/또는 설정된 조건에 따라 선택된 하나 이상의 방송신호가 화면상에 출력되도록
상기 각 구성요소들의 동작을 제어하는 제어부(20)를 포함하여 구성된다. 상기 제어
부(20)는 제어등록 및/또는 설정환경 등을 위한 정보가 저장되는 시스템 메모리
(20a)와, 설정한 일정시간의 경과를 알려주는 타이머(timer)(20b)를 내장하고 있으
미, 또한, 하기에 설명하는 다양한 동작을 위한 저웨어(firmware)를 선택적으로 실행가능한 형태로 포함하고 있다.

또한, 도 2의 장치는, 영상 신호를 제공하는 외부기기와 접속되는 기기 접속 단과, 최대한으로 접속되는 후대용 저장매체(후대용 메모리, USB 메모리, 외장형 하드 디스크 등)의 데이터를 읽어낼 수 있는 데이터 접속부와, 유선 또는 무선으로 네트워크에 접속되어 그 네트워크를 통해, 저장된 원격지의 서버와 데이터를 송수신할 수 있는 프로토콜을 수행하는 데이터 전송부를 더 구비하고 있을 수도 있다. 한편, 도 2에 에시된 구성은 TV와 일체로 구성될 수도 있으며, 컴퓨터 또는 노트북에 부가되는 기기의 형태로 구성될 수도 있다. 또한, 도 2의 장치는, 적절한 하드웨어가 구비되고 적절한 소프트웨어가 또한 실행됨으로써 하기에 설명하는 동작을 수행하게 되는 컴퓨터 또는 이와 동등한 기능을 수행하는 장치일 수도 있다.

상기 제어부(20)는 통상의 사용자 인터페이스, 예를 들어 키패드, 리모컨, 터치패드 등을 통해 사용자로부터의 요청을 수신(22)하고, 필요한 경우 상기 화면 신호 생성기(18)를 제어하여 그 요청에 따른 응답을 안내하는 영상신호가 출력되도록 한다. 출력되는 영상신호는 통상의 화면출력 기능을 갖춘 전자기기, 예를 들어 TV, 모니터 등을 통해 시각적으로 표현된다.

이하에서는, 본 발명에 따른 설치예들에 대해 도 2의 디지털 방송수신기의 예로 하여 구체적으로 설명하지만, 본 발명의 원리는 기기의 일반적 명령에 제한되지 않고 영상 컨텐츠를 처리하여 영상신호로 출력하는 기능을 가진 모든 장치 또는 그 기능을 수행하는 소프트웨어가 탑재되어 있는 모든 장치에 대해 적용할 수
도 3은 본 발명의 일 실시예에 따른, 타 영상소스, 예를 들어 타 채널의 영상에 모니터링하는 방법의 효율도의 일 예이다. 이하에서는, 도 2의 장치가 수행하는 본 발명의 일 실시예에 따른 동작을 도 3에 에시된 효율도와 병행하여 상세히 설명한다.

사용자는, 먼저 시점하는 현재 채널 외에 타 채널을 모니터링하고자 하는 경우에 모니터링 환경변수를 설정한다(S301). 상기 모니터링 환경변수에는 모니터링 주기와 모니터링 시간이 포함된다. 모니터링 주기는 타 채널의 영상을 확인하는 시간격이고, 모니터링 시간은 한번 확인시 그 영상을 지속적으로 하는 시간을 의미한다. 이 외에도 상기 모니터링 환경변수에는 모니터링 환경변수가 포함될 수도 있다. 상기 모니터링 환경변수가 포함되는 경우에는 설정된 상기 시스템 메모리(20a)에 저장된다.

상기 모니터링 환경변수의 설정 후에, 사용자가 신호하는 방송 프로그램이 방송되고 있는 채널을 동조요청하면 해당 채널의 프로그램이 다음의 과정에 따라 영상으로 출력된다(S302). 상기 제어부(20)는 사용자가 지정한 채널(및 시트채널)에 해당하는 방송신호가 동조되도록 상기 신호복조부(9)와 디미터플렉서(10)에 해당되는 명령을 인가한다. 상기 명령에 따라, 상기 신호 복조부(9)는 지정된 채널(}
또는 중계기)에 해당되는 RF신호를 동조하여 디지털 스트림으로 복조출력하고, 상기 디밀터플렉서(10)는 수신되는 디지털 스트림내에서 (복수의 프로그램이 있는 경우 저장된 서브채널에 해당하는) 하나의 프로그램에 속하는, 비디오, 오디오 및/또는 텍스트 데이터를 수송하는 트랜스포트 스트림을 선회적으로 출력한다. 상기 디밀터플렉서(10)가 디지털 스트림에서 하나의 프로그램에 해당하는 트랜스포트 스트림(transport stream)만을 선회출력하기 위한 근거정보로, 트랜스포트 스트림의 선택 출력전에 해당 동조 채널에서 획득하여 상기 버퍼 메모리(12)에 저장된 프로그램 사양정보(program specific information)(PAT, PMT 등)로부터 확인되는 트랜스포트 패킷들의 ID, 즉 PID이다.

상기 파서(11)는 수신되는 전송패킷들에 대해서, 각 전송패킷의 헤더를 체거하여 페이로드(payload) 데이터만을 보아서 상기 버퍼 메모리(12)상에 PES(Packetized Elementary Stream) 패킷을 구성하고, 그 구성된 PES 패킷의 헤더(header)정보를 참조하여 상기 버퍼 메모리(12)상에서 속성별(예를 들어, 비디오, 오디오, 또는 데이터 등)로 분류한다. 그리고, 상기 디코더(15)는, 상기 버퍼메모리(12)에 순차적으로 저장되고 있는 PES 패킷들을 그 유형에 따라 해당되는 내부 디코딩 모듈에 인가하여 디코딩시킴으로써 AV 신호(영상 및 오디오 신호)가 제 1포트(15a)에서 출력되도록 한다.

상기 제어부(20)는, 현재 단일 채널 동조상태이므로, 입력되는 AV 신호를 단일 화면으로 구성하여 출력하도록 상기 출력신호 구성부(21)에 제어신호를 인가한다. 이러한 과정에 의해 사용자는 선택한 채널(또는 중계기)의 방송 프로그램이
단일 화면으로서 시각적/청각적으로 사용자에게 표현된다. 한편, 상기의 시청과정 중에 사용자가 녹화 또는 TSR( Time-Shift Recording )을 요청하는 경우에는, 상기 제어부(20)는 상기 디멀티플렉서(10)의 출력 스트림을 상기 하드 디스크(13)에 저장하게 되고, TSR인 경우에는 상기 하드 디스크(13)에 저장되는 트랜스포트 데이터들을 선입선출(FIFO: First In First Out) 방식으로 다시 암어내어 상기 파서(11)에 인가하는 등작을 수행할 수도 있다.

사용자가 시청증인 채널의 전환을 요청하면(S303), 상기 제어부(20)는 현재 시청되고 있는 채널에 대한 정보를 “직전채널 정보”로서 상기 시스템 메모리 (20a)에 저장하고, 상기 신호복조부(9)와 디멀티플렉서(10)에 전환요청된 채널에 대한 등조를 명령한다(S311). 단약, 사용자의 채널전환 요청이 현재 동조제네입의 서브채널전인 경우에는 상기 디멀티플렉서(10)에만 전환요청을 명령하고, 상기 디멀티플렉서(10)는 해당 서브채널에 해당하는 트랜스포트 스트림을 선별출력하게 된다. 상기 제어부(20)의 채널전환 명령에 따라 해당 채널( 및 서브채널 )의 트랜스포트 스트림이 상기 파서(11)에 인가되고, 이 트랜스포트 스트림은 전속한 과정에 따라 상기 디코더(15)의 제 1포트(15a)를 통해 AV 신호로서 출력된다. 이 때도 역시 상기 출력신호 구성부(21)는 상기 제 1포트(15a)를 통해 출력되는 AV 신호를 단일 화면으로 구성하여 출력한다.

사용자가 전환요청한 채널의 방송 프로그램이 상기와 같은 과정을 거쳐 단일 화면의 영상으로 출력되고 있는 동안, 사용자가 “모니터링”을 요청하면(S312), 상기 제어부(20)는 모니터링을 활성화시키고 이에 따라 필요한 복수채널 동조 등과
같은 다음의 동작을 수행하게 된다(S321).

<39> 상기 제어부(20)는 먼저, 상기 시스템 메모리(20a)에 저장되어 있는 “직전 채널 정보”를 읽어서 그 정보가 저장되는 채널이 추가적으로 동정되도록 상기 신호복조부(9)와 디얼터플렉서(10)에 동정명령을 인가한다. 상기 “모니터링”의 요정은 리모컨과 같은 사용자 입력수단에 구비되어 있는 “복정기”에 의한 것일 수도 있고, 상기 화면신호 생성기(18)를 통해 적절히 제공하는 메뉴상의 선택에 의한 것일 수도 있다. 상기 추가적 동정 명령의 인가에 따라, 상기 “직전채널 정보”에 의해 저장된 채널의 방송 프로그램에 해당되는 트랜스포트 스크립트가 현재 출력되고 있는 트랜스포트 스크립트와 병개로 상기 파서(11)에 또한 인가되고, 이에 따라 상기 버퍼 메모리(12)에도 2개의 트랜스포트 스크립트에 속하는 PES 페이드리가 상호 영역 구분되어 저장된다. 상기 디코더(15)는 또한 상기 제어부(20)의 추가 디코딩 명령에 따라 상기 버퍼 메모리(12)에 추가적으로 저장되는 PES 페이드리에 대해서도 디코딩 동작을 수행하여 제 2포트(15b)를 통해 AV 신호로서 출력한다.

<40> 한편, 상기 제어부(20)는 상기 출력신호 구성부(21)에 다영상 화면 구성을 명령하고, 상기 제 2포트(15b)의 출력신호(이하에서는, 이 출력신호에 의해 표현되는 영상을 ‘vB’로 표시한다)를 “주채널 신호”로, 상기 제 1포트(15a)의 출력신호(이하에서는, 이 출력신호에 의해 표현되는 영상을 ‘vA’로 표시한다)를 “모니터 채널 신호”로 다영상 구성정보를 설정한다. 본 실시예의 설명에서, 영상소스의 구분을 위한 출력 영상신호의 포트를 구분하였으나, 출력되는 포트가 구분되지 않고 출력 영상신호에 영상소스를 구분하기 위한 정보가 부가되고, 그 부가된
정보에 근거하여 상기 출력신호 구성부(21)가 공통의 입력포트를 통해 수신되는 해당 영상신호를 구분할 수도 있다. 상기 설정된 다양한 구성정보(“주채널 - 제2포트”, “모니터 채널 - 제1포트”)는 일시적으로 저장된다. 이에 따라, 상기 출력신호 구성부(21)는, 도 4에 예시된 바와 같이, 입력되는 장 AV 신호에 의한 각 영상을, 정해진 화면 레이아웃(layout)에 따라 배치되어 복수 영상(vA,vB)이 함께 표시되는(410) 최종 AV 신호로 구성하여 출력한다(S322). 그리고 오디오 신호에 대해서는 “주채널 신호”로 지정된 신호내의 오디오 신호를 선택하여(도 2의 21a) 출력한다. 상기 화면 레이아웃은 상기 채널구(20)에 의해 설정되며, 다양한 형태가 가능하다. 예를 들어, 하나의 소화면이 다른 전체화면에 포함되는 형태, 또는 전체 프레임에서 화면 동일한 면적을 차지하는 화면들이 좌우로 배치된 형태가 될 수 있으며, 여기 예시된 형태로만 제한되는 것은 아니다. 상기와 같이 지정된 레이아웃에 따라 복수 영상(vA,vB)이 하나의 화면에 표시시작될과 동시에, 상기 채널구(20)는 상기 모니터링 환경변수에 저장되어 있는 양 시간(모니터링 주기(Tm.int)와 모니터링 시간(Tm.on))을 상기 타이머(20b)에 각각 설정하여 다운(down) 카운트를 스타트시킨다(41-1).

<41> 전술한 실시예에서는, 사용자의 “모니터링” 요청시에, 현재 채널을 ‘모니터 채널’로 그리고 직전채널을 ‘주채널’로 설정하고 그에 따라 해당 영상을 화면상에 배치하였으나, 본 발명에 따른 다른 실시예에서는, 직전 채널을 ‘모니터 채널’로 그리고 현재 채널을 ‘주채널’로 설정하고 그에 따라 해당 영상을 화면상에 배치할 수도 있다.
만약, 전송한 바와 같이, 지정된 화면 페어아웃에 따라 복수 채널 동조에 의한 복수 영상(vA,vB)이 하나의 화면에 표시되도록 함께 출력되고 있는 상태(412)에서, 사용자가 채널전환을 요구하면, 상기 채널(20)는 상기 임시 저장되어 있는 복수채널 설정정보(“주채널 - 제2포트”, “모니터 채널 - 제1포트”)를 참조하여, 현재 주채널로 설정되어 있는 채널 제2포트(15b)로 출력되고 있는 방송 프로그램을 통조하고 있는 채널이 전환요구된 채널로 변경되도록 상기 신호복조부(9)와 디시티플렉서(10)를 제어할 것이다. 이에 따라, 도 4에서 모니터링 영상(vA)이 유지된 상태에서 출력영상(vB)이 전환된 채널의 프로그램의 영상으로 대체될 것이다.

복수 채널 동조에 의한 복수 영상(vA,vB)이 하나의 화면에 표시되도록 함께 출력되고 있는 상태(412)에서, 상기 설정된 모니터링 시간(Tmon)이 경과하여 상기 타이머(20b)로부터 타임아웃(t421)이 발생되면(S323), 상기 채널(20)는 모니터링 시간의 카운트를 비활성화시간과 동시에, 현재 모니터 채널로 지정되어 있는 상기 제1포트(15a)의 출력 AV신호의 배계를 상기 출력신호 구성부(21)에 명령한다. 이 명령에 따라, 상기 출력신호 구성부(21)는 상기 디코더(15)의 제2포트(15b)의 출력 AV 신호에 의한 영상(vB)으로써만 단일 화면을 구성하여 출력한다(S331). 즉, 이 시점부터는 모니터링 이전의 동상의 방송채널 시청상태가 된다. 이 상태는, 상기 모니터링 주기(Tm.int)에서 상기 모니터링 시간(Tmon)을 차감한 시간동안 지속된다.

본 발명에 따른 다른 실시예에서는, 상기 제1포트(15b)의 출력 AV신호에 의한 모니터링 영상(vA)을 최종출력에서 배제함에 있어서, 해당 AV신호를 얻기 위한,
상기 신호목록부(9) 동조통작 및/또는 상기 디얼터플렉서(10)의 트랜스포트 스트립 센서통작을 중단시킬 수도 있다.

사용자가 단일 화면으로 영상(vB)을 시청하고 있는 동안에, 상기 타이머 (20b)로부터 모니터링 주기(Tm.int)의 타임아웃(t422)이 발생되면(S332), 상기 제어부(20)는 모니터링 주기(Tm.int)와 모니터링 시간(Tmon)의 다음 카운트를 제구동시킬(41-2)과 동시에, 상기 일시 저장된 실명정보( “주체별 - 제2포트”, “모니터 제2포트” )를 참조하여 상기 출력신호 구성부(21)에 상기 제2포트(15b)의 출력신호를 주제별 신호로 하는 다양성 화면 구성을 다시 명령한다. 이에 따라, 다시, 정해진 화면 레이아웃에 따라 복수 영상(vA,vB)이 배치되어 하나의 화면 (420)으로 함께 표시된다(S322). 전술한 일 실시에에서와 같이, 모니터링 영상이 표시되지 않는 동안 해당 제2포트 동조를 중단하는 경우에는, 전술한 바에 따라 해당 제2포트를 재동조시키는 과정이 상기의 다양성 화면 구성에 수반된다. 그리고, 모니터링 시간(Tmon)이 다시 타임아웃(t431)이 되면(S323), 상기 제어부(20)는 상기 타이머 (20b)의 상기 모니터링 시간(Tmon)의 카운트를 비활성시키면서, 상기 출력화면 구성부(21)에 명령을 입아하여 모니터링 영상(vA)을 비제치기 단일영상 화면이 출력되게 한다(S331).

상기의 단일영상 화면 출력상태는, 상기 타이머(20b)로부터 상기 모니터링 주기(Tm.int)가 타임아웃(t432)될 때까지 지속되며, 타임아웃이 되면(S332), 상기 제어부(20)는 다시 전술한 바와 같은 제어등작을 수행하여 모니터링 영상(vA)이 포함된 다양성 화면(430)이 상기 모니터링 시간(Tmon)동안 출력되도록 한다(S322).
이상에서 상세히 설명한 실시예에 따라, 상기 모니터링 주기(Tm.int)마다 상기 모니터링 시간(Tmon)동안, 모니터링하고자 하는 채널의 영상이 화면상의 일정영역에 주영상과 함께 표시되는 과정은 반복적으로 이루어지게 된다.

전문한 실시예들의 망작에 따라, 사용자는 현재 채널의 프로그램을 시청하면서 모니터링하고자 하는 타 채널의 영상을 소정의 주기로 비교적 짧은 시간동안 자동으로 확인할 수가 있게 된다.

모니터링 영상으로 인한 사용자의 시청 방해를 가능한 줄이기 위해, 상기 모니터링 시간(Tmon)은 상기 모니터링 주기(Tm.int)의 1/2을 넘지 않는 범위내에서 설정된다. 본 발명에 따른 실시예에서는, 상기 모니터링 주기(Tm.int)는, 예를 들어 30초, 1분, 1분 30초, 2분, 또는 3분( 이들 값으로 계산되지는 않는다 )이 될 수 있으며, 상기 모니터링 시간(Tmon)은 예를 들어 1초, 2초, 3초, 5초, 10초( 이들 값으로 계산되지 않는다 )가 될 수 있다. 본 발명에 따른 다른 일 실시예에서 는, 상기 모니터링 시간(Tmon)이 독립적으로 설정되지 않고, 상기 모니터링 주기(Tm.int)의 일정비율( 예를 들어, 5%, 10%, 15%, 또는 20% )의 시간으로 종속되어 자동으로 설정될 수도 있다.

전문한 바와 같이, 일정 주기(Tm.int)마다 모니터링 채널의 영상이 화면상의 일정영역에 표시되는 동작이 이루어지는 동안에, 사용자가 “모니터 채널로의 전환”을 요청하면, 상기 제어부(20)는 현재 상태가 모니터링 영상이 출력되고 있는 상태, 즉, 현재 상기 모니터링 시간(Tmon)이 카운트되고 있으면서 타임아웃 발생전인 지를 확인한다(S341). 모니터링 영상이 출력되고 있는 다양한 출력상태이던 모니터
체널을 주채널로 전환시키는 동작을 수행하고(S351), 그렇지 않으면 상기 요청을 무시한다. 본 반응에 따른 다른 일 실시에서는, 상기 “모니터 채널로의 전환” 요청이 모니터링 영상이 출력되고 있지 않더라도 모니터링 영상이 삭제된 지( 시청자 입장에서 모니터 영상이 화면에서 사라진 지 ) 일정 여유시간, 예를 들어, 3초 또는 5초내이면 모니터링 채널을 주채널로 전환시키는 동작을 수행하다(S351). 상기 일정한 여유시간은, 상기 모니터링 주기(Tm,int)에서 상기 모니터링 시간(Tmon)을 차감한 시간의 예를 들어 50%를 넘어서지 않도록 설정된다.

모니터링 채널을 주채널로 전환시킬 때는, 상기 제여부(20)는 상기 임시 저 장하고 있는 현재의 다영상 구성정보( “주채널 - 제2포트” , “모니터 채널 - 제1 포트” )를 “주채널 - 제1포트” , “모니터 채널 - 제2포트” 로 변경 설정하고, 상기 출력신호 구성부(21)에는 상기 제1포트(15a)의 출력신호를 주채널 신호로 하는 다영상 화면 구성은 명령한다. 이에 따라, 도 5a에 예시된 바와 같이, 채널전환 (501) 전의 모니터 영상(vA)이 주화면으로, 채널전환(501) 전의 주화면의 영상(vB)이 서브화면으로 변경된 다영상 화면(502)이 구성된다. 즉, 모니터 채널률의 전환요청에 의해서 모니터 채널의 영상을 주화면으로 변경할 때는, 자동적으로 현재의 주화면의 영상 채널을 모니터 채널로 전환시킨다.

상기 출력신호 구성부(21)는, 상기의 다영상 화면구성의 명령에 따라 출력 오디오 신호를 상기 제2포트(15b)의 AV신호에서 상기 제1포트(15a)의 AV신호로부터 선택하여 출력한다. 그리고, 주채널의 신호가 상기 제2포트(15b)의 출력신호에서 상기 제1포트(15a)의 출력신호로 변경되었으므로, 만약, 사용자가 이 상태에서 채
널을 변경하게 되면, 상기 제어부(20)는, 상기 제2포트(15b)가 아닌 상기 제1포트(15a)의 출력신호를 제공하고 있는, 상기 신호복조부(9)의 동조제어를 변경하거나 또는 상기 다이버터배선(10)의 스트림 선택을 변경하게 될 것이다.

전술한 바와 같은 모니터 채널로의 전환 후에, 상기 타이머(20b)로부터 모니터링 시간(Tmon)의 타임아웃(t511)이 발생하면, 상기 제어부(20)는, 모니터링 시간의 카운트를 비활성화시킴과 동시에, 현재 모니터 채널로 지정되어 있는 상기 제2포트(15b)의 출력 AV신호의 배제를 상기 출력신호 구성부(21)에 명령한다. 이 명령에 따라, 상기 출력신호 구성부(21)는 상기 디코더(15)의 제1포트(15a)의 출력 AV신호에 의한 영상(vA)로써만 단일 화면(503)을 구성하여 출력한다. 이후, 상기 타이머(20b)로부터 모니터링 주기(Tm.int)의 타임아웃(t512)이 발생되면, 상기 제어부(20)는 모니터링 주기(Tm.int)와 모니터링 시간(Tmon)의 카운트를 재구동시키고(51)과 동시에, 현재의 다영상 구성정보(“주채널 - 제1포트”, “모니터 채널 - 제2포트”)를 참조하여 상기 출력신호 구성부(21)에 상기 제1포트(15a)의 출력신호를 주채널 신호로 하는 다영상 화면 구성을 다시 명령한다. 이에 따라, 다시, 모니터링 영상(vB)이 포함된 다영상 화면이 상기 모니터링 시간(Tmon)동안 표시된다.

도 5a를 참조로 전술한 실시예에서는, 타 채널을 모니터링하는 도중 해당 모니터 채널로 전환할 때, 모니터링에 관련된 시간(Tmon, Tm.int)을 재설정하지 않고 현재 카운트되고 있는 값을 그대로 유지하였다. 본 발명에 따른 다른 실시예에서는, 모니터링 채널로 채널전환할 때 상기 모니터링에 관련된 시간(Tmon, Tm.int)을 재구동시킨다. 도 5b는, 이에 따른 모니터 영상의 표시시점을 예시한 것이다.
도 5b에 예시된 바와 같이, 모니터링 채널로의 전환(521) 상기 다양성 구성정보를 그에 따라 변경 설정하고, 상기 출력신호 구성부(21)에는 상기 제1포트(15a)의 출력신호를 주채널 신호로 하는 다양성 화면 구성을 명령함과 동시에, 상기 모니터링에 관련된 시간(Tmon, Tm.int)를 재구동(52)시킨다. 이 재구동에 의해 채널전환전까지 경과된 시간(531)은 부지지되었다. 따라서, 채널전환 후에는, 재설정된 화면구성(주화면:vA, 서브화면:vB)에 대하여 모니터링 시간(Tmon)과 모니터링 주기(Tm.int)가 새로운 적용된다. 예를 들어, 모니터링 시간(Tmon)이 2초이고, 모니터링 주기(Tm.int)가 30초이면, 채널전환 시점(521)부터 시작하여 2초동안 모니터 영상(vB)이 함께 표시되고 사라진 후 28초가 되면 다시 모니터 영상이 출력된다.

전술한 실시예들에서와 같이, 모니터 채널로의 전환시에 시청 중이던 채널을 모니터 채널로 전환시킬수록, 양 채널들에서 특징이 있는 스포츠 등이 중계될 때 사용자는 이들 채널들에서의 스포츠의 특징장면을 가능한 놓치지 않고 양 채널을 변환하면서 전자기하게 시청할 수 있게 된다.

본 발명에 따른 또 다른 실시예에서는, 모니터 채널로의 전환시에, 모니터 채널의 영상을 주화면으로 변경하는 동작을 수행하되 주화면 영상의 채널에 대해서는 모니터 영상으로 구성하지 않는다. 도 5c는 이에 따라 출력화면의 구성이 변경되는 예를 나타낸 것이다. 도 5c에 예시된 바와 같이, 채널전환시(541)에는, 전환 전의 모니터 채널의 영상을 단일 화면(551)으로 구성시켜 출력한다. 물론, 상기 제1부(20)는 상기 다양성 구성정보에 대해서는 전환요청에 따라 “주채널 - 제1포트”, “모니터 채널 - 제2포트”로 변경설정한다. 그리고, 모니터링 시간
(Tmon)에 대한 카운트는 비활성시기고, 모니터링 주기(Tm.int)에 대해서는 재구동시킨다. 본 실시예에서는, 재질전단 후 최초 모니터링 주기(Tm.int)동안에는 단일 화면이 출력되고, 절단 후 첫 모니터링 주기(Tm.int)의 타이밍이후(561)부터는 전술한 실시예에서와 같은 다양성 화면출력과 단일 화면출력이 반복적으로 이루어지게 된다. 도 5c에 예시된 실시예에서, 상기의 재질전단시(541)에 상기 모니터링 시간(Tmon)에 대해서 비활성시기고 상기 모니터링 주기(Tm.int)에 대해서는 재구동시키지 않을 수도 있다. 상기 모니터링 주기(Tm.int)에 대해서 재구동시키지 않고 현재 카운트하고 있는 값을 그대로 이용하는 경우에는, 적절 재구동시점(542)부터 시작하여 모니터링 주기가 경과하면 그 때부터 다양성 화면출력과 단일 화면출력이 반복적으로 이루어지게 된다.

전술한 실시예들 중 어느 하나에 따라, 현재 채널이외의 채널이 모니터링되고 있는 상태에서 사용자가 모니터링 해제를 요청하게 되면(S361) 상기 제어부(20)는, 상기 타이머(20b)의 모니터링관련된 시간들의 카운트 덩착을 비활성시키고, 현재 저장되어 있는 다양성 구성정보에서 채널로 설정되어 있는 상기 디코더(15)의 출력포트에 의한 AV 신호로써 단일 화면을 구성하도록 상기 출력신흑 구성부(21)에 명령하다(S371). 그리고 모니터 채널로 설정되어 있는 상기 디코더(15)의 출력포트를 확인하고, 그 출력포트의 AV 신호를 얻기 위한 상기 신호복조정부(9)의 동조동작 및/또는 상기 디코더플렉서(10)의 트랜스포트 스트림 선택동작을 중단시킨다. 상기 모니터링 해제 요청의 확인단계(S361)에서 모니터링 해제가 요청되지 않은 것으로 확인되면, 상기 제어부(20)는 현재 영상신호 출력상태가 다양성인지 단
일정장치를 확인하여 그에 따라 다양화 화면 구성단계 S322로 전입(F361a) 또는
단일장치 화면 구성단계 S331로 전입(F361b)한다.

전술한 실시예들에서는, 현재 시청하고 있는 채널을 모니터링 채널을 선택하는
방법이었다. 즉, 현재 시청하고 있는 상태에서 모니터링을 요청하면, 현재 시청
채널을 모니터링 영상으로 하고 작전 채널을 주화면으로 구성하였다.

본 발표에 따른 다른 실시예에서는, 임의의 채널을 시청하고 있는 중에 채널
변경없이 타 채널을 모니터링 채널로 설정한다. 예를 들어, 현재 임의의 채널을 동
조하여 출력하고 있는 상태에서 사용자로부터 모니터링 요청이 수신되면, 상기 제
어부(20)는 도 6에 예시된 바와 같은 모니터링 채널의 설정을 수신받는 입력장(6
1)을 상기 화면신호 생성기(18)를 통해 제공한다. 이 때, 상기 제어부(20)는 사용
자의 채널 입력을 편리하게 하기 위해, 자동채널 검색과정을 통해 미리 획득된 채
널들에 대해서 사용자의 방향키 ( 상하 또는 좌우 키 ) 입력에 따라 하나씩 해당 변
호를 입력란에 순차적으로 표시할 수도 있다.

모니터링할 채널이 선택완료되면, 상기 제어부(20)는 그 채널의 동조 또는
서브채널의 선택을 상기 신호복조부(9) 또는 상기 디알타입러서(10)에 명령하고,
그에 따라 획득되는 트랜스포트 스크립트, 현재 AV 신호가 출력되고 있는 포트( 예
를 들어, 상기 제1포트(15a) )가 아닌 다른 포트( 예를 들어, 상기 제2포트(15b)
)로 디코딩출력하도록 상기 디코더(15)를 제어하고, 다영상 구성정보를 그에
맞게, 예를 들어 주채널 - 제1포트, 모니터 채널 - 제2포트로 설정한다. 또한, 모
니터링관련된 시간들(Tmon, Tm.int)을 상기 타이머(20b)에 설정하여 다음 카운트를
스타드시키고, 상기 출력신호 구성부(21)에 대해서도, 예를 들어 상기 제1포트(15a)의 출력신호를 주제널 신호로 하는 대영상 화면 구성도 명령한다. 이에 따라, 모니터링하고자 하는 채널의 영상이 주화면의 영상(62)과 함께 하나의 화면으로 함께 표시된다. 이 후, 상기 모니터링 관련된 시간들의 타임아웃에 근거하여 상기 선택된 채널의 영상은 간헐적으로 표시하는 모니터링이 이루어진다.

전술한 실험들에서, 만약, 사용자로부터의 모니터링 요청이 있는 시점에, 상기의 모니터링 환경변수의 값들이 설정되어 있지 않은 상태이면, 상기 제어부(20)는 그러한 값을 입력할 수 있는 입력창을 제공하여 해당 환경변수들에 대한 값을 수신하여 설정한 후에 전술한 타켓널 모니터링 동작을 수행할 수도 있다.

전술한 실험들에서는, 상기의 모니터링 동작이 사용자의 모니터링 요청에 의해서 시작되었다. 본 발명에 따른 다른 실험에서는, 상기의 모니터링 동작이 사용자가 지정하는 시간에 지정된 채널에 대해서 시작된다. 예를 들어, 사용자가 현재 앱의 채널에서 드라마를 시청하고 있는 중에, 타켓널에서 증기가 예정되어 있는 쟁구 또는 농구와 같은 스포츠를 놓치지 않고 시청하고자 하는 경우에, 모니터링하고자 하는 채널의 그 채널의 모니터링을 시작하는 시각( 증가 예고된 시각에 근접한 시각 )까지 함께 수신하여 설정할 수도 있다. 이와 같이 모니터링 채널과 시작시각이 함께 설정되었을 상기 제어부(20)는 이들 값을 저장한 후, 해당 모니터링 시각이 되는 지를 계속적으로 확인하고 해당 시각이 되면, 전술한 바와 같은 과정에 따라, 해당 모니터링 채널을 동작 또는 해당 서브채널을 선택하여 그 채널의 디지털 스트림을 AV 영상신호로 디코딩시키고, 현재 시청하고 있는 주화면의 영상과
함께 다양성을 구성하여 출력시킨다. 이 후의 모니터링 동작은 전술한 바와 동일하게 이루어진다.

본 발명에 따른 다른 실시예에서는, 모니터링의 시작시각이 사용자로부터 직접 입력되지 않고 디지털 방송에서 제공되고 있는 EPG를 통해서 지정될 수도 있다. 도 7a 및 7b는 본 실시예에 따라 모니터링 시작시각과 채널이 지정되는 것을 보여 주는 화면의 예이다. 상기 EPG는 상기 버퍼 메모리(12)상에 디코딩되어 저장되어 있는 각 채널의 관리용 정보(예를 들어, PSI)를 통해 획득된다. 도 7a에서와 같이, 사용자의 EPG 확인요청에 의해 상기 화면신호 생성기(13)를 통해 제공된 EPG 리스트(71)상에서, 사용자가 특정 프로그램(“EPG 이벤트”라고도 한다.) (72)을 선택하는 경우, 상기 제어부(20)는 도 7b에서 예시된 바와 같이, 요구동작 선택장치 (75)을 제공하여 사용자가 “모니터링”을 선택할 수 있도록 한다. 선택된 EPG 이벤트에 대해 사용자가 “모니터링”을 요구하면, 상기 제어부(20)는 해당 EPG 이벤트의 채널번호와 방송시작 시각을 상기 EPG 리스트로부터 확인한 후, 그 방송시작 시각이 될 때 해당 채널에 대한 전술한 모니터링 동작을 시작하여 수행하게 된다.

본 발명에 따른, 일 실시예에서는, 만약, 상기 선택된 EPG 이벤트의 방송시각 시간이 현재 시간보다 이전인 경우에는, 사용자의 “모니터링” 요청에 대해, 전술한 모니터링을 수행하지 않고 바로 그 채널로의 채널전환을 수행할 수도 있다. 본 발명에 따른 또 다른 실시예에서는, 도 7a와 같이 화면상에 제공한 EPG 리스트에서 사용자가 선택한 EPG 이벤트의 방송시각 시각이 현재 시간보다 이전인 경우에는, 도 7b와 같은 선택장에 “모니터링”의 선택항목을 배제시켜 사용자가 해당
EPG 이벤트에 대해서는 모니터링을 요구하지 않게 할 수도 있다.

본 반영에 따른 일 실시에에서는, 사용자가 선택한 EPG 이벤트에 대해서, 그 이벤트의 방송시작 시간보다 지정된 이후시간만큼 앞서서 모니터링을 시작할 수도 있다. 상기 이후시간은, 적절히 제공되는 초기설정 메뉴를 통해 사용자에 의해 설정된 후 상기 모니터링 환경변수에 포함된다.

전술한 실시에에서는, 현재 채널의 외에 단일의 타 채널에 대하여 모니터링을 수행하였다. 본 반영에 따른 다른 실시에에서는, 현재 채널의 외에 복수 채널을 모니터링할 수도 있다. 본 실시에에서는, 상기 신호 복조부(9)가 동시에 동조할 수 있는 채널의 수만큼 또는 상기 디지털패들러(10)가 동시에 선택출력하는 서브채널 의 수만큼에 대해서는 동일화면상에 동시에 모니터링 영상들을 주화면의 영상과 함께 출력하며, 만약, 동시에 동조( 또는 선택 )할 수 있는 채널 수( 또는 서브채널 수 ) 이상인 경우에는, 선택된 모니터링 채널들에 대해서 채널 자원을 순환적으로 각 채널에 대해서 사용하여 영상을 횡단한 후 모니터 영상으로 출력한다. 복수 채널에 대해 각 모니터 영상을 순환적으로 출력할 때는, 각기 모니터링 시간(Tmon)만큼 해당 영상을 화면상에 지속하거나 또는 상기 모니터링 시간(Tmon)을 모니터링 채널 수(N)로 나눈 시간(Tmon/N)만큼씩 화면상에 지속시키게 된다.

전술한 실시에에서는, 방송 채널을 시청 중에 타 채널 또는 타 채널들을 모니터링하는 동작을 설명하였다. 하지만, 본 반영은 방송 채널에 국한되지 않고 영상 컨텐츠를 제공하는 모든 소스(source)들에 대해서도 적용할 수 있다. 예를 들 어, 본 반영에 따른 일 실시에에서는, 연결검속된 외부 영상시기로부터 수신되는
영상신호, 현재 녹화되어 있는 방송 프로그램, 확대식으로 집속되는 유용한 저장장치(예를 들어, SD 메모리, USB 메모리, 외장 하드디스크 등)에 저장되어 있는 영상コンテンツ, 또는 상기 대역 통신부를 통해 온라인으로 스트리밍(streaming)되는 또는 다운로드된 영상コンテンツ를 시청하는 중에, 엽의 방송 채널을 모니터링채널로 설정할 수도 있다. 물론, 그 역으로의 모니터링(방송채널 시청중에 타 소스의 영상コンテンツ의 모니터링)도 가능하다. 본 설계에서는, 모니터링할 소스를 선택하는 과정에, 채널에 그 소스의 유형을 지정하는 정보가 추가된다. 예를 들어, 사용자가 모니터링을 요청하면, 먼저 소스의 유형 선택(방송채널, 녹화 프로그램, 접속된 메체의 파일, 다운로드 파일, 스트리밍コンテンツ(예시된 것에 제한되지 않는다는) 등)이 이루어지도록 하고, 그 선택된 소스 유형에서 특정의コンテンツ 선택자(예를 들어, 채널번호, 녹화 프로그램 명, 파일명, 스트리밍되는コンテンツ의 URL 등)을 제시하여 하나의 영상コンテンツ가 선택되도록 한다. 이와 같이 선택된 엽의 소스의 영상コンテンツ에 대해서는 진술한 바와 같이 모니터링 동작이 수행된다.

한편, 본 발명은 진술한 전형적인 바람직한 실시예들에만 한정되는 것이 아니라 본 발명의 주제와 요지를 벗어나지 않는 범위 내에서 여러 가지로 개량, 변경, 대체 또는 부가하여 설치할 수 있는 것임은 당해 기술분야에 통상의 지식을 가진 자라면 용이하게 이해할 수 있을 것이다. 이러한 개량, 변경, 대체 또는 부가에 의한 실시가 이하의 정부된 특허청구범위의 범주에 속하는 것이라면 그 기술상 역시 본 발명에 속하는 것으로 보아야 한다.
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【특허청구범위】

【청구항 1】

건텐즈 소스에서 제공되는 영상을 모니터링하는 방법에 있어서,

제 1항에 의한 영상과 함께 단일 화면 상에 제 1시간동안 표시되는 다양한 상태가 되게 하고, 상기 제 1시간 경과 후, 상기 제 1영상신호에 의한 영상이 상기 제 1시간보다 긴 제 2시간 동안 단독으로 상기 단일 화면상에 표시되는 단독영상 상태가 되게 하여, 상기 제 2시간 경과 후 상기 다양한 상태와 상기 단독영상 상태가 순차적으로 반복되도록 함으로써, 상기 제 2영상신호에 의한 영상이 간헐적으로 상기 제 1영상신호에 의한 영상과 함께 상기 단일 화면상에 표시되도록 하는 2단계를 포함하여 이루어지는 방법.

【청구항 2】

제 1항에 있어서,

사용자의 요청에 따라, 상기 2단계에서 표시되는 단일 화면상에서 상기 제 1영상신호에 의한 영상의 영역과 상기 제 2영상신호에 의한 영상의 영역을 상호 전환시키는 3단계하.

상기 제 1영상신호에 의한 영상이, 간헐적으로 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 표시되도록 하는 4단계를 더 포함하여 이루어지면.
상기 3단계는,

상기 제 1영상 신호에 의한 영상이, 상기 제 2영상 신호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간이하의 시간동안 표시되도록 하고.

상기 4단계는,

상기 제 1시간이하의 상기 시간경과 후, 상기 제 2영상 신호에 의한 영상이 상기 제 2시간동안 단독으로 상기 단일 화면상에 표시되도록 하는 제 1단독영상 단계와.

상기 제 2시간경과 후, 상기 제 1영상 신호에 의한 영상이, 상기 제 2영상 신호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간동안 표시되도록 하는 다영상 단계와.

상기 제 1시간경과 후, 상기 제 2영상 신호에 의한 영상이 상기 제 2시간 동안 단독으로 상기 단일 화면상에 표시되도록 하는 제 2단독영상 단계와.

상기 다영상 단계와 상기 제 2단독영상 단계를 순차적으로 반복하여 수행하는 단계를 포함하는 것인 방법.

【청구항 3】

제 1항에 있어서,

사용자의 요청에 따라, 상기 2단계에서 표시되는 단일 화면상에 상기 제 2영상 신호에 의한 영상이 상기 제 2시간 동안 단독으로 표시되도록 하는 3단계와.

상기 제 1영상 신호에 의한 영상이, 궐력적으로 상기 제 2영상 신호에 의한 영상이 상기 4단계의 상기 시간동안 단독으로 표시되도록 하는 4단계와.
상과 함께 상기 단일 화면상에 표시되도록 하는 4단계를 더 포함하여 이루어지되,

상기 4단계는,

상기 제 2시간경과 후, 상기 제 1영상신호에 의한 영상이, 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간동안 표시되도록 하는 다영상 단계와,

상기 제 1시간경과 후, 상기 제 2시간동안, 상기 제 2영상신호에 의한 영상이 단독으로 상기 단일 화면상에 표시되도록 하는 단독영상 단계와,

상기 다영상 단계와 상기 단독영상 단계를 순차적으로 반복하여 수행하는 단계를 포함하는 것인 방법.

【정구항 4】

제 2항 또는 제 3항에 있어서,

상기 3단계는, 상기 사용자 요청이, 상기 제 1시간의 경과 중에 이루어진 것 이 아니면 그 요청을 무시하는 것인 방법.

【정구항 5】

제 1항에 있어서,

상기 제 2컨텐츠 소스는 그에 의한 영상신호가 사용자의 모니터링 요청시점에 화면상에 출력되고 있었던 것이고, 상기 제 1컨텐츠 소스는 그에 의한 영상신호가, 상기 제 2컨텐츠 소스에 의한 영상신호가 출력되기 직전에 화면상에 출력되고 있었던 것인 방법.
【정구항 6】

제 1항에 있어서,

상기 제 1권행조 소스는 그에 의한 영상신호가 사용자의 모니터링 요청사항에 화면상에 출력되고 있었던 것이고, 상기 제 2권행조 소스는 그에 의한 영상신호가, 상기 제 1권행조 소스에 의한 영상신호가 출력되기 직전에 화면상에 출력되고 있었던 것인 방법.

【정구항 7】

제 1항에 있어서,

상기 제 2권행조 소스는, 제공된 선택화면을 통해 사용자가 입력한 정보에 의해 모니터링 대상으로 지정된 것인 방법.

【정구항 8】

제 1항에 있어서,

상기 제 2권행조 소스는, 방송신호로부터 제공되는 전자 프로그램 가이드에 근거하여 화면상에 제공된 방송 프로그램 시간표에서 모니터링 대상으로 지정된 프로그램 항목에 해당하는 것인 방법.

【정구항 9】

제 1항에 있어서,

상기 2단계는, 지정된 시각에 자동적으로 시작되어 수행되는 것인 방법.
【청구항 10】

제 9항에 있어서,

상기 저장된 시각은, 사용자가 직접 입력한 시각정보에 의해 저장된 것인 방법.

【청구항 11】

제 9항에 있어서,

상기 저장된 시각은, 방송신호로부터 제공되는 전자 프로그램 가이드내의 프로그램 항목의 방송 시각시각으로부터 저장된 것인 방법.

【청구항 12】

제 1항에 있어서,

상기 제 1 및 제 2장에서 소스의 각각은, 방송 채널, 연결접속된 외부 영상기기로부터의 영상신호, 적탈적으로 접속된 휴대용 저장매체에 저장된 영상 컨텐츠, 녹화된 방송 프로그램, 그리고 통신망을 통해 수신하여 저장된 영상 컨텐츠 중의 어느 하나에 속하는 것인 방법.

【청구항 13】

컨텐츠를 영상신호로 출력하는 장치에 있어서,

복수의 컨텐츠를 편집할 수 있는 수신부와,

상기 수신부에 의해 편집된 하나 또는 복수의 컨텐츠의 데이터를 디코딩하여 하나 이상의 영상신호로 출력하기 위한 디코더와.
상기 하나 이상의 영상신호를, 단일화면상에 저장된 방식으로 해당 영상이 배치되어 표시되는 신호로 출력하기 위한 영상 구성부와,

상기 하나 이상의 영상신호에 속하는 제 1영상 신호에 의한 영상과 함께, 상기 하나 이상의 영상신호에 속하는 제 2영상 신호에 의한 영상이 간헐적으로 상기 단일화면상에 표시되도록 하기 위해 상기 영상 구성부를 제어하도록 구성된 제어부를 포함하여 구성되어,

상기 제어부는,

상기 제 2영상신호에 의한 영상이, 상기 제 1영상신호에 의한 영상과 함께 상기 단일화면상에 제 1시간동안 표시되는 다영상 상태가 되게 하고, 상기 제 1시간경과 후에는, 상기 제 1영상신호에 의한 영상이 단독으로 상기 단일 화면상에 상기 제 1시간보다 긴 제 2시간동안 표시되는 단독영상 상태가 되게하며, 상기 제 2시간의 경과 후에는, 상기 다영상 상태와 상기 단독영상 상태가 순차적으로 반복되도록 상기 영상 구성부를 제어하도록 구성되어 있는 것인 장치.

【정구항 14】

제 13항에 있어서,

상기 제어부는, 사용자의 요청에 따라, 상기 단일 화면상에서 상기 제 1영상신호에 의한 영상의 영역과 상기 제 2영상신호에 의한 영상의 영역을 상호 전환시키는 동작을 상기 영상 구성부에 요청하고, 상기 제 1영상신호에 의한 영상을 간헐적으로 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 표시하는 간헐
다영상 동작이 수행되도록 상기 영상 구성부를 더 제어하되,

상기 상호 전환시키는 동작에서는,

상기 제 1영상신호에 의한 영상이, 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간인하의 시간동안 표시되고,

상기 간헐 다영상 동작에서는,

상기 제 1시간인하의 상기 시간정과 후, 상기 제 2영상신호에 의한 영상이 상기 제 2시간동안 단독으로 상기 단일 화면상에 표시되도록 하는 동작을 수행한 후,

상기 제 2시간이 경과되면, 상기 제 1영상신호에 의한 영상이, 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간동안 표시되도록 하는 동작과, 상기 제 1시간정과 후, 상기 제 2영상신호에 의한 영상이 상기 제 2시간동안 단독으로 상기 단일 화면상에 표시되도록 하는 동작을 순차적으로 반복 수행되는 것임 장치.

【항구항 15】

제 13항에 있어서.

상기 제어부는, 사용자의 요청에 따라, 상기 단일 화면상에 상기 제 2영상신호에 의한 영상을 상기 제 2시간동안 단독으로 표시하는 동작을 상기 영상 구성부에 요청하고, 상기 제 1영상신호에 의한 영상을, 간헐적으로 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 표시하는 간헐 다영상 동작이 수행되도록 상
기 영상 구성을 더 제어되어.

상기 간혈 다양한 동작에서는,

상기 제 2시간경과 후, 상기 제 1영상신호에 의한 영상이, 상기 제 2영상신호에 의한 영상과 함께 상기 단일 화면상에 상기 제 1시간동안 표시되는 다영상 동작과, 상기 제 1시간경과 후, 상기 제 2시간동안, 상기 제 2영상신호에 의한 영상이 단독으로 상기 단일 화면상에 표시되는 단독영상 동작이 순차적으로 반복 수행되는 것이 장치.

【참구항 16】

제 14항 또는 제 15항에 있어서,

상기 제어부는, 상기 사용자가 요청이, 상기 제 1시간의 경과 중에 이루어진 것이 아니면 그 요청을 무시하는 것이 장치.

【참구항 17】

제 13항에 있어서,

상기 제 2컨텐츠 소스는 그에 의한 영상신호가 사용자의 모니터링 요청시점 에 화면상에 출력되고 있었던 것이고, 상기 제 1컨텐츠 소스는 그에 의한 영상신호 가, 상기 제 2컨텐츠 소스에 의한 영상신호가 출력되기 직전에 화면상에 출력되고 있었던 것이 장치.

【참구항 18】

제 13항에 있어서.
상기 제 1컨텐츠 소스는 그에 의한 영상신호가 사용자의 모니터링 요구사항에 화면상에 출력되고 있었던 것이고, 상기 제 2컨텐츠 소스는 그에 의한 영상신호가, 상기 제 1컨텐츠 소스에 의한 영상신호가 출력되기 직전에 화면상에 출력되고 있었던 것인 장치.

【청구항 19】

제 13항에 있어서.

상기 제 2컨텐츠 소스는, 상기 제어부가 제공한 선택화면을 통해 사용자가 입력한 정보에 의해 모니터링 대상으로 지정된 것인 장치.

【청구항 20】

제 13항에 있어서.

상기 제 2컨텐츠 소스는, 방송신호로부터 제공되는 전자 프로그램 가이드에 근거하여 화면상에 제공된 방송 프로그램 시간표에서 모니터링 대상으로 지정된 프로그램 항목에 해당하는 것인 장치.

【청구항 21】

제 13항에 있어서.

상기 제어부는, 상기 제 1영상 신호에 의한 영상과 함께, 상기 제 2영상신호에 의한 영상이 간헐적으로 상기 단일화면상에 표시되도록 하기 위한 제어동작을 지정된 시각에 시작하여 수행하는 것인 장치.
【청구항 22】

제 21항에 있어서.

상기 지정된 시각은, 사용자가 직접 입력한 시각정보에 의해 지정된 것인 장치.

【청구항 23】

제 21항에 있어서.

상기 지정된 시각은, 방송신호로부터 제공되는 전자 프로그램 가이드내의 프로그램 항목의 방송 시각시각으로부터 지정된 것인 장치.

【청구항 24】

제 13항에 있어서.

상기 수신부는, 방송신호를 통조하여 방송 프로그램을 복조하는 신호복조부와, 방송 프로그램이 녹화되어 있는 저장장치와, 연결된 단자를 통해 입력되는 영상신호를 수신하는 영상기기 접속부와, 캡슐식으로 접속되는 휴대용 저장매체로부터 컨텐츠 데이터를 입력내는 저장매체 접속부와, 데이터 통신망을 통해 외부 서버로부터 영상 컨텐츠를 수신하는 통신부증 적어도 하나를 포함하는 것인 장치.

【청구항 25】

제 13항에 있어서.

상기 제어부는, 사용자가 개별적으로 모니터 주기와 모니터링 화면 표시시간을 입력할 수 있도록 입력화면을 제공하고, 입력된 상기 모니터링 화면 표시시간을
상기 제 1시간으로, 상기 모니터 주기에서 상기 모니터링 화면 표시시간을 차감한 시간을 상기 제 2시간으로 할당하도록 구성된 것인 장치.

【정구항 26】

제 13항에 있어서.

상기 제어부는, 사용자가 모니터 주기를 입력할 수 있도록 입력화면을 제공하고, 입력된 상기 모니터 주기의 소정비율에 해당하는 시간을 상기 제 1시간으로 할당하고, 그 할당된 시간을 상기 입력된 모니터 주기에서 차감한 시간을 상기 제 2시간으로 할당하는 것인 장치.
본 발명은 현재의 영상 소스의 다른 영상소스를 모니터링하는 방법을 제공한다. 본 발명에 따른 일 방법은, 제 1컨텐츠 소스(예를 들여, 하나의 방송 채널)에서 제공되는 제 1영상신호를 출력하는 1단계와, 제 2컨텐츠 소스에서 제공되는 제 2영상신호에 의한 영상이, 간헐적으로 상기 제 1영상신호에 의한 영상과 함께 단일 화면상에 표시되도록 하는 2단계를 포함한다. 상기 2단계는, 상기 제 2영상신호에 의한 영상이, 상기 전체영상신호에 의한 영상과 함께 상기 단일 화면상에 제 1시간동안 표시되도록 하는 동작과, 상기 제 1시간경과 후, 상기 제 1시간보다 긴 제 2시간동안, 상기 제 1영상신호에 의한 영상이 단독으로 상기 단일 화면상에 표시되도록 하는 동작을 순차적으로 반복하여 수행한다.

【대표도】

도 4
【도 1】

【도 2】
【도 4】
【도 7b】

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[Image of a table and diagram]
Title: METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

Publication No: US-2012-0013801-A1
Publication Date: 01/19/2012

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Receipt is acknowledged of this non-provisional 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 APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections.

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Power of Attorney: The patent practitioners associated with Customer Number 34610

Domestic Priority data as claimed by applicant

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REPUBLIC OF KOREA 10-2010-0068768 07/16/2010

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Projected Publication Date: 01/19/2012

Non-Publication Request: No

Early Publication Request: No
METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

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### Application as Filed - Part I

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### Application as Amended - Part II

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UTILITY PATENT APPLICATION TRANSMITTAL UNDER 37 C.F.R. §1.53(b)

U.S. Patent and Trademark Office
Customer Service Window, MAIL STOP PATENT APPLICATION
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Docket No.: RPL-0409

Sir:

Transmitted herewith for filing is the patent application of
INVENTORS: Myunghee OH

FOR: METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

Enclosed are:
1. ☑ 29 pages of specification, claims, abstract
2. ☑ 9 sheets of FORMAL drawings
3. ☑ 2 pages of newly executed Declaration & Power of Attorney (copy or original)
4. ☑ Priority claimed to Appl. No. 10-2010-0068768 filed on July 16, 2010 in Korea, whose entire disclosure is incorporated herein by reference.
5. ☐ Applicant claims Small Entity Status
6. ☑ Information Disclosure Statement, Form PTO-1449 and references
7. ☑ Assignment papers for HUMAX Co., Ltd. cover sheet, assignment and assignment fee) (To Follow)
9. ☑ Two (2) return postcards
   ☑ Stamp & Return with Courier
   ☑ Prepaid postcard-stamped filing date & returned with unofficial Serial Number
10. ☑ Authorization under 37 C.F.R. §1.136(a)(3)
11. ☑ Application Data Sheet under 37 C.F.R. §1.76
13. ☑ Other:

CLAIMS AS Filed

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Respectfully submitted,
KED & ASSOCIATES, LLP

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703 766-3777 DYSK,LLC

Date: February 24, 2011

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Q:\Documents\2028-419\268936
METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE

TECHNICAL FIELD

The present invention relates to a method and an apparatus enabling a viewer to monitor another video source while a viewer is watching contents of a video source such as a broadcasting channel.

BACKGROUND ART

The increase of broadcasting services coming from terrestrial, cable, and satellite broadcasting resulted in diversified broadcasting channels, allowing viewers to enjoy abundant video contents.

As the video contents become abundant, overlapping of broadcasting time of popular programs frequently happens; in this case, to watch a broadcasting program that the viewer wants to watch while avoiding advertisements as possibly as he or she can, the viewer may more or less repeat switching between a current channel and a channel where the broadcasting program the viewer wants to watch is broadcast.

Although broadcasting signals are provided in such a way that EPG (Electronic Program Guide) information is included therein as broadcasting services are being digitalized, it is not uncommon the EPG information provides incorrect program start time; therefore, even if the viewer switches channels based on the EPG information, it is likely that a broadcasting program wanted has not started yet on a switched channel. In this case, the viewer may again repeat the channel switching more or less while watching the program broadcast on the previous channel.

The viewer, to avoid the tedious channel switching, may display a broadcasting program of a target channel to which the viewer wants to switch after a while together with a broadcasting program that the viewer is currently watching in the form of a main screen 1a and an auxiliary window 1b as shown in FIG. 1, thereby continuously checking the start of the broadcasting program in the target channel. Since a part 1b of a currently watched video 1c is continuously occupied by the broadcasting program from another video channel in a PIP (Picture in Picture) type display as shown in FIG. 1, the viewer may feel uncomfortable due to the blocking video zone.
BRIEF SUMMARY OF THE INVENTION

The present invention is directed to provide a method and an apparatus for monitoring another video source while keeping difficulty in viewing a contents source to a minimum.

The present invention is further directed to provide a method and an apparatus for monitoring video sources not to miss primary scenes of the respective contents sources as possibly as can be, allowing the primary scenes to be viewed alternately.

The scope of the present invention is not necessarily limited to the above explicit statements. Rather, the scope of the present invention covers anything to accomplish effects that could be derived from the below specific and illustrative explanations of the present invention.

A method for monitoring another video source according to one aspect of the present invention comprises: outputting a first video signal provided from a first content source; and displaying a video from a second video signal intermittently with a video from the first video signal on a single screen, the second video signal being provided from a second content source, by: causing the single screen to be in a multi-view state where a video from the second video signal is displayed with a video from the first video signal on the single screen for a first time period; causing the single screen to be in a single-view state, after the first time period, where a video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period; and causing the multi-view state and the single-view state to be repeated in an alternate manner on the single screen after the second time period.

In one embodiment according to the present invention, the method further comprises: switching between a video area for the first video signal and a video area for the second video signal on the single screen according to a request of a user; and causing the single screen to display a video from the first video signal intermittently with a video from the second video signal. Further, the switching comprises causing the single screen to display a video from the first video signal with a video from the second video signal during a particular time equal to or shorter than the first time period, and the causing the single screen to display a video from the first video signal intermittently with a video from the second video signal comprises: causing the single screen to be in
a first single-view phase, after the particular time, where a video from the second video signal is displayed alone on the single screen for the second time period; causing the single screen to be in a multi-view phase, after the second time period, where a video from the first video signal is displayed with a video from the second video signal on the single screen for the first time period; causing the single screen to be in a second single-view phase, after the first time period, where a video from the second video signal is displayed alone on the single screen for the second time period; and causing the multi-view phase and the second single-view phase to be repeated in an alternate manner.

In another embodiment according to the present invention, the method further comprises: causing the single screen to display a video from the second video signal alone for the second time period according to a request of a user; and causing the single screen to display a video from the first video signal intermittently with a video from the second video signal. Further, the causing the single screen to display a video from the first video signal intermittently with a video from the second video signal comprises: causing the single screen to be in a multi-view phase, after the second time period, where a video from the first video signal is displayed with a video from the second video signal on the single screen for the first time period; causing the single screen to be in a single-view phase, after the first time period, where a video from the second video signal is displayed alone on the single screen for the second time period; and causing the multi-view phase and the single-view phase to be repeated in an alternate manner.

In one embodiment according to the present invention, if the request is not made while the first time period passes, the switching ignores the request and the repetition of the multi-view and second single-view phases or the multi-view and single-view phases is not conducted.

In one embodiment according to the present invention, the second content source is a source of which a video signal is being displayed at a time when a monitoring request is made from a user, and the first content source is a source of which a video signal is being displayed right before a video signal provided from the second content source is displayed.

In another embodiment according to the present invention, the first content source is a source of which a video signal is being displayed at a time when a
monitoring request is made from a user, and the second content source is a source of which a video signal is being displayed right before a video signal provided from the first content source is displayed.

In another embodiment according to the present invention, the second content source is a source being designated as a monitoring object by information entered by a user through a provided selection menu screen.

In another embodiment according to the present invention, the second content source corresponds to a program item being designated as a monitoring object from a broadcasting program schedule provided on a screen based on an electronic program guide received through broadcasting signals.

In one embodiment according to the present invention, the displaying a video from the second video signal intermittently with a video from the first video signal on the single screen is started automatically at a specific time. In addition, the specific time may be specified by time information entered directly by a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals.

In one embodiment according to the present invention, each of the first and second content sources corresponds to any one of a broadcasting channel, video signals received from a connected external video device, video contents stored in a portable storage media connected detachably, a recorded broadcasting program, and stored video contents received through a communication network.

An apparatus for outputting video signals of contents according to another aspect of the present invention comprises: a receiver adapted for obtaining a plurality of contents; a decoder adapted for decoding data of at least one of the plurality of contents obtained by the receiver and outputting one or more video signals of the at least one content; a video formatter adapted for outputting the one or more video signals of which corresponding videos are disposed in a specified layout on a single screen; and a controller adapted for controlling the video formatter for a video from a second video signal belonging to the one or more video signals to be displayed intermittently on the single screen with a video from a first video signal belonging to the one or more video signals. Further, the controller is adapted for controlling the video formatter to: cause
the single screen to be in a multi-view state where a video from the second video signal is displayed with a video from the first video signal on the single screen for a first time period; cause the single screen to be in a single-view state, after the first time period, where a video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period; and cause the multi-view state and the single-view state to be repeated in an alternate manner.

In one embodiment according to the present invention, the receiver is adapted for comprising at least one of: a signal demodulator configured to tune to and demodulate a broadcasting signal to output a broadcasting program; a storage device configured to store recoded broadcasting programs; a video device connecting unit configured to receive video signals inputted through connecting terminals; a storage media interfacing unit configured to read out content data from a portable storage medium connected detachably; and a communication unit configured to receive video contents from an external server through a data communication network.

In one embodiment according to the present invention, the controller is adapted for providing an input screen through which a user enters a monitoring interval and a monitoring window display time individually, and assigning the entered monitoring window display time to the first time period and the entered monitoring interval subtracted by the monitoring window display time to the second time period.

In another embodiment according to the present invention, the controller is adapted for providing an input screen through which a user enters a monitoring interval, and assigning a time corresponding to a predetermined ratio of the entered monitoring interval to the first time period and the entered monitoring interval subtracted by the assigned time to the second time period.

The present invention described above and at least one embodiment of the present invention described in detail below allows a user to check what is provided in another contents source while being least interfered for watching a current video. Therefore, the user is enabled not to miss a video wanted provided at another contents source while enjoying the most of watching current video contents.

In addition, if video contents provided are in the form of excerpts corresponding to particular scenes rather than the one requiring continuous watching (for example,
scenes of scoring a point in sports broadcasting), the user can watch the corresponding contents sources in an alternate manner through monitoring without missing video contents intervals at which particular scenes occur.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide further understanding of this document and are incorporated to constitute a part of this specification, illustrate embodiments of this document and together with the description serve to explain the principles of this document.

In the drawings:

FIG. 1 illustrates an example of a screen where multiple contents sources are shown at the same time in a large and a small screen;

FIG. 2 illustrates a structure of a digital broadcasting receiver where a method for monitoring another video source according to one embodiment of the present invention is implemented;

FIG. 3 is a flow chart of a method for monitoring another video source according to one embodiment of the present invention;

FIG. 4 illustrates a procedure of displaying a broadcasting video of another channel in a small window intermittently for monitoring of the user in addition to a main video currently output according to one embodiment of the present invention;

FIGS. 5A to 5C respectively illustrate examples of switching between video on a main channel and video on a monitor channel at the time of a channel switching request of the user according to embodiments of the present invention;

FIG. 6 illustrates an input window provided to receive a monitor channel setting according to one embodiment of the present invention; and

FIGS. 7A and 7B are screen examples of setting monitoring start time and a monitoring channel according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Embodiments of a method and an apparatus for monitoring another video source according to the present invention will be described in detail with reference to
FIG. 2 illustrates a structure of a digital broadcasting receiver where a method for monitoring another video source while watching a program on a broadcasting channel which is one of video sources is implemented according to one embodiment of the present invention.

The digital broadcasting receiver of FIG. 2 comprises a signal demodulator 9 for tuning to one or more required frequency bands from a broadcasting signal such as a terrestrial, a cable, or a satellite broadcasting signal, demodulating the signal of the tuned frequency band, and outputting the demodulated signal in the form of digital streams; a demultiplexer 10 for outputting a transport stream corresponding to a particular program and the corresponding management information (e.g., PSI) selected among multi-program transport streams (MPTSs) within the demodulated digital streams; a parser 11 for classifying transport packets of the respective transport streams output from the demultiplexer 10 into video, audio, PSI data (e.g., PES packets), and the like; a buffer memory 12 for storing the classified PES packets output from the parser 11 temporarily in the respective areas associated with the corresponding streams; a decoder 15 for decoding the data in the respective areas of the buffer memory 12 and restoring the original AV (audio and video) signals from the decoded data; a video layout formatter 21 for selecting one or more AV signals output from the decoder 15 to format video layout according to a predetermined way; a hard disk 13 for storing one or more transport streams output from the demultiplexer 10; a screen signal generator 18 for generating video signals for characters, symbols, or graphic symbols; a mixer 19 for synthesizing video signals and outputting the synthesized signals; and a controller 20 for controlling the operation of the respective components to display one or more broadcasting signals selected by a request of the user and/or predetermined conditions on the screen. The controller 20 includes a system memory 20a into which information for control operation and/or environment setting is stored; a timer 20b informing of the passing of a predetermined time period; and firmware controlling various functions described below in a selectively executable form.

Also, the apparatus of FIG. 2 can further comprise a device connecting terminal which connects to an external device providing video signals; a media connecting unit
which can read out the data of a portable storage medium (a portable memory, USB memory, an external hard disk, and so on) connected in a detachable way; and a data communication unit connected to a network through wired or wireless connection and performing a protocol by which data can be transmitted/received to and from a predetermined remote server. The elements of FIG. 2 can be realized being integrated with a TV or in the form of a device added to a computer or a notebook. Also, the apparatus of FIG. 2 can be a computer where the functions described below are carried out as the computer is equipped with appropriate hardware and runs appropriate software; or an apparatus carrying out the functions equivalent thereto.

The controller 20 receives a request from the user through a conventional user interface such as a keypad, a remote controller, a touch pad, and the like 22; if necessary, the controller 20 outputs video signals guiding a response according to the request by controlling the screen signal generator 18. The video output signals are expressed visually through electronic devices equipped with a screen output function such as a TV, a monitor, and the like.

In what follows, embodiments according to the present invention are described in detail with reference to the digital broadcasting receiver of FIG. 2; however, principles of the present invention are not limited by a conventional name of a device but can be applied to all the devices having a function of processing video contents and outputting the processed video contents as video signals or all the devices equipped with software which carries out the function.

FIG. 3 is a flow chart of a method for monitoring another video source such as video of another channel according to one embodiment of the present invention. In what follows, the operation carried out by the apparatus of FIG. 2 according to one embodiment of the present invention will be described in detail in association with the flow chart shown in FIG. 3.

The user sets environmental variable for monitoring (S301) if he or she wants to monitor another channel in addition to a current channel through which he or she is watching a broadcasting program. The environmental variable for monitoring includes a monitoring interval and monitoring time. The monitoring interval relates to frequency by which the video from another channel is checked; the monitoring time corresponds
to a period of time during which the video in question is displayed continuously. In addition thereto, the environmental variable for monitoring can include a monitoring activation variable. If the monitoring activation variable is included and is set as an active state, monitoring of another channel is performed according to a particular request of the user such as "monitoring request"; on the other hand, if the monitoring activation variable is set as an inactive state, a guiding note of "inactive state" is displayed and monitoring of another channel is not performed regardless of the same particular request.

After setting the environmental variable for monitoring, if a request is made for resonating at a channel on which a broadcasting program of the user's preference is showing, the program at the corresponding channel is outputted in the form of a video according to the following procedure (S302). The controller 20 applies a command to the signal demodulator 9 and the demultiplexer 10 to resonate at the broadcasting signals corresponding to the channel (and a sub-channel) that the user has designated. According to the command, the signal demodulator 9 demodulates RF signals corresponding to the designated channel (or a repeater) into digital streams by resonating at the RF signals; the demultiplexer 10 selectively outputs transport streams carrying video, audio, and/or text data belonging to one program (in case of multiple programs, corresponding to a sub-channel designated) from among the digital streams received. A basis for classifying and outputting a transport stream corresponding to one program from among the digital streams is ID of a transport packet, namely PID, which can be checked from program specific information such as PAT, PMT, and the like obtained from the corresponding resonated channel before classifying and outputting the transport stream and stored in the buffer memory 12.

The parser 11 gathers only payload data by removing a header of each transport packet from transport packets received and then composes a packetized elementary stream (PES) packet in the buffer memory 12; the parser 11, by referring to the header information of the PES packet composed, classifies the PES packets in the buffer memory 12 according to the properties thereof (for example, video, audio, or data). The decoder 15, by providing PES packets stored sequentially in the buffer memory 12 to the corresponding internal decoding module according to the PES packet type and
decoding the PES packets, outputs AV signal (video and audio signal) at a first port 15a.

The controller 20, since it is in the state of single channel tuning, applies a control signal to the video layout formatter 21 to composes video signals for a single video screen from input AV signals and outputs the video signals for a single video screen. Through the procedure above, a broadcasting program of the channel (or the repeater) that the user has selected is expressed visually/audibly to the user as a single screen. In the meantime, while watching the program, if the user makes a request for recording, the controller 20 stores output streams of the demultiplexer 10 in the hard disk 13; if the request is time-shift recording (TSR), the controller 20 can carries out a function of reading out again the transport packets stored in the hard disk 13 in a FIFO (First In First Out) fashion and applying the read out transport packets to the parser 11.

If the user requests switching of a current channel (S303), the controller 20 stores information about the current channel in the system memory 20a as "previous channel information" and commands the signal demodulator 9 and the demultiplexer 10 to perform resonation at the channel requested for switching (S311). If the channel switching request of the user corresponds to switching between sub-channels within the current resonated channel, the channel switching request is directed only to the demultiplexer 10 and the demultiplexer 10 classifies and outputs the transport stream of the corresponding sub-channel. According to the channel switching command of the controller 20, the transport stream of the corresponding channel (and the sub-channel) is applied to the parser 11 and the transport stream is output as AV signals through the first port 15a of the decoder 15 according to the procedure described above. At this time, too, the video layout formatter 21 composes the AV signals output through the first port 15a as a single screen and outputs the composed screen.

If the user requests "monitoring" (S312) while the broadcasting program of a channel which has been requested for channel switching by the user is being output as a video on a single screen according to the procedure described above, the controller 20 activates monitoring and the following operation such as multi-channel tuning required according thereto is performed (S321).

The controller 20 first reads "previous channel information" stored in the system memory 20a and applies a resonation command to the signal demodulator 9 and
the demultiplexer 10 for the channel designated by the information to be additionally resonated. The “monitoring” request can originate from a “particular” key equipped in the user input means such as a remote controller or from selection of a menu provided properly through the screen signal generator 18. According to the application of the additional resonance command, a transport stream corresponding to a broadcasting program on a channel designated by the “previous channel information” is also applied to the parser 11 independently of the transport stream currently output; accordingly, PES packets belonging to the two transport streams are stored in the respective areas of the buffer memory 12. The decoder 15, too, according to an additional decoding command from the controller 20, performs decoding operation against PES packets stored additionally in the buffer memory 12 and outputs the decoded PES packets as AV signals through a second port 15b.

Meanwhile, the controller 20 commands the video layout formatter 21 to compose a multi-view screen and sets multi-view configuring information by designating the output signal of the second port 15b (in what follows, the video expressed by this output signal is denoted by ‘vB’) as a “main channel signal” and the output signal of the first port 15a (in what follows, the video expressed by this output signal is denoted by ‘vA’) as a “monitor channel signal”. Although the present embodiment distinguishes ports of video output signal from each other for separating video sources, it is equally possible that the ports of video output signal are not separated from each other but information for distinguishing video sources is added to the video output signals and based on the additional information, the video layout formatter 21 can separate the corresponding video signals received from a common input port. The multi-view configuring information which has been set as the above (“main channel-the second port”, “monitor channel-the first port”) is stored temporarily. Accordingly, the video layout formatter 21, as shown in FIG. 4, disposes the individual video coming from both the input AV signals according to a predetermined screen layout and thus composes a final multi-view AV signal by which multiple videos vA and vB are displayed together 410 and outputs the final AV signal (S322). Regarding audio signals, the audio signal embedded in the signal designated as a “main channel signal” is selected (21a of FIG. 2) and outputted. The screen layout is determined by the
controller 20 and various other forms can also be implemented. For example, a layout form where a small screen is contained in a full screen or a layout form where two screens of the same size are disposed respectively in the left and right half of the entire screen can be displayed and is not limited to the exemplary forms illustrated above. As soon as the multiple videos vA and vB are displayed on a single screen according to the layout designated as above, the controller 20 sets the timer 20b with the time information (monitoring interval \( T_{\text{mon}} \) and monitoring time \( T_{\text{mon}} \)) stored in the environmental variable for monitoring and starts countdown 41-1.

In the embodiment described above, at the time of the user's issuing a "monitoring" request, a current channel was set as a 'monitor channel' and the previous channel a 'main channel' and according thereto, the corresponding videos have been disposed on the screen; in another embodiment according to the present invention, the previous channel can be set as a 'monitor channel' and the current channel a 'main channel' and according thereto, the corresponding videos can be disposed on the screen.

As described above, if the user requests channel switching while multiple videos vA and vB coming from multiple channel reservation are output together to be displayed on the same screen according to a designated screen layout 412, the controller 20, by referring to the multi-view configuring information ('main channel-the second port', "monitor channel-the first port") stored temporarily, controls the signal demodulator 9 and the demultiplexer 10 for the channel resonating at a broadcasting program output through the second port 15b which is currently set as a main channel to switch to a channel requested for switching. Accordingly, the output video vB is replaced with a program video of the switched channel while the monitoring video vA is maintained as shown in FIG. 4.

If time-out t421 occurs from the timer 20b (S323) as the designated monitoring time \( T_{\text{mon}} \) elapses while in the state 412 where multiple videos vA and vB coming from multi-channel resonation are being displayed together in the same screen, the controller 20 deactivates the count of the monitoring time and commands the video layout formatter 21 to exclude AV output signals of the first port 15a designated as a current monitor channel. According to this command, the video layout formatter 21 composes the single-view screen by using the video vB only from AV output signals of the second
port 15b and outputs the composed video (S331). In other words, from this point on, the user can watch programs of a broadcasting channel in a conventional watching state before monitoring. The state above lasts for a time period of the monitoring interval \( T_{m.int} \) subtracted by the monitoring time \( T_{mon} \).

In another embodiment according to the present invention, in order to exclude the monitoring video \( vA \) generated by AV output signals of the first port 15b from final outputs, resonating operation of the signal demodulator 9 and/or transport stream selection operation of the demultiplexer 10 to obtain the corresponding AV signals can be stopped.

If time-out \( t422 \) of the monitoring interval \( T_{m.int} \) occurs at the timer 20b (S332) while the user watches a video \( vB \) in a single screen, the controller 20 re-activates the monitoring interval \( T_{m.int} \) and countdown of the monitoring time \( T_{mon} \) 41-2 and at the same time, by referring to the configuring information stored temporarily (“main channel-the second port”, “monitor channel-the first port”), commands again the video layout formatter 21 to compose a multi-view screen by using output signals of the second port 15b as a main channel signal. According thereto, again, multiple videos \( vA \) and \( vB \) are disposed according to a predetermined screen layout and thus displayed in the same screen 420 (S322). As described in one embodiment, if the corresponding channel resonance is stopped while the monitoring video is not displayed, a process of re-tuning the corresponding channel according to the description above is accompanied by operations of the multi-view screen composition. And if the monitoring time \( T_{mon} \) is timed out \( t431 \) again (S323), the controller 20 deactivates the count of the monitoring time \( T_{mon} \) of the timer 20b and applies a command to the output screen composer 21 to exclude the monitoring video \( vA \) and to output a single video screen (S331).

The single-view state is maintained until the monitoring interval \( T_{m.int} \) is timed out \( t432 \) at the timer 20b; if timed out (S332), the controller 20 performs control operation as described above to cause a multi-view screen 430 including the monitoring window \( vA \) to be displayed for the monitoring time \( T_{mon} \) (S322).

According to the embodiment described in detail above, a process of displaying the video of a channel to be monitored in a predetermined area together with a main video is repeated for the monitoring time \( T_{mon} \) every monitoring intervals \( T_{m.int} \).
According to the operation described in the embodiments, the user is enabled to automatically check the video on another channel to be monitored for a relatively short time period with a predetermined time interval while he or she is watching the program of a current channel.

In order to reduce interference due to the monitoring video or window in the user's watching a broadcasting program as possibly as can be, the monitoring time $T_{mon}$ is determined in such a way not to exceed a half of the monitoring interval $T_{m.int}$. In one embodiment according to the present invention, the monitoring interval $T_{m.int}$ can be 30 seconds, 1 minute, 1 minute and 30 seconds, 2 minutes, or 3 minutes (which is not limited thereto); the monitoring time $T_{mon}$ can be one, two, three, five, or ten seconds (which is not limited thereto). In another embodiment according to the present invention, it is equally possible that the monitoring time $T_{mon}$ is not determined independently but automatically as a predetermined ratio (for example, 5%, 10%, 15%, or 20%) of the monitoring interval $T_{m.int}$.

As described above, if the user requests "switching to a monitor channel" while the video of the monitor channel is displayed in a predetermined area of the screen every intervals $T_{m.int}$, the controller 20 checks whether the monitoring video is currently displayed (S341), in other words, whether the monitoring time $T_{mon}$ is counted down and at the same time, it is before occurrence of time-out. If the state corresponds to the multi-view display where the monitoring video is displayed, operation of switching the monitor channel to the main channel is carried out (S351); otherwise, the request is ignored. In another embodiment according to the present invention, although the monitoring video is not displayed at the time of the "switching to the monitoring channel" request, if the time lapse after the monitoring video has been deleted (from the standpoint of the viewer, the time lapse since the monitor video has disappeared from the screen) is within a predetermined time period (e.g., within three or five seconds), the operation of switching the monitoring channel to the main channel is carried out (S351). The predetermined time period is set in such a way that the monitoring interval $T_{m.int}$ subtracted by the monitoring time $T_{mon}$ does not exceed, for example, 50%.

At the time of switching the monitoring channel to the main channel, the
controller 20 changes the current multi-view configuring information stored temporarily ("main channel-the second port", "monitor channel-the first port") to that of "main channel-the first port" and "monitor channel-the second port"; and commands the video layout formatter 21 to compose a multi-view display with output signals of the first port 15a as the signal of the main channel. Accordingly, as shown in FIG. 5A, a multi-view screen 502 is generated where the monitor video vA before channel switching is changed to the main video and the main video vB to a sub-video. In other words, if the video of the monitor channel is changed to the main video according to the channel switching request for the monitor channel, the video channel of a current main display is automatically changed to the monitor channel.

The video layout formatter 21, according to the command of the multi-view display, outputs audio output signals by selecting AV signals of the first port 15a from the AV signals of the second port 15b. Since the signal of the main channel has been changed from the output signal of the second port 15b to that of the first port 15a, if the user changes the channel at this time of setting, the controller 20 may change the resonating channel of the signal demodulator 9 providing output signals of the first port 15a rather than the second port 15b or select another stream of the demultiplexer 10.

If time-out t511 of the monitoring time Tmon occurs from the timer 20b after switching to the monitor channel as described above, the controller 20 deactivates the count of the monitoring time and commands the video layout formatter 21 to exclude AV output signals of the second port 15b designated as a current monitor channel. According to this command, the video layout formatter 21 composes the screen 503 by using the video vA from AV output signals of the first port 15a only and outputs the composed video. Afterwards, if the monitoring interval Tm.int counted by the timer 20b expires t512, the controller 20 re-activates 51 the monitoring interval Tm.int and the countdown of the monitoring time Tmon and at the same time, by referring to the current multi-view configuring information ("main channel-the first port", "monitor channel-the second port"), issues a command again to the video layout formatter 21 to produce a multi-view display by using output signals of the first port 15a as main channel signals. According thereto, again, a multi-view screen including the monitoring
video vB is displayed for the monitoring time $T_{mon}$.

In the embodiment described with reference to FIG. 5A, time values related to monitoring ($T_{mon}$ and $Tm.int$) were not set again but maintained a current count value when switching to the corresponding monitor channel while monitoring another channel. Another embodiment according to the present invention re-activates time values related to the monitoring ($T_{mon}$ and $Tm.int$) when switching to the monitoring channel. FIG. 5B illustrates the display time of a monitor video according thereto. As shown in FIG. 5B, at the time of switching 521 to the monitoring channel, the multi-view display configuring information is changed accordingly and a command instructing a multi-view display by using output signals of the first port 15a as main channel signals is applied to the video layout formatter 21 and at the same time, time variables related to the monitoring ($T_{mon}$ and $Tm.int$) are re-activated 52. Time 531 elapsed for channel switching due to the re-activation is ignored. Therefore, after channel switching, the monitoring time $T_{mon}$ and the monitoring interval $Tm.int$ are newly applied for the re-composed display layout (main screen: vA, sub-screen (in small window): vB). For example, if the monitoring time $T_{mon}$ is two seconds and the monitoring interval $Tm.int$ is 30 seconds, the monitor video vB is displayed for two seconds and then disappears; the monitor video is displayed again 28 seconds later.

As described in the embodiments above, by switching a channel currently viewed to the monitor channel at the time of switching to the monitor channel, if sports games which include scenes of scoring a point are broadcast on both channels, the user can watch both channels conveniently in an alternate manner without missing the scenes of scoring a point as possibly as can be.

In another embodiment according to the present invention, at the time of switching to the monitor channel, operation of switching the video of the monitor channel to the main screen is carried out but the video of the main channel is not composed as a monitor video. FIG. 5C illustrates an example of changing the composition of the output screen according thereto. As shown in FIG. 5C, at the time of channel switching 541, the video of the monitor channel before channel switching is composed as a single screen 551 and the composed screen is output. As a matter of course, the controller 20, according to the channel switching request, changes the multi-
view configuring information into that of “main channel-the first port” and “monitor channel-the second port”. Counting of the monitoring time $T_{mon}$ is deactivated and the monitoring interval $T_{m.int}$ is re-activated. In the present embodiment, a single screen is displayed for the initial monitoring interval $T_{m.int}$; after the time-out 561 of the first monitoring interval $T_{m.int}$ since channel switching, multi-view screen output and single video screen output alternate in the same way as the embodiment described above. In the embodiment of FIG. 5C, at the time of the channel switching 541, the monitoring time $T_{mon}$ may be deactivated and the monitoring interval $T_{m.int}$ may not be re-activated. If it is the case that a current count value is used as it is while not re-activating the monitoring interval $T_{m.int}$, the multi-view screen output and the single video screen output start to repeat alternation once the monitoring interval elapses from the time of the previous re-activation time 542.

If the user requests release of monitoring while a channel besides a current channel is being monitored according to one of the embodiments described above S361, the controller 20 deactivates the operation of counting the times related to monitoring of the timer 20b and commands the video layout formatter 21 to compose a single-view screen from AV signals of the output port of the decoder 15 (S371) which is set as a main channel in the currently stored multi-view configuring information. In addition, the controller 20 checks the output port of the decode 15 which is set as a monitor channel and stops resonance operation of the signal demodulator 9 to obtain AV signals of the output port and/or the operation of selecting a transport stream of the demultiplexer 10. If it is found that the release of monitoring has not been requested at the step of S361 for checking the request of monitoring release, the controller 20 checks whether a current video signal output state corresponds to multi-view display or single-view display and according to the checking result, enters the step S322 of multi-view screen composition (P361a) or the step S331 of single video screen composition (P361b).

The embodiments described above illustrate a method of selecting a channel currently viewed as a monitoring channel. In other words, if monitoring is requested while the user watching a program on a current channel, the current channel was set to display as a monitoring video and the previous channel as a main screen.
In another embodiment according to the present invention, another channel is set as a monitoring channel without channel switching while the user is watching an arbitrary channel. For example, if the user makes a request for monitoring while an arbitrary channel is being resonated and output, the controller 20 provides an input window 61 for receiving an input for setting of a monitoring channel as shown in FIG. 6 through the screen signal generator 18. At this time, the controller 20, to allow the user to input a channel conveniently, can display numbers for input cells corresponding to the respective channels obtained previously one by one according to the arrow key inputs by the user (up-down or left-right key).

If a channel for monitoring is selected, the controller 20 commands the signal demodulator 9 or the demultiplexer 10 to resonate at the channel or select a sub-channel; controls the decoder 15 to decode a transport stream obtained according thereto and output the decoded stream to another port (for example, the second port 15b) rather than the port (for example, the first port 15a) through which AV signals are currently output; and sets the multi-view configuring information accordingly (for example, main channel-the first port and monitor channel-the second port). The controller 20 also sets time variables related to monitoring (Tmon and Tm.int) for the timer 20b and starts countdown; and commands the video layout formatter 21 to compose a multi-view screen by using, for example, output signals of the first port 15a as main channel signals. Accordingly, the video of a channel to be monitored is displayed with the main video 62 (namely, the video of the main channel) in a single screen. Afterwards, based on time-out of the time variables related to the monitoring, monitoring which displays the video of the selected channel intermittently is performed.

In the embodiment described above, if the values in the environmental variable for monitoring have not been set at the time of issuing a monitoring request from the user, the controller 20 can carry out the operation of monitoring another channel described above after providing an input window for receiving those values, receiving values about the corresponding environmental variable, and setting the environmental variable by the received values.

In the embodiments described above, the monitoring operation has been initiated by the monitoring request from the user. In another embodiment according to
the present invention, the monitoring operation is started for a designated channel at the time designated by the user. For example, if the user wants to watch a sports game such as a football or basketball game supposed to be broadcast on another channel while watching a drama on an arbitrary channel, the user can receive not only the channel to be monitored but also the time at which monitoring of the channel is to be started (close to the broadcasting time announced), thereby setting the monitoring operation. If the monitoring channel and the start time are determined together as described above, the controller 20 stores the values and checks continuously whether it corresponds to the monitoring time; if it becomes the corresponding time, according to the procedure described above, the controller 20 decodes digital streams of the channel into audio/video signals by tuning to the corresponding monitoring channel or selecting the corresponding sub-channel; and composes multi-view signals for displaying multi videos on a screen with the decoded video signals of the sub-channel and the main video (video of a main channel) being currently watched, and then outputs the composed multi-view signals. The monitoring operations afterwards are carried out in the same way as described above.

In another embodiment according to the present invention, start time for monitoring is not input directly from the user but can be designated through EPG provided by digital broadcasting. FIGS. 7A and 7B are screen examples of setting monitoring start time and a monitoring channel according to the present embodiment. The EPG is obtained through management information (for example, PSI) of each channel, which is stored in the buffer memory 12 after decoding. As shown in FIG. 7A, if the user selects a particular program (which is also called an “EPG event”) 72 from an EPG list 71 provided through the screen signal generator 18 according to the request of checking EPG by the user, the controller 20, as shown in FIG. 7B, provides a requested operation selection window 75 for the user to select “monitoring”. If the user requests “monitoring” for the selected EPG event, the controller 20 checks the channel number and broadcasting start time of the corresponding EPG event from the EPG list and carries out the monitoring operation about the corresponding channel by starting the monitoring operation from the moment it becomes the broadcasting start time.

In one embodiment according to the present invention, if the broadcasting start
time of the selected EPG event is before the current time, in response to the "monitoring" request of the user, channel switching to the very channel can be carried out without carrying out the monitoring described above. In another embodiment according to the present invention, if the broadcasting start time of the EPG event selected by the user from the EPG list provided on a screen as shown in FIG. 7A precedes the current time, the user can be made not to request monitoring for the corresponding EPG event by excluding a selection item of "monitoring" from a selection window such as FIG. 7B.

In one embodiment according to the present invention, for an EPG event selected by the user, monitoring can be started before the broadcasting start time of the event by a predetermined spare time. The spare time is set by the user through an initial setting menu provided appropriately and then included in the environmental variable for monitoring.

In the embodiments described above, monitoring another channel other than a current one was carried out. In another embodiment according to the present invention, a plurality of channels other than a current one can be monitored. In the present invention, monitoring videos having as many channels as the signal demodulator 9 can simultaneously resonate or as many sub-channels as the demultiplexer 10 can simultaneously select and output are displayed together with the video of a main screen; if it is the case that the number of channels (or sub-channels) exceeds what is allowed for simultaneous resonance (or selection), videos are obtained by distributing channel resources sequentially to the respective monitoring channels selected and the obtained videos are output as monitoring videos. In case each monitoring video is output sequentially from multiple videos, the corresponding video lasts on the screen for each monitoring time \( T_{mon} \) or for the monitoring time \( T_{mon} \) divided by the number of monitoring channels \( T_{mon}/N \).

In the embodiment described above, described was operation of monitoring another channel or other channels while the user watching a program on a broadcasting channel. The present invention, however, is not limited to broadcasting channels but can be applied to all types of sources providing video contents. For example, in one embodiment according to the present invention, the user can set an arbitrary
broadcasting channel as a monitoring channel while the user watches video signals received from an external video device connected, a recorded broadcasting program, video contents stored in a portable storage device connected in a detachable way (for example, SD memory, USB memory, an external hard disk, and the like), or video contents streamed online or downloaded through the data communication unit. As a matter of course, monitoring in the opposite direction is also possible (monitoring of video contents of another source while watching a broadcasting program). In the present embodiment, during selection of a monitoring source, in addition to channel information, information specifying the type of a source is added. For example, if the user requests monitoring, selection of a source type (for example, a broadcasting channel, a recorded program, a file of a connected medium, a downloaded file, or streaming contents, which is not limited to the above) is made first and by indicating a particular content identifier (for example, a channel number, a name of a recorded program, a file name, URL of streaming contents, and the like) from the selected source type, one video contents is made to be selected. Monitoring operation is carried out as described above for the video contents of an arbitrary source selected in the same way as above.

The present invention is not limited to the preferred embodiments described above but it should be easily understood by those skilled in the art that various embodiments with improvements, modifications, substitutions, or additions can be obtained within the spirit and the scope of the invention. If embodiments with the improvements, modifications, substitutions, or additions fall within the scope as defined by the following appended claims, it should be regarded that the corresponding technical spirit belongs to the scope of the present invention.
What is claimed is:

1. A method for monitoring video provided from a content source, the method comprising:
   outputting a first video signal provided from a first content source; and
   displaying a video from a second video signal intermittently with a video from
   the first video signal on a single screen, the second video signal being provided from a
   second content source other than the first second content source, by:
   causing the single screen to be in a multi-view state where a video from
   the second video signal is displayed with a video from the first video signal on the
   single screen for a first time period;
   causing the single screen to be in a single-view state, after the first time
   period, where a video from the first video signal is displayed alone on the single screen
   for a second time period longer than the first time period; and
   causing the multi-view state and the single-view state to be repeated in
   an alternate manner on the single screen after the second time period.

2. The method of claim 1, further comprising:
   switching between a video area for the first video signal and a video area for the
   second video signal on the single screen according to a request of a user; and
   causing the single screen to display a video from the first video signal
   intermittently with a video from the second video signal,
   wherein the switching comprises causing the single screen to display a video
   from the first video signal with a video from the second video signal during a particular
   time equal to or shorter than the first time period, and
   the causing the single screen to display a video from the first video signal
   intermittently with a video from the second video signal comprises:
   causing the single screen to be in a first single-view phase, after the
   particular time, where a video from the second video signal is displayed alone on the
   single screen for the second time period;
   causing the single screen to be in a multi-view phase, after the second
   time period, where a video from the first video signal is displayed with a video from
the second video signal on the single screen for the first time period;

cause the single screen to be in a second single-view phase, after the
first time period, where a video from the second video signal is displayed alone on the
single screen for the second time period; and

cause the multi-view phase and the second single-view phase to be
repeated in an alternate manner.

3. The method of claim 2, wherein the switching comprises ignoring the
request if the request is not made while the first time period passes.

4. The method of claim 1, further comprising:
cause the single screen to display a video from the second video signal alone
for a time equal to or longer than the second time period according to a request of a
user; and

cause the single screen to display a video from the first video signal
intermittently with a video from the second video signal after the time,

wherein the cause the single screen to display a video from the first video
signal intermittently with a video from the second video signal comprises:
cause the single screen to be in a multi-view phase, after the second
time period, where a video from the first video signal is displayed with a video from
the second video signal on the single screen for the first time period;
cause the single screen to be in a single-view phase, after the first time
period, where a video from the second video signal is displayed alone on the single
screen for the second time period; and

cause the multi-view phase and the single-view phase to be repeated
in an alternate manner.

5. The method of claim 1, wherein the second content source is a source of
which a video signal is being displayed at a time when a monitoring request is made
from a user, and the first content source is a source of which a video signal is being
displayed right before a video signal provided from the second content source is
displayed.

6. The method of claim 1, wherein the first content source is a source of which a video signal is being displayed at a time when a monitoring request is made from a user, and the second content source is a source of which a video signal is being displayed right before a video signal provided from the first content source is displayed.

7. The method of claim 1, wherein the second content source is a source being designated as a monitoring object by information entered by a user through a provided selection menu screen.

8. The method of claim 1, wherein the second content source corresponds to a program item being designated as a monitoring object from a broadcasting program schedule provided on a screen based on an electronic program guide received through broadcasting signals.

9. The method of claim 1, wherein the displaying a video from the second video signal intermittently with a video from the first video signal on the single screen is started automatically at a time that is specified by time information entered directly from a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals.

10. An apparatus for outputting video signals of contents, the apparatus comprising:
    a receiver adapted for obtaining a plurality of contents;
    a decoder adapted for decoding data of at least one of the plurality of contents obtained by the receiver and outputting one or more video signals of the at least one content;
    a video formatter adapted for outputting the one or more video signals of which corresponding videos are disposed in a specified layout on a single screen; and
    a controller adapted for controlling the video formatter for a video from a
second video signal belonging to the one or more video signals to be displayed intermittently on the single screen with a video from a first video signal belonging to the one or more video signals,

the controller being further adapted for controlling the video formatter to:

cause the single screen to be in a multi-view state where a video from the second video signal is displayed with a video from the first video signal on the single screen for a first time period;

cause the single screen to be in a single-view state, after the first time period, where a video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period; and

cause the multi-view state and the single-view state to be repeated in an alternate manner.

11. An apparatus of claim 10, wherein the controller is further adapted for controlling the video formatter to:

switch between a video area for the first video signal and a video area for the second video signal on the single screen according to a request of a user; and

cause the single screen to be in an intermittent multi-view phase where a video from the first video signal is displayed intermittently with a video from the second video signal on the single screen,

wherein the controlling to switch comprises causing the single screen to display a video from the first video signal with a video from the second video signal during a particular time equal to or shorter than the first time period, and

operations conducted in the intermittent multi-view phase comprises:

caus[ing the single screen to display a video from the second video signal alone for the second time period after the particular time; and

caus[ing a first-type of view phase lasting for the first time period and the second-type of view phase lasting for the second time period to be repeated in an alternate manner, the first-type of view phase being a phase where a video from the first video signal is displayed with a video from the second video signal on the single screen, the second-type of view phase being a phase where a video from the second
video signal is displayed alone on the single screen.

12. The apparatus of claim 10, wherein the controller is further adapted for controlling the video formatter to:

   display a video from the second video signal alone for a time equal to or longer than the second time period on the single screen according to a request of a user; and

   cause the single screen to be in an intermittent multi-view phase, after the time, where a video from the first video signal is displayed intermittently with a video from the second video signal on the single screen,

   wherein operations conducted in the intermittent multi-view phase comprises causing a first-type of view phase lasting for the first time period and the second-type of view phase lasting for the second time period to be repeated in an alternate manner, the first-type of view phase being a phase where a video from the first video signal is displayed with a video from the second video signal on the single screen, the second-type of view phase being a phase where a video from the second video signal is displayed alone on the single screen.

13. The apparatus of claim 12, wherein the controller is further adapted for ignoring the request if the request is not made while the first time period passes.

14. The apparatus of claim 10, wherein either the first content source or the second content source is a source of which a video signal is being displayed at a time when a monitoring request is made from a user, and either the second content source or the first content source is a source of which a video signal is being displayed right before a video signal provided from the second content source is displayed.

15. The apparatus of claim 10, wherein the second content source is a source being designated as a monitoring object by information entered by a user through a selection menu screen provided by the controller.

16. The apparatus of claim 10, wherein the second content source
corresponds to a program item being designated as a monitoring object from a broadcasting program schedule provided on a screen based on an electronic program guide received through broadcasting signals.

17. The apparatus of claim 10, wherein the controller is further adapted for starting a control operation at a specific time to display a video from the second video signal intermittently with a video from the first video signal on the single screen, the specific time being specified by time information entered directly from a user or by a broadcasting start time of a program item included in an electronic program guide received through broadcasting signals.

18. The apparatus of claim 10, wherein the receiver is adapted for comprising at least one of:
   a signal demodulator configured to tune to and demodulate a broadcasting signal to output a broadcasting program;
   a storage device configured to store recoded broadcasting programs;
   a video device connecting unit configured to receive video signals inputted through connecting terminals;
   a storage media interfacing unit configured to read out content data from a portable storage medium connected detachably; and
   a communication unit configured to receive video contents from an external server through a data communication network.

19. The apparatus of claim 10, wherein the controller is adapted for providing an input screen through which a user enters a monitoring interval and a monitoring window display time individually, and assigning the entered monitoring window display time to the first time period and the entered monitoring interval subtracted by the monitoring window display time to the second time period.

20. The apparatus of claim 10, wherein the controller is adapted for providing an input screen through which a user enters a monitoring interval, and
assigning a time corresponding to a predetermined ratio of the entered monitoring interval to the first time period and the entered monitoring interval subtracted by the assigned time to the second time period.
ABSTRACT

The present invention provides a method for monitoring another video source in addition to a current video source. One method according to the present invention comprises outputting a first video signal provided from a first contents source (for example, a broadcasting channel) and displaying a video from a second video signal provided from a second contents source intermittently with a video from the first video signal on a single screen. During the displaying, a multi-view displaying operation, in which the video from the second video signal is displayed together with the video from the first video signal on the single screen for a first time period, and a single-view displaying operation, in which the video from the first video signal is displayed alone on the single screen for a second time period longer than the first time period, are repeated in an alternate manner.
FIG. 1

BACKGROUND ART
FIG. 2

Broadcast Signals

Tuner/Demod.

Demuxer

Parser

Buffer Memory

Decoder

HDD

Controller

Video Layout Formatter

OSD

To TV

User's Commands

Selection

MPTS

A/V, PSI

A/V Signals

audio

video
FIG. 3

START

set monitoring time & interval

display a video of a single channel on a screen

channel switching?

Yes

switch to a corresponding channel/store the previous channel

No

monitoring requested?

Yes

activate monitoring and tune multiple channels (the previous and current ones)/set the previous channel to main one and the current channel to monitoring one

display the main channel video together with the monitoring channel video together

No

monitoring time expired?

Yes

display the main channel video alone (remove the monitoring video)

No

monitoring interval expired

Yes

monitoring stop requested?

Yes

display video of the current main channel video on a single screen

END
FIG. 6

Please enter channel No. to monitor

Channel No.: DTV 11-1

FIG. 7A

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DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought on the invention entitled METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE, the specification of which

☒ is attached hereto ☐ was filed on _____________ as Application Serial No. _____________ and was amended on ___________________ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56, including for continuation in-part applications, material information which became available between the filing date of the prior application and the international or PCT international filing date of the continuation in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365 (b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s):
Number Country Foreign Filing Date
10-2010-0068768 Republic of Korea 07/16/2010

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s):
Filing Date (Month/Day/Year)

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

Prior U. S. Application
or PCT Parent Number Filing Date (Month/Day/Year) Parent Patent Number (if applicable)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.
I hereby appoint the attorney(s) and/or agent(s) associated with Customer Number 34610 to prosecute this application and transact all business in the Patent and Trademark Office.

**Direct all correspondence to Customer Number 34610**

Full name of sole or first inventor: Myunhee, OH
Inventor's signature: [Signature]
Date: 2011. 1. 24

Mailing Address: 101-501, E-Pyeonhan Sesang Apt., 987-1, Yeongtong-2-dong, Yeongtong gu, Suwon-si, Gyeonggi-do, 443-812, Republic of Korea

Citizenship: Republic of Korea
Residence Address
(only if different from mailing address):

Full name of joint inventor(s):
Inventor's signature: Date:

Mailing Address:
Citizenship:
Residence Address
(only if different from mailing address):

Full name of joint inventor(s):
Inventor's signature: Date:

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Residence Address
(only if different from mailing address):

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Inventor's signature: Date:

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Full name of joint inventor(s):
Inventor's signature: Date:

Mailing Address:
Citizenship:
Residence Address
(only if different from mailing address):

Full name of joint inventor(s):
Inventor's signature: Date:
AUTHORIZATION TO TREAT A REPLY AS INCORPORATING
AN EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)(3)

Sir:

The U.S. Patent and Trademark Office is hereby authorized to treat any concurrent or future reply that requires a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time under 37 C.F.R. §1.136(a)(3). The U.S. Patent and Trademark Office is hereby authorized to charge all required extension of time fees to our Deposit Account No. 16-0607, if such fees are not otherwise provided for in such reply.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186
**Application Data Sheet 37 CFR 1.76**

| Title of Invention | METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE |

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.)

**Applicant Information:**

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**Mailing Address of Applicant:**

| Address 1 | HUMAX CO., LTD. of Humax village |
| Address 2 | 11-4, Sunae-dong, Bundang-gu |
| City      | Seongnam-si, Gyeonggi-do |
| Postal Code | 463-825 |
| Country   | KR |

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.

**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 | 34610 |
| Email Address   | ked-docket@ked-iplaw.com |

**Application Information:**

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Application Data Sheet 37 CFR 1.76

| Title of Invention | METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE |

**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). Enter either 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 34610

**Domestic Benefit/National Stage Information:**

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this 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(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

- Prior Application Status: Pending
- Application Number: a 371 of international
- Continuity Type
- Prior Application Number
- Filing Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.

**Foreign Priority Information:**

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. 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(a).

- Application Number 10-2010-0068768
- Country: KR
- Parent Filing Date (YYYY-MM-DD) 2010-07-16
- Priority Claimed: ○ Yes ○ No

Additional Foreign Priority Data may be generated within this form by selecting the Add button.

**Assignee Information:**

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

Assignee 1

EFS Web 2.2.2
Application Data Sheet 37 CFR 1.76

| Title of Invention | METHOD AND APPARATUS FOR MONITORING ANOTHER VIDEO SOURCE |

If the Assignee is an Organization check here. [ ]

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Email Address

Additional Assignee Data may be generated within this form by selecting the Add button.

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.

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<td>Daniel Y.J.</td>
<td>KIM</td>
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Registration Number: 36186

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.
# Electronic Patent Application Fee Transmittal

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**Payment information:**

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RPL-0409Authorization.pdf  
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Application Data Sheet  
RPL-0409ADS.pdf  
572985  
no  
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**Warnings:**

**Information:**

This is not an USPTO supplied ADS fillable form

4  
Fee Worksheet (PTO-875)  
fee-info.pdf  
32902  
no  
2

**Warnings:**

**Information:**

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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.

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