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P.O. Box 1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/621,304	06/25/2013	8471950	16869S-242000US	2212

20350 7590 06/05/2013
KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

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 617 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):

Junji KAMIMURA, Yokohama, JAPAN;
Akihito Nishizawa, Yokosuka, JAPAN;
Junji Shiokawa, Chigasaki, JAPAN;
Shinichi Nonaka, Zushi, JAPAN;

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

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

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

20350 7590 03/19/2013
KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

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

Certificate of Mailing or Transmission

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

Lily Sun	(Depositor's name)
/Lily Sun/	(Signature)
2013-05-30	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/621,304 11/18/2009 Junji KAMIMURA 16869S-242000US 2212

TITLE OF INVENTION: A SIGNAL PROCESSOR FOR ADJUSTING IMAGE QUALITY OF AN INPUT PICTURE SIGNAL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1780	\$300	\$0	\$2080	06/19/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
TEJANO, DWIGHT ALEX C	2663	348-223100

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

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

2. For printing on the patent front page, list

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

1 Kilpatrick Townsend
& Stockton LLP
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)

HITACHI CONSUMER ELECTRONICS CO., LTD. TOKYO, JAPAN

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

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

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

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

- ☐ A check is enclosed.
☒ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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

Authorized Signature /Charles W. Gray/

Date 2013-05-30

Typed or printed name Charles W. Gray

Registration No. 61345

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				
Application Number:		12621304		
Filing Date:		18-Nov-2009		
Title of Invention:		A SIGNAL PROCESSOR FOR ADJUSTING IMAGE QUALITY OF AN INPUT PICTURE SIGNAL		
First Named Inventor/Applicant Name:		Junji KAMIMURA		
Filer:		Charles W. Gray/Lily Sun		
Attorney Docket Number:		16869S-242000US		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	1780	1780
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				2080

Electronic Acknowledgement Receipt	
EFS ID:	15912673
Application Number:	12621304
International Application Number:	
Confirmation Number:	2212
Title of Invention:	A SIGNAL PROCESSOR FOR ADJUSTING IMAGE QUALITY OF AN INPUT PICTURE SIGNAL
First Named Inventor/Applicant Name:	Junji KAMIMURA
Customer Number:	20350
Filer:	Charles W. Gray/Lily Sun
Filer Authorized By:	Charles W. Gray
Attorney Docket Number:	168695-242000US
Receipt Date:	30-MAY-2013
Filing Date:	18-NOV-2009
Time Stamp:	22:21:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$2080
RAM confirmation Number	6824
Deposit Account	201430
Authorized User	GRAY, CHARLES
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Issue_Fee_Payment.pdf	97170	no	1
			c9ff51e4ceda23f7202455adb972117a6c44865		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32339	no	2
			dae530d30485ab934022ad91044a24d1fec0da40		

Warnings:

Information:

Total Files Size (in bytes):	129509
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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.



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NOTICE OF ALLOWANCE AND FEE(S) DUE

20350 7590 03/19/2013
KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER

TEJANO, DWIGHT ALEX C

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 03/19/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/621,304	11/18/2009	Junji KAMIMURA	16869S-242000US	2212

TITLE OF INVENTION: A SIGNAL PROCESSOR FOR ADJUSTING IMAGE QUALITY OF AN INPUT PICTURE SIGNAL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1780	\$300	\$0	\$2080	06/19/2013

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

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

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

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

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

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

If the SMALL ENTITY is shown as NO:

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

20350 7590 03/19/2013
KILPATRICK TOWNSEND & STOCKTON LLP
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SAN FRANCISCO, CA 94111-3834

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Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/621,304	11/18/2009	Junji KAMIMURA	16869S-242000US	2212
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TITLE OF INVENTION: A SIGNAL PROCESSOR FOR ADJUSTING IMAGE QUALITY OF AN INPUT PICTURE SIGNAL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1780	\$300	\$0	\$2080	06/19/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
TEJANO, DWIGHT ALEX C	2663	348-223100

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

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

2. For printing on the patent front page, list

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

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

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

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

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/621,304	11/18/2009	Junji KAMIMURA	16869S-242000US	2212

20350	7590	03/19/2013
KILPATRICK TOWNSEND & STOCKTON LLP		
TWO EMBARCADERO CENTER		
EIGHTH FLOOR		
SAN FRANCISCO, CA 94111-3834		

EXAMINER	
TEJANO, DWIGHT ALEX C	

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 03/19/2013

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

The Patent Term Adjustment to date is 398 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 398 day(s).

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

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

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

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	12/621,304	KAMIMURA ET AL.	
	Examiner	Art Unit	
	Dwight Alex C. Tejano	2663	

-- 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 filings as of 26 November 2012.

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 1-17. 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).

a) ☒ All b) ☐ Some* c) ☐ None of the:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

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

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

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

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

Attachment(s)

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

/JOHN M. VILLECCO/ Primary Examiner, Art Unit 2661 March 14, 2013	
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EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Charles W. Gray on 13 March 2013.

The application has been amended as follows:

- **Claims 9 and 10** are cancelled.
- In **claim 1**, line 11, delete the word "elevated" and replace it with the word "evaluated".
- In **Claim 2**:
 - In line 2: delete the phrase "the extraction unit" and replace it with the phrase "the feature detection unit".
 - Lines 3 – 4 ("a feature detection unit ... input pixel signal;") are deleted.
 - Lines 8 – 9 ("an evaluated value ... with the region.") are deleted.
 - In line 5, add the word "and" after the semicolon.
 - In line 7, delete "; and" and replace it with a period.
 - After the above changes, the entirety of claim 2 should now read:
 - "A signal processor according to Claim 1, wherein the feature detection unit includes:

a hold unit which holds position information of the detected pixels; and
the region creation unit creates a region by excluding the held positions from the evaluated value extraction region.”

Response to Arguments

Applicant's arguments, filed 26 November 2012, with respect to the amended claims have been fully considered and are persuasive. The previous rejections have been withdrawn.

Allowable Subject Matter

Claims 1 – 8 and 11 – 17 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding **claim 1**, the prior art of record fails to disclose or reasonably suggest a signal processor comprising:

a feature detection unit which detects a position where features of each pixel of an input picture signal have changed;

a region creation unit which creates a region by removing pixels with the features from an evaluated value extraction region;

an evaluated value extraction unit which extracts an evaluated value in accordance with the evaluated value extraction region;

a processing unit which applies predetermined processing to the picture signal;

and

a control unit which controls the processing unit in accordance with the evaluated value having been extracted by the evaluated value extraction unit;

wherein the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

Specifically, the prior art of record fails to disclose or reasonably suggest the active creation of a region from the entire image where pixels containing a certain feature are actively removed. Rather, the closest prior art of record (reference Takeda) chooses a separate fixed evaluation region when an area of irregular brightness is detected, which is not the same as creating a dynamic region where the irregularity is removed. For these reasons at the least, the claim is considered allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwight Alex C. Tezano whose telephone number is (571)270-7200. The examiner can normally be reached on Monday through Friday 11:00-6:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. 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.

/Dwight Alex C Tejano/
Examiner
Art Unit 2663

/JOHN M. VILLECCO/
Primary Examiner, Art Unit 2661
March 14, 2013

<i>Search Notes</i> 	Application/Control No. 12621304	Applicant(s)/Patent Under Reexamination KAMIMURA ET AL.
	Examiner DWIGHT C TEJANO	Art Unit 2622

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
348	229.1,230.1,345-357	5/20/12	DCT
382	164,171,173-180	5/20/12	DCT

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Text Search	5/20/12	DCT
Inventor Search	5/20/12	DCT
Updated search	3/7/13	DCT
Spoke with Jason Flohre (2661)	3/7/13	DCT

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
348	All with limiting text	3/7/13	DCT
382	All with limiting text	3/7/13	DCT

/DWIGHT C TEJANO/ Examiner.Art Unit 2622	
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	24036	("348" "382").clas. and (exclud\$ exclus\$5 extract\$4) same (region neighborhood)	US-PGPUB; USPAT	OR	ON	2013/03/07 17:28
L2	7810	("348" "382").clas. and (exclud\$ exclus\$5 extract\$4 remov\$5) same ((region neighborhood) near4 pixel\$)	US-PGPUB; USPAT	OR	ON	2013/03/07 17:28
L3	335	2 and (focus\$4 near5 value)	US-PGPUB; USPAT	OR	ON	2013/03/07 17:29
L4	1064	2 and ((focus\$4 contrast\$3) near5 value)	US-PGPUB; USPAT	OR	ON	2013/03/07 17:29
L5	215	(3 4) and (autofocus auto\$1focus (auto\$9 adj focus\$3))	US-PGPUB; USPAT	OR	ON	2013/03/07 17:29
L6	6435	382/164,171,173-180.ccls.	US-PGPUB; USPAT	OR	ON	2013/03/07 17:30
L7	675	L6 and segment\$ same overlap\$	US-PGPUB; USPAT	OR	ON	2013/03/07 17:30
L15	305	348/230.1.ccls.	US-PGPUB; USPAT	OR	ON	2013/03/07 18:04
L16	1042	348/229.1.ccls.	US-PGPUB; USPAT	OR	ON	2013/03/07 18:04
L17	279	(L15 L16) and (autofocus auto\$1focus (auto\$9 adj focus\$3))	US-PGPUB; USPAT	OR	ON	2013/03/07 18:04
S1	1	12/621304.app.	US-PGPUB; USPAT	OR	ON	2012/03/23 12:41
S2	3084	348/345-357.ccls.	US-PGPUB; USPAT	OR	ON	2012/03/23 12:43
S3	442	S2 and (exclud\$ exclus\$5)	US-PGPUB; USPAT	OR	ON	2012/03/23 12:43
S4	37	S2 and (exclud\$ exclus\$5) same (region neighborhood)	US-PGPUB; USPAT	OR	ON	2012/03/23 12:44
S5	1	"5978027".pn.	US-PGPUB; USPAT	OR	ON	2012/05/15 15:23
S6	3153	348/345-357.ccls.	US-PGPUB;	OR	ON	2012/05/20 16:04

EAST Search History

			USPAT			
S7	1084	S6 and (luminance brightness exposure) same high\$3	US-PGPUB; USPAT	OR	ON	2012/05/20 16:04
S8	274	348/230.1.ccls.	US-PGPUB; USPAT	OR	ON	2012/05/20 16:04
S9	930	348/229.1.ccls.	US-PGPUB; USPAT	OR	ON	2012/05/20 16:04
S10	251	(S8 S9) and (autofocus auto\$1focus (auto\$9 adj focus\$3))	US-PGPUB; USPAT	OR	ON	2012/05/20 16:05
S11	36	("4804831" "4969045" "5036400" "5049997" "5051833" "5093716" "5128768" "5272538" "5280359" "5339163" "5343246" "5349382" "5353058" "5363137" "5416518" "5473374" "5512951" "5565917" "5589880").PN. OR ("5978027").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/05/20 16:58
S12	32	S10 and segment\$	US-PGPUB; USPAT	OR	ON	2012/05/20 18:48
S13	10	(S8 S9) and segment\$ same2 overlap	US-PGPUB; USPAT	OR	ON	2012/05/20 18:54
S14	15	(S8 S9) and segment\$ same2 overlap\$	US-PGPUB; USPAT	OR	ON	2012/05/20 18:54
S15	5714	382/164,171,173-180.ccls.	US-PGPUB; USPAT	OR	ON	2012/05/20 18:56
S16	607	S15 and segment\$ same overlap\$	US-PGPUB; USPAT	OR	ON	2012/05/20 18:57

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L18	680	("348" "382").clas. and ((remov\$4 eras\$4 delet\$4) near3 pixel\$).clm.	USPAT; UPAD	OR	ON	2013/03/07 18:05
L19	227	18 and region.clm.	USPAT; UPAD	OR	ON	2013/03/07 18:06
L20	10	18 and ((focus\$4 evaluat\$4) near3 value).clm.	USPAT; UPAD	OR	ON	2013/03/07 18:06

3/7/2013 6:09:13 PM

C:\Users\dtejano\Documents\EAST\Workspaces\12621304.wsp



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BIB DATA SHEET

CONFIRMATION NO. 2212

SERIAL NUMBER 12/621,304	FILING or 371(c) DATE 11/18/2009 RULE	CLASS 348	GROUP ART UNIT 2663	ATTORNEY DOCKET NO. 16869S-242000US		
APPLICANTS Junji KAMIMURA, Yokohama, JAPAN; Akihito Nishizawa, Yokosuka, JAPAN; Junji Shiokawa, Chigasaki, JAPAN; Shinichi Nonaka, Zushi, JAPAN; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** JAPAN 2008-303423 11/28/2008 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 11/30/2009						
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and Acknowledged <u>/DWIGHT C TEJANO/</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY JAPAN	SHEETS DRAWINGS 12	TOTAL CLAIMS 17	INDEPENDENT CLAIMS 1
ADDRESS KILPATRICK TOWNSEND & STOCKTON LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834 UNITED STATES						
TITLE A SIGNAL PROCESSOR FOR ADJUSTING IMAGE QUALITY OF AN INPUT PICTURE SIGNAL						
FILING FEE RECEIVED 1220	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit			

Issue Classification 	Application/Control No. 12621304	Applicant(s)/Patent Under Reexamination KAMIMURA ET AL.
	Examiner DWIGHT C TEJANO	Art Unit 2663

CPC		
Symbol	Type	Version

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION										
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED					
348		348				H	0	4	N	5 / 335 (2011.0)						
CROSS REFERENCE(S)						H	0	4	N	9 / 28 (2006.0)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)															
348	345	349														
382	173															

/DWIGHT C TEJANO/ Examiner.Art Unit 2663 (Assistant Examiner)	03/07/2013 (Date)	Total Claims Allowed: 15	
/JOHN VILLECCO/ Primary Examiner.Art Unit 2661 (Primary Examiner)	03/14/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

Issue Classification 	Application/Control No. 12621304	Applicant(s)/Patent Under Reexamination KAMIMURA ET AL.
	Examiner DWIGHT C TEJANO	Art Unit 2663

/DWIGHT C TEJANO/ Examiner.Art Unit 2663 (Assistant Examiner)	03/07/2013 (Date)	Total Claims Allowed: 15	
/JOHN VILLECCO/ Primary Examiner.Art Unit 2661 (Primary Examiner)	03/14/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

Issue Classification 	Application/Control No. 12621304	Applicant(s)/Patent Under Reexamination KAMIMURA ET AL.
	Examiner DWIGHT C TEJANO	Art Unit 2663

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1														
2	2														
3	6														
4	8														
5	11														
6	14														
7	3														
8	12														
9	15														
10	4														
11	13														
12	5														
13	16														
14	7														
15	17														

/DWIGHT C TEJANO/ Examiner.Art Unit 2663 (Assistant Examiner)	03/07/2013 (Date)	Total Claims Allowed: 15	
/JOHN VILLECCO/ Primary Examiner.Art Unit 2661 (Primary Examiner)	03/14/2013 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

I hereby certify that this correspondence is being filed via
EFS-Web with the United States Patent and Trademark Office
on November 26, 2012.

PATENT
Attorney Docket No.: 86890-802468-242000US
Client Ref. No.: W5402-01

KILPATRICK TOWNSEND & STOCKTON LLP

By: /Rita Christensen/
Rita Christensen

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Junji Kamimura et al.

Application No.: 12/621,304

Filed: November 18, 2009

For: SIGNAL PROCESSOR

Customer No.: 20350

Confirmation No.: 2212

Examiner: Dwight Alex Tejano

Technology Center/Art Unit: 2663

AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Office Action mailed May 24, 2012, please enter the following amendments
and remarks:

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the listing of claims which begins on page 3 of this
paper.

Arguments begin on page 8 of this paper.

Appl. No. 12/621,304
Amdt. dated November 26, 2012
Reply to Office Action of May 24, 2012

PATENT

Amendments to the Specification:

Please amend the title of the invention as follows:

**A SIGNAL PROCESSOR FOR ADJUSTING IMAGE QUALITY OF AN INPUT
PICTURE SIGNAL**

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 signal processor comprising:
~~an extraction a feature detection~~ unit which ~~extracts detects~~ a position where
features ~~and position~~ of each pixel of an input picture signal have changed; and outputs an
~~evaluated value corresponding to the extracted feature and position of the pixel;~~
a region creation unit which creates a region by removing pixels with the
features from an evaluated value extraction region;
an evaluated value extraction unit which extracts an evaluated value in
accordance with the evaluated value extraction region;
a processing unit which applies predetermined processing to the picture signal;
and
a control unit which controls the processing unit in accordance with the evaluated
value ~~output from~~ having been extracted by the elevated value extraction unit;
wherein the control unit controls the processing unit by using an evaluated value
of a region from which pixels having an extracted predetermined feature are removed.
2. (Currently Amended) A signal processor according to Claim 1, wherein
the extraction unit includes:
a feature detection unit which detects a feature change position of any pixel and
its peripheral pixels in the input picture signal;
a hold unit which holds position information of the detected pixels;
[[a]] the region creation unit which creates a region by excluding the held
positions from an evaluated value extraction region; and
an evaluated value extraction unit which extracts evaluated values in accordance
with the region.
3. (Original) A signal according to Claim 2, wherein:

the processing unit is a light intensity adjustment unit for controlling exposure;
a lens and a photoelectric conversion unit for performing photoelectric conversion
are disposed between the light intensity adjustment unit and the extraction unit; and
the control unit controls the processing unit by using an evaluated value of a
region from which pixels having an extracted predetermined feature are removed.

4. (Original) A signal processor according to Claim 1, wherein:
the processing unit is a light intensity adjustment unit for controlling exposure;
a lens and a photoelectric conversion unit for performing photoelectric conversion
are disposed between the light intensity adjustment unit and the extraction unit; and
the control unit controls the processing unit by using an evaluated value of a
region from which pixels having an extracted predetermined feature are removed.

5. (Original) A signal processor according to Claim 1, wherein:
the processing unit includes a focus lens, and a drive unit for driving the focus
lens;
a photoelectric conversion unit for performing photoelectric conversion is
disposed between the focus lens and the extraction unit; and
the control unit controls the processing unit by using an evaluated value of a
region from which pixels having an extracted predetermined feature are removed.

6. (Original) A signal processor according to Claim 2, wherein:
the processing unit includes a focus lens, and a drive unit for driving the focus
lens;
a photoelectric conversion unit for performing photoelectric conversion is
disposed between the focus lens and the extraction unit; and
the control unit controls the processing unit by using an evaluated value of a
region from which pixels having an extracted predetermined feature are removed.

7. (Original) A signal processor according to Claim 1, wherein:

the processing unit is a signal processing unit for adjusting white balance of an input picture signal; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

8. (Original) A signal processor according to Claim 2, wherein:

the processing unit is a signal processing unit for adjusting white balance of an input picture signal; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

9. (Currently Amended) A signal processor according to Claim ~~[[5]]~~ 2,

wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

10. (Currently Amended) A signal processor according to Claim ~~[[1]]~~ 2,

wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

11. (Original) A signal processor according to Claim 2, wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

12. (Original) A signal processor according to Claim 3, wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

13. (Original) A signal processor according to Claim 1, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

14. (Original) A signal processor according to Claim 2, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

15. (Original) A signal processor according to Claim 3, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

16. (Original) A signal processor according to Claim 5, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

17. (Original) A signal processor according to Claim 7, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

REMARKS/ARGUMENTS

Status of the Claims

Before this Amendment, claims 1-17 were present for examination. Claims 1, 2, 9, and 10 are amended. No claims have been canceled and no claims have been added. Support for these amendments can be found throughout the specification, for example, at pages 4, 5, and 10. Therefore, claims 1-17 are present for examination, and claim 1 is the independent claim. Applicants respectfully request reconsideration of this application as amended.

The Office Action dated May 24, 2012 ("Office Action") rejected claims 9, 10, 13, 16, and 17 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention.

The Office Action rejected claims 1, 2, 5, 6, 13, 14, and 15 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,978,027 at Takeda ("Takeda").

The Office Action rejected claims 3, 4 and 15 under 35 U.S.C. §103(a) as being unpatentable over Takeda. Claims 7, 8, and 17 were rejected as being unpatentable over Takeda in view of U.S. Patent Publication No. 2006/0087578 at Hong ("Hong"). Claims 9-12 were rejected as being unpatentable over Takeda in view of U.S. Patent Publication No. 2003/002732 at Gossett ("Gossett").

Applicants respectfully request reconsideration for the reasons that follow.

Amendments to the Title

The title has been amended to be more descriptive. Accordingly, Applicants respectfully request that this rejection be withdrawn.

35 U.S.C. §112 Rejection, Second Paragraph

Claims 9, 10, 13, 16, and 17 were rejected under 35 U.S.C. §112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of the invention. Claims 1, 2, 9, and 10 have been amended, thus obviating the rejection. Applicants respectfully request that this rejection be withdrawn.

35 U.S.C. §102(b) Rejections, Takeda

The Office Action rejected independent claims 1, 2, 5, 6, 13, 14, and 15 under 35 U.S.C. §102(b) as anticipated by Takeda.

For a valid anticipation rejection, the Office must show that each limitation from the claims appears in a single piece of prior art. The Federal Circuit recently reaffirmed that “unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations arranged or combined in the same way as recited in the claim, it cannot be said to ... anticipate under 35 U.S.C. § 102.” Net MoneyIn v. Verisign 545 F.3d 1359 (Fed. Cir. 2008). Applicants, however, believe that significant limitations from the independent claims are not taught or suggested by Takeda.

Specifically, Takeda cannot be relied upon to teach or suggest “a region creation unit which creates a region by removing pixels with the features from an evaluated value extraction region; an evaluated value extraction unit which extracts an evaluated value in accordance with the evaluated value extraction region” and “a control unit which controls the processing unit in accordance with the evaluated value having been extracted by the elevated value extraction unit”, as recited by claim 1.

In contrast, Takeda discloses “[a]n image pickup apparatus has an AF function which determines a focus state of an object using an image signal obtained from a signal output of an image pickup device and detects the lens position in an in-focus state. The apparatus includes an image-region setting circuit for selectively extracting an image region for detecting the lens position in an in-focus state, an optimum-exposure-amount calculation circuit for calculating an optimum amount of exposure for the image region using an image signal within the image region set by the image-region setting circuit, and a focus detection circuit for calculating the lens position in an in-focus state using an image signal within the image region exposed with the optimum amount of exposure calculated by the optimum-exposure-amount calculation circuit.” (Takeda at Abs.).

However, with the claimed invention it is possible to remove pixels with a predetermined feature before an evaluated value is to be extracted. Since picture signals with such pixels are then processed, it also becomes possible, for example, to reduce cost and time for

preparation for an evaluated value. This is shown, for example, at pages 10 and 11 of the specification.

Nonetheless, Takeda fails to teach or suggest such features. Instead, Takeda merely determines a focus state of an image, but nowhere does Takeda teach or suggest “a region creation unit which creates a region by removing pixels with the features from an evaluated value extraction region; an evaluated value extraction unit which extracts an evaluated value in accordance with the evaluated value extraction region” and “a control unit which controls the processing unit in accordance with the evaluated value having been extracted by the elevated value extraction unit”, as recited by claim 1.

Therefore, for at least these reasons, Applicants submit that Takeda fails to teach or suggest each and every element of claim 1. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Further, claims 2-17 depend from claim 1. Thus, at least by virtue of their dependence on an allowable base claim, Applicant respectfully submit that claims 2-17 are also allowable. Thus, for at least this reason, Applicant respectfully requests that this rejection be withdrawn.

35 U.S.C. §103(a) Rejections, Takeda et al.

The Office Action rejected independent claims 3, 4 and 15 under 35 U.S.C. §103(a) as being unpatentable over Takeda. Claims 7, 8, and 17 were rejected as being unpatentable over Takeda in view of Hong. Claims 9-12 were rejected as being unpatentable over Takeda in view of Gossett.

Claims 3, 4, 7-12, 15, and 17 depend from independent claim 1. Thus,. At least by virtue of their dependence on an allowable base claim, Applicant submit that claims 3, 4, 7-12, 15, and 17 are also patentable. Therefore, Applicant respectfully requests that these rejections be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Further, the Commissioner is hereby authorized to charge any additional fees or credit any overpayment in connection with this paper to Deposit Account No. 20-1430.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

/Charles W. Gray/

Charles W. Gray
Registration No. 61,345

KILPATRICK TOWNSEND & STOCKTON LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 415-576-0200
Fax: 415-576-0300
Attachments

CWG:rc
64499654v1

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) 86890-802468																																
Application Number 12/621,304	Filed November 18, 2009																																	
For SIGNAL PROCESSOR																																		
Art Unit 2663	Examiner Dwight Alex Tejano																																	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below): <table style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 40%;"></th><th style="width: 20%; text-align: center;"><u>Fee</u></th><th style="width: 20%; text-align: center;"><u>Small Entity Fee</u></th><th style="width: 20%;"></th></tr></thead><tbody><tr><td>☐ One month (37 CFR 1.17(a)(1))</td><td style="text-align: center;">\$150</td><td style="text-align: center;">\$75</td><td style="text-align: right;">\$ _____</td></tr><tr><td>☐ Two months (37 CFR 1.17(a)(2))</td><td style="text-align: center;">\$570</td><td style="text-align: center;">\$285</td><td style="text-align: right;">\$ _____</td></tr><tr><td>☒ Three months (37 CFR 1.17(a)(3))</td><td style="text-align: center;">\$1,290</td><td style="text-align: center;">\$645</td><td style="text-align: right;">\$ <u>1,290</u></td></tr><tr><td>☐ Four months (37 CFR 1.17(a)(4))</td><td style="text-align: center;">\$2,010</td><td style="text-align: center;">\$1,005</td><td style="text-align: right;">\$ _____</td></tr><tr><td>☐ Five months (37 CFR 1.17(a)(5))</td><td style="text-align: center;">\$2,730</td><td style="text-align: center;">\$1,365</td><td style="text-align: right;">\$ _____</td></tr></tbody></table> ☐ Applicant claims small entity status. See 37 CFR 1.27. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director has already been authorized to charge fees in this application to a Deposit Account. ☐ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number _____. ☐ Payment made via EFS-Web. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. I am the ☐ applicant/inventor. ☐ assignee of record of the entire interest. See 37 CFR 3.71. 37 CFR 3.73(b) statement is enclosed (Form PTO/SB/96). ☒ attorney or agent of record. Registration number <u>61,345</u> ☐ attorney or agent acting under 37 CFR 1.34. Registration number _____ <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"><tr><td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">/Charles W. Gray/</td><td style="width: 50%; border-bottom: 1px solid black; padding-bottom: 5px;">November 26, 2012</td></tr><tr><td style="text-align: center; font-size: small;">Signature</td><td style="text-align: center; font-size: small;">Date</td></tr><tr><td style="border-bottom: 1px solid black; padding-bottom: 5px;">Charles W. Gray</td><td style="border-bottom: 1px solid black; padding-bottom: 5px;">303-571-4000</td></tr><tr><td style="text-align: center; font-size: small;">Typed or printed name</td><td style="text-align: center; font-size: small;">Telephone Number</td></tr></table> NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.				<u>Fee</u>	<u>Small Entity Fee</u>		☐ One month (37 CFR 1.17(a)(1))	\$150	\$75	\$ _____	☐ Two months (37 CFR 1.17(a)(2))	\$570	\$285	\$ _____	☒ Three months (37 CFR 1.17(a)(3))	\$1,290	\$645	\$ <u>1,290</u>	☐ Four months (37 CFR 1.17(a)(4))	\$2,010	\$1,005	\$ _____	☐ Five months (37 CFR 1.17(a)(5))	\$2,730	\$1,365	\$ _____	/Charles W. Gray/	November 26, 2012	Signature	Date	Charles W. Gray	303-571-4000	Typed or printed name	Telephone Number
	<u>Fee</u>	<u>Small Entity Fee</u>																																
☐ One month (37 CFR 1.17(a)(1))	\$150	\$75	\$ _____																															
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/Charles W. Gray/	November 26, 2012																																	
Signature	Date																																	
Charles W. Gray	303-571-4000																																	
Typed or printed name	Telephone Number																																	

☐ * Total of _____ forms are submitted.
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This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:		12621304		
Filing Date:		18-Nov-2009		
Title of Invention:		SIGNAL PROCESSOR		
First Named Inventor/Applicant Name:		Junji KAMIMURA		
Filer:		Charles W. Gray/Rita Christensen		
Attorney Docket Number:		16869S-242000US		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with \$0 paid	1253	1	1290	1290

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				1290

Electronic Acknowledgement Receipt	
EFS ID:	14304512
Application Number:	12621304
International Application Number:	
Confirmation Number:	2212
Title of Invention:	SIGNAL PROCESSOR
First Named Inventor/Applicant Name:	Junji KAMIMURA
Customer Number:	20350
Filer:	Charles W. Gray/Rita Christensen
Filer Authorized By:	Charles W. Gray
Attorney Docket Number:	16869S-242000US
Receipt Date:	26-NOV-2012
Filing Date:	18-NOV-2009
Time Stamp:	15:13:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$1290
RAM confirmation Number	1758
Deposit Account	201430
Authorized User	GRAY, CHARLES
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AMENDMENT.pdf	127356	yes	11
			ef49e5b525e34b487e035f9e3f688bfceb0520df		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1		
	Specification	2	2		
	Claims	3	7		
	Applicant Arguments/Remarks Made in an Amendment	8	11		
Warnings:					
Information:					
2	Extension of Time	EXTENSION.pdf	59937	no	2
			f17e5b47fbd112fa958b262c3c0a7d4cde651ead		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30615	no	2
			7a7fc2b3164f5ad25cf91fbd707a14fa858ec53		
Warnings:					
Information:					
Total Files Size (in bytes):			217908		

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.

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 12/621,304		Filing Date 11/18/2009		☐ To be Mailed		
APPLICATION AS FILED – PART I						OTHER THAN SMALL ENTITY				
(Column 1)		(Column 2)		SMALL ENTITY ☐ OR		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)	FEE (\$)		RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A			N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A			N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A			N/A			
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		X \$ =		OR	X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		X \$ =			X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL			TOTAL			
APPLICATION AS AMENDED – PART II						OTHER THAN SMALL ENTITY				
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	11/26/2012	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0	X \$ =		OR	X \$62=	0
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X \$ =		OR	X \$250=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						Legal Instrument Examiner:				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/TAMARA DARKO/				
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

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

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/621,304	11/18/2009	Junji KAMIMURA	16869S-242000US	2212

20350	7590	05/24/2012
KILPATRICK TOWNSEND & STOCKTON LLP		
TWO EMBARCADERO CENTER		
EIGHTH FLOOR		
SAN FRANCISCO, CA 94111-3834		

EXAMINER	
TEJANO, DWIGHT ALEX C	

ART UNIT	PAPER NUMBER
2622	

NOTIFICATION DATE	DELIVERY MODE
05/24/2012	ELECTRONIC

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

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

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

Docket@kilpatricktownsend.com
ipefiling@kilpatricktownsend.com
jlhice@kilpatrick.foundationip.com

Office Action Summary	Application No.	Applicant(s)	
	12/621,304	KAMIMURA ET AL.	
	Examiner	Art Unit	
	Dwight Alex C. Tejano	2622	

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

Period for Reply

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

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

Status

1) ☒ Responsive to communication(s) filed on 20 January 2010.

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) 1-17 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) 1-17 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

10) ☒ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 18 November 2009 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).

12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☒ 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)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>18 Nov 2009</u> .	6) ☐ Other: ____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9, 10, 13, 16, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9 and 10 recite the limitation "the hold unit" in line 6 of the respective claims. There is insufficient antecedent basis for this limitation in the claim. "A hold unit" is established only in claim 2, not in claims 1 or 5, upon which these claims depend. Accordingly, the proper scope of the claim cannot be determined, and the claim is considered indefinite.

Claims 13, 16, and 17 recite the limitation "the region creation unit" in line 2 of the respective claims. There is insufficient antecedent basis for this limitation in the claim. "A region creation unit" is established only in claim 2, not in claims 1, 5, or 7, upon which these claims depend.

Accordingly, the proper scope of the claim cannot be determined, and the claim is considered indefinite.

Claim Rejections - 35 USC § 102

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

A person shall be entitled to a patent unless –

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

Claims 1, 2, 5, 6, 13, 14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Takeda (US 5978027 A.)

Regarding **claim 1**, Takeda discloses a signal processor (Fig. 7) comprising:

an extraction unit (high brightness portion detection circuit, 102) which extracts a feature (high brightness) and position of each pixel of an input picture signal (image from solid state image pickup device, 5) and outputs an evaluated value corresponding to the extracted feature and position of the pixel (inherent, a value must exist in order for the system to determine if a pixel region is considered a "high brightness");

a processing unit which applies predetermined processing to the picture signal (lens unit, 1, lens driving motor, 2, diaphragm, 3, and diaphragm driving circuit, 4); and

a control unit which controls the processing unit in accordance with the evaluated value output from the extraction unit (system control circuit, 10);

wherein the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed

(when S6 is true, i.e., high brightness detected, then the range frame, Fig. 10, is changed to not include the high brightness region; focus position and proper exposure is controlled based on the determination of an exclusion of high brightness, S8) [c. 6, ln. 12 – 19.]

Regarding **claim 2**, Takeda discloses claim 1 and further discloses that the extraction unit includes:

- a feature detection unit (integrating circuit, 101) which detects a feature change position of any pixel and its peripheral pixels in the input picture signal (determines brightness of a range frame, [c. 5, ln. 32 – 35];

- a hold unit which holds position information of the detected pixels (some memory unit must exist to contain the pixel information calculated from the integrating circuit and high-brightness detection circuit);

- a region creation unit which creates a region by excluding the held positions from an evaluated value extraction region (S8, a region is selected by the control circuit that is determined as the range frame, which does not include high brightness pixels, and is used for autofocus); and

- an evaluated value extraction unit which extracts evaluated values in accordance with the region (ES filter, 9, extracts an ES value used for autofocusing.)

Regarding **claims 5 and 6**, Takeda discloses claims 1 and 2, respectively, and further discloses:

the processing unit includes a focus lens (1) and a drive unit for driving the focus lens (lens driving motor, 2);

a photoelectric conversion unit for performing photoelectric conversion (solid state image pickup device, 5) disposed between the lens and the extraction unit (Fig. 7 shows structure); and

the control unit (system control circuit, 10) controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed (any segment of the image that is high brightness is excluded from the autofocusing of the image, which is then used to determine the focal point and proper exposure, S8.)

Regarding **claims 13, 14, and 16**, Takeda discloses claims 1, 2, and 5, respectively. Additionally, Takeda inherently discloses that the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region. Specifically, Takeda discloses that the autofocus region is the region determined to be the central area that does not contain a detected high brightness. This process inherently keeps the detected region constant (as shown in the equal sized blocks of Fig. 10), and further the evaluation values are processed only for the range frame that is being used (thereby eliminating other “unnecessary” regions from the calculations.)

Claim Rejections - 35 USC § 103

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

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

Claims 3, 4, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda.

Regarding **claims 3 and 4**, Takeda discloses claims 2 and 1, respectively, and further discloses that the processing unit is a light intensity adjustment unit for controlling exposure (diaphragm, 3) and that the control unit (system control circuit, 10) controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed (any segment of the image that is high brightness is excluded from the autofocusing of the image, which is then used to determine the focal point and proper exposure, S8.) Additionally, Takeda discloses a lens (1), a photoelectric conversion unit for performing photoelectric conversion (solid state image pickup device, 5), and a control circuit (10) that is disposed at the “end” of the chain.

However, Takeda fails to disclose that the lens and the image is disposed between the processing unit and the control circuit. Despite this, the examiner maintains that such an element would be obvious to one of ordinary skill in the art. The position of the diaphragm can occur in two places, in front of or after the lens. The purpose of the diaphragm is to control the amount of light incident onto the image

sensor – so long as the diaphragm is kept in front of the image sensor, the camera would still function. The lens would then take that light and focus it on to the image sensor so as to create a focused image. Ultimately, the function would still be the same, and it would be a matter of determining simply which position is more preferable of the two, same-functioning, finite options. For example, in a small point and shoot camera, the diaphragm may also serve as a lens cap when closed, so as to protect the lens from dust and external wear and tear. In this case, it would be preferable to keep the diaphragm disposed in front of the lens to serve a protective function, while still keeping the capture functionality the same.

Therefore, it would be obvious to one of ordinary skill in the art that the diaphragm can be placed in front of the lens because the functionality would be remain the same, while still providing a function in certain design choices.

Claim 15 mirrors the limitations of claims 13, 14, 16, and 17 and is similarly interpreted and rejected according to the earlier rationale.

Claims 7, 8, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda in view of Hong, et al. (US 20060087578 A1.)

Regarding **claims 7 and 8**, Takeda discloses claims 1 and 2, respectively. However, while Takeda discloses an adjustment of focus and exposure, Takeda fails to disclose an adjustment based on white balance.

Despite this, the Examiner maintains that white balancing is a well known process in the art, as taught by Hong, et al. (hereafter, "Hong.")

Hong discloses a camera (Fig. 1) that performs autofocusing based on region division (Fig. 12.) This process includes white balance (S201, S404) because the output of the white balance calculation is used to determine exposure settings. White balance is used to set the image capturing to balance as close to normal white as possible, compensating for color that comes across due to different lighting conditions.

This white balance would be useful to Takeda as well, in order to create a picture that does not get discolored due to fluorescent/incandescent lighting or the like. Additionally, because Hong discloses that the white balance is used to determine proper exposure settings, it would be obvious that, since exposure is used in Takeda for autofocusing as well, the regioning/autofocus process would depend on white balance as well, so as to create an image that is both properly focused and properly exposed for various lighting conditions.

Claim 17 mirrors the limitations of claims 13 – 16 and is similarly interpreted and rejected according to the earlier rationale.

Claims 9 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda in view of Gossett, et al. (US 20030002732 A1.)

Regarding **claims 9 - 12**, Takeda satisfies the limitations of claims 5, 1, 2, and 3, respectively. While Takeda discloses the control unit as claimed and it is inherent that

some region segmentation unit exists, since the control circuit is programmed in advance to divide the image according to the region frames as shown in Fig. 12 and in what order to evaluate them, Takeda fails to disclose an overlap detection unit as required by the instant claim.

Despite this, the Examiner maintains that such process would be obvious to one of ordinary skill in the art, as taught by Gossett, et al. (hereafter, "Gossett.")

Gossett discloses an image segmentation method. A digital image is evaluated and divided into segments, where location and color value is stored. Furthermore, Gossett discloses that the segments are then tested with neighboring segments to determine for overlap, and, if the evaluation is positive, then the segments are accordingly assigned [abstract.]

This process ultimately creates segments of a malleable size, so that areas are properly classified and more accurately represent the segments themselves. This process (being a purely digital process) could be easily imported into Takeda. By allowing for the creation of adjusted segments, the information contained within the segments would be more accurate as to determine if an area exceeds or does not exceed the high brightness threshold. In this way, bright segments would naturally be grouped together and normal segments would similarly be grouped together, thereby creating an easily detectable, almost binary state between "high" and "normal."

Therefore, it would be obvious to one of ordinary skill in the art to include the segmentation method of Gossett into Takeda so as to allow for an adjustable region

sizes that more accurately represent all of the pixels contained within those regions for processing.

Citation of Pertinent Art

The prior art made of record is considered pertinent to the applicant's disclosure, but is not relied upon as a reference for the preceding sections:

- Sugimoto, et al. (US 20010028402 A1) discloses a camera with autofocus.
- Takahashi, et al. (US 20020080247 A1) discloses an imaging apparatus with imaging regions and associated weights.
- Norita, et al. (US 20040169767 A1) discloses a digital camera with a specific pixel region for autofocus.
- Sambongi (US 20050157189 A1) discloses a signal processing system with luminance calculation and separate regions for autofocus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwight Alex C. Tejano whose telephone number is (571)270-7200. The examiner can normally be reached on Monday through Friday 11:00-6:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. 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.

/Dwight Alex C Tejano/
Examiner
Art Unit 2622

/CHIEH M FAN/
Supervisory Patent Examiner, Art Unit 2622

Notice of References Cited	Application/Control No. 12/621,304	Applicant(s)/Patent Under Reexamination KAMIMURA ET AL.	
	Examiner Dwight Alex C. Tejano	Art Unit 2622	Page 1 of 1

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,978,027 A	11-1999	Takeda, Nobuhiro	348/348
*	B	US-2006/0087578 A1	04-2006	Hong et al.	348/333.01
*	C	US-2003/0002732 A1	01-2003	Gossett et al.	382/164
*	D	US-2001/0028402 A1	10-2001	Sugimoto et al.	348/345
*	E	US-2002/0080247 A1	06-2002	TAKAHASHI et al.	348/229
*	F	US-2004/0169767 A1	09-2004	Norita et al.	348/350
*	G	US-2005/0157189 A1	07-2005	Sambongi, Masao	348/241
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
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	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Search Notes</i> 	Application/Control No. 12621304	Applicant(s)/Patent Under Reexamination KAMIMURA ET AL.
	Examiner DWIGHT C TEJANO	Art Unit 2622

SEARCHED			
Class	Subclass	Date	Examiner
348	229.1,230.1,345-357	5/20/12	DCT
382	164,171,173-180	5/20/12	DCT

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Text Search	5/20/12	DCT
Inventor Search	5/20/12	DCT

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

/DWIGHT C TEJANO/ Examiner.Art Unit 2622	
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	3153	348/345-357.ccls.	US-PGPUB; USPAT	OR	ON	2012/05/20 16:04
L5	1084	L4 and (luminance brightness exposure) same high\$3	US-PGPUB; USPAT	OR	ON	2012/05/20 16:04
L6	274	348/230.1.ccls.	US-PGPUB; USPAT	OR	ON	2012/05/20 16:04
L7	930	348/229.1.ccls.	US-PGPUB; USPAT	OR	ON	2012/05/20 16:04
L8	251	(6 7) and (autofocus auto\$1focus (auto\$9 adj focus\$3))	US-PGPUB; USPAT	OR	ON	2012/05/20 16:05
L9	36	("4804831" "4969045" "5036400" "5049997" "5051833" "5093716" "5128768" "5272538" "5280359" "5339163" "5343246" "5349382" "5353058" "5363137" "5416518" "5473374" "5512951" "5565917" "5589880").PN. OR ("5978027").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/05/20 16:58
L10	32	8 and segment\$	US-PGPUB; USPAT	OR	ON	2012/05/20 18:48
L11	10	(6 7) and segment\$ same2 overlap	US-PGPUB; USPAT	OR	ON	2012/05/20 18:54
L12	15	(6 7) and segment\$ same2 overlap\$	US-PGPUB; USPAT	OR	ON	2012/05/20 18:54
L13	5714	382/164,171,173-180.ccls.	US-PGPUB; USPAT	OR	ON	2012/05/20 18:56
L14	607	13 and segment\$ same overlap\$	US-PGPUB; USPAT	OR	ON	2012/05/20 18:57
S1	1	12/621304.app.	US-PGPUB; USPAT	OR	ON	2012/03/23 12:41
S2	3084	348/345-357.ccls.	US-PGPUB; USPAT	OR	ON	2012/03/23 12:43
S3	442	S2 and (exclud\$ exclus\$5)	US-PGPUB; USPAT	OR	ON	2012/03/23 12:43
S4	37	S2 and (exclud\$ exclus\$5) same (region neighborhood)	US-PGPUB;	OR	ON	2012/03/23 12:44

EAST Search History

			USPAT			
S5	1	"5978027".pn.	US- PGPUB; USPAT	OR	ON	2012/05/15: 15:23

5/ 20/ 2012 7:18:30 PM
C:\ Users\ dtejano\ Documents\ EAST\ Workspaces\ 12621304.wsp

PTO/SB/08a (02-09)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Application Number	
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				Art Unit	
				Examiner Name	
Sheet	1	of	1	Attorney Docket Number	16869S-242000US

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document		Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)				
/DT/	0001	US-5,978,027	11-02-1999	Takeda		
	0002	US-				
	0003	US-				
	0004	US-				
	0005	US-				
	0006	US-				
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	0014	US-				
	0015	US-				
	0016	US-				
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	0018	US-				

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	Number ⁴	Kind Code ⁵ (If known)				
	0019							☐
	0020							☐
	0021							☐
	0022							☐
	0023							☐

Examiner Signature	/Dwight Alex C Tejano/	Date Considered	05/20/2012
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The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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This is to certify that the annexed is a true copy of the following application as filed with this Office.

出 願 年 月 日
Date of Application: 2008年11月28日

出 願 番 号
Application Number: 特願2008-303423

パリ条約による外国への出願
に用いる優先権の主張の基礎
となる出願の国コードと出願
番号
The country code and number
of your priority application,
to be used for filing abroad
under the Paris Convention, is

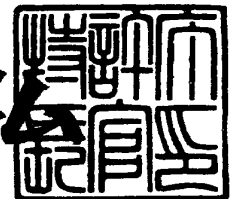
J P 2008-303423

出 願 人
Applicant(s): 株式会社日立製作所

2010年 2月16日

特許庁長官
Commissioner,
Japan Patent Office

細野 哲子



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【弁理士】	
【氏名又は名称】	戸田 裕二
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【予納台帳番号】	013088
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【物件名】	特許請求の範囲 1
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【物件名】	図面 1
【物件名】	要約書 1

【書類名】 特許請求の範囲

【請求項 1】

入力された映像信号の画素の特徴と位置を抽出し、該抽出した画素の特徴と位置に応じて評価値を出力する抽出手段と、
前記映像信号に関する所定の処理を行う処理手段と、
前記抽出手段の出力した評価値に応じて前記処理手段を制御する制御手段と、
を持つ信号処理装置であって、
前記制御手段は、抽出された所定の特徴をもつ画素を除く領域の評価値を用いて、前記処理手段を制御すること
を特徴とする信号処理装置。

【請求項 2】

請求項 1 記載の信号処理装置において、
前記抽出手段は、入力された映像信号にて任意の画素の特徴とその周辺の画素の特徴とが変わる位置を検出する特徴検出手段と、該検出された画素の位置情報を保持する保持手段と、該保持した位置を評価値の抽出領域から外して領域を生成する領域生成手段と、該領域に従い評価値を抽出する評価値抽出手段を備えて構成されること
を特徴とする信号処理装置。

【請求項 3】

請求項 1 または 2 に記載の信号処理装置において、
前記処理手段は露光制御用の光量調節手段であり、
該光量調節手段と抽出手段との間にレンズ、光電変換を行う光電変換手段とを配置した構成とし、
前記制御手段は、抽出された所定の特徴をもつ画素を除く領域の評価値を用いて、前記処理手段を制御することを特徴とする信号処理装置。

【請求項 4】

請求項 1 または 2 に記載の信号処理装置において
前記処理手段は、フォーカスレンズと、該フォーカスレンズを駆動する駆動手段であり、
、
該フォーカスレンズと抽出手段との間に光電変換を行う光電変換手段を配置した構成とし、
前記制御手段は、抽出された所定の特徴をもつ画素を除く領域の評価値を用いて、前記処理手段を制御することを特徴とする信号処理装置。

【請求項 5】

請求項 1 または 2 に記載の信号処理装置において、
前記処理手段は、入力されて映像信号のホワイトバランスを調節する信号処理手段であり、
前記制御手段は、抽出された所定の特徴をもつ画素を除く領域の評価値を用いて、前記処理手段を制御することを特徴とする信号処理装置。

【請求項 6】

請求項 1 ないし 4 のいずれかに記載の信号処理装置において、
前記領域生成手段は予め有効領域を細分化する領域細分化手段と、該領域細分化手段が細分化した区画と前記保持手段が出力した位置情報が重なるところを検出する重複検出手段を有し、
前記制御手段は、抽出された所定の特徴をもつ画素を除く領域の評価値を用いて、前記処理手段を制御することを特徴とする信号処理装置。

【請求項 7】

請求項 1 ないし 5 のいずれかに記載の信号処理装置において、
前記領域生成手段は不要部分を除外した評価値の抽出をする領域の面積の総和を一定に保つ手段を有することを特徴とする信号処理装置。

【書類名】明細書

【発明の名称】信号処理装置

【技術分野】

【0001】

本発明は信号処理装置に関する。例えば、ビデオカメラ、またはデジタルスチルカメラ等の機器において、自動制御系に関する。

【背景技術】

【0002】

特開平6-14236号公報（特許文献1）は「AFに最適な露光量で、また高輝度の存在しない画像領域（測距枠）により、安全でかつ正確な合焦情報を得る」ことを課題とし、「システム制御回路は高輝度検出回路が高輝度部を検出した場合は合焦レンズ位置検出のための画像領域の変更を行う」という解決手段を用いることが記載されている。

【0003】

【特許文献1】特開平6-14236号公報

【発明の開示】

【発明が解決しようとする課題】

【0004】

従来の信号処理装置では、現在選択している合焦レンズ位置検出用領域に高輝度部があったときに該領域を変更するが、変更した領域に高輝度部が無いことを確認した上で行っているだけでなく、領域を変更した後に該領域に高輝度部が無いことを確認する処理が行われる。このようにすると高輝度部が複数あった場合、何度も領域を変更し高輝度部が無いことを確認する処理を行わなくてはならないという問題がある。

【0005】

また、予め前記合焦レンズ位置検出用領域を複数個用意していて、その中で最適なものを抽出する方式では、領域の大きさ、高輝度部の大きさや位置や個数によってはどの領域にも高輝度部が存在することがあり、最適な領域が存在しないという問題がある。

【0006】

しかし、特許文献1では以上の課題を記載していない。

【課題を解決するための手段】

【0007】

上記課題は、その一例として特許請求の範囲に記載の構成により改善される。

【発明の効果】

【0008】

本発明によれば、例えば、より適切に自動制御に用いる評価値の抽出を行なうことができる。

【発明を実施するための最良の形態】

【0009】

上記の発明を実現する為の実施例について説明する。

【実施例1】

【0010】

図1、2、3、4、5を用いて第1の実施例について説明する。図1は本発明を用いた信号処理装置の一例を示した図である。図2は特徴の変わる画素の位置を抽出する方法を説明した図、図3は領域生成手段の動作を説明した図、図4は領域が変更される様子を示した図、図5は変更した領域での評価値抽出を示した図である。

【0011】

図1において1は入力された映像信号の画質を調節する処理を行う処理手段、2は前記入力された映像信号の評価値を抽出する抽出手段、3は該抽出手段の出力した評価値に応じて前記処理手段の調節の度合いを制御する制御手段、4は前記入力された映像信号中の着目した任意の画素とその周辺の信号との特徴が変わる位置を検出する特徴検出手段、5は該位置情報を保持する保持手段、6は該保持した位置を評価値の抽出領域から外して領

域を生成する領域生成手段、7は該領域に従い評価値を抽出する評価値抽出手段、8は後段へ映像信号を出力する出力端子である。接続を説明する。入力された映像信号は処理手段1の入力に接続し、処理手段1の出力は特徴検出手段4の入力と出力端子8に接続し、特徴検出手段4の出力は保持手段5の入力に接続し、保持手段5の出力は領域生成手段6の入力に接続し、領域生成手段6の出力は評価値抽出手段7の入力に接続し、評価値抽出手段7の出力は制御手段3の入力に接続し、制御手段3の出力は処理手段1の入力に接続する。

【0012】

図2において9は、入力された映像信号中の有効映像信号、10は有効映像信号9内に存在するスポット光（たとえば暗い場所における点光源が映された映像信号の場合）成分、11は有効映像信号9を垂直方向で見た垂直信号量分布、12は信号量分布11に微分処理を施した垂直微分結果、13は有効映像信号9を水平方向で見た水平信号量分布、14は信号量分布13に微分処理を施した水平微分結果である。

【0013】

図3において15は保持手段が保持している位置情報を有効映像信号9上に示した位置情報表示、フローチャートは領域生成手段6が領域を決定するときの流れを示したものである。

【0014】

図4において16はスポット光10が有効映像信号9上の左端に存在したときに領域生成手段6が生成した領域、17はスポット光10が有効映像信号9上の上端に存在したときに領域生成手段6が生成した領域、18、19はスポット光10が有効映像信号9上の中央に存在したときに領域生成手段6が生成した2つの領域である。

【0015】

図5において9、10はそれぞれ図2に示した有効映像信号、スポット光と同じ意味のものであり、16、17、18、19はそれぞれ図4に示した領域と同様の意味を示すものである。20は領域16にて抽出した評価値、21は評価値20を受けて制御手段3が信号量を上げるように処理手段1を制御した後の評価値、22は領域17にて抽出した評価値、23は評価値22を受けて制御手段3が信号量を上げるように処理手段1を制御した後の評価値、24は領域18にて抽出した評価値、26は評価値24を受けて制御手段3が信号量を上げるように処理手段1を制御した後の評価値、26は領域19にて抽出した評価値、27は評価値25を受けて制御手段3が信号量を上げるように処理手段1を制御した後の評価値である。

【0016】

動作について説明する。図1において、入力された映像信号は特徴検出手段4にて特徴の変わる位置の検出を行う。ここでは注目画素の信号量とその左右の画素の信号量との微分を行うことにより特徴の変わる位置の検出を行う例を用いて説明する。図2に示すように、有効映像信号9上にスポット光10が存在した場合、信号量は水平信号量分布13のように急激に信号量が変化して周辺と特徴の異なる画像となる。この水平信号量分布13に注目画素の信号量とその左右の画素の信号量との微分を算出する処理を加えると水平微分結果14に示す波形となる。ここで微分値が予め設定している閾値を越えたとき、このスポット光10は評価値の抽出をする領域から除外することとする。ここで有効映像信号9の左端からHn1、Hn2の位置を特徴が変わる位置として保持手段5（図1）が保持する。同様に図2に示すように、垂直方向についても信号量は垂直信号量分布11のように急激に信号量が変化して周辺と特徴の異なる画像となる。垂直水平信号量分布11に注目画素の信号量とその上下の画素の信号量との微分を算出する処理を加えると垂直微分結果12に示す波形となる。ここで微分値が予め設定している閾値を越えたとき、このスポット光10は評価値の抽出をする領域から除外することとする。ここで有効映像信号9の上端からVn1、Vn2の位置を特徴が変わる位置として保持手段5（図1）が保持する。この動作を有効映像信号9の全画素に施すことにより保持手段5（図1）は、図3に示した位置情報表示15に示すとおりスポット光10を縁取った位置を保持する。

【0017】

領域生成手段6（図1）は位置情報表示15（図3）を評価値の抽出をする領域から除外するため図3のフローチャートに示す動作を行う。予め指定された評価値抽出領域の範囲よりも位置情報表示15の左側の領域（A）が大きいときは（ステップ1）左側の領域に評価値抽出領域を設定（ステップ2）し、位置情報表示15の左側の領域（A）は小さいが右側の領域（B）は予め指定された評価値抽出領域の範囲よりも大きいときは（ステップ3）右側の領域に評価値抽出領域を設定（ステップ4）し、左側の領域（A）も右側の領域（B）も予め指定された評価値抽出領域の範囲よりも小さいときは分割して左側の領域（A）と右側の領域（B）にそれぞれ評価値抽出領域を設定する（ステップ5）。その結果、水平方向での領域が決定する。垂直方向も同様に動作を行い垂直方向での領域が決定し、領域の枠が決定する。図5に示すように、領域16はスポット光10が有効映像信号9上の左端に存在したとき領域の枠、領域17はスポット光10が有効映像信号9上の上端に存在したときに領域生成手段6が生成した領域の枠、領域18、19はスポット光10が有効映像信号9上の中央に存在したときに領域生成手段6が生成した2つの領域の枠である。このようにして決めた領域16、17、18、19を用いて評価値抽出手段7にて例えば領域内の全画素の信号量を積分するという一般的に知られた方法にて評価値抽出を行うとそれぞれの結果はスポット光10の影響を受けずには評価値20、22、24、25を検出することが出来る。ここで制御手段3は信号量の調節をするように処理手段1を制御する。ここでは信号量を上げるように制御した例を示す。制御手段3で信号量を上げるように処理手段1を制御した結果、再び領域16、17、18、19を用いて評価値抽出を行うとそれぞれの結果は評価値21、23、26、27となる。

【0018】

以上の動作によりスポット光が有効映像信号中に存在しても、スポット光の位置を評価値の抽出をする領域から除外する動作によりスポット光の影響を受けない評価値を抽出することが出来る。

【0019】

また特徴を抽出する手段と、その位置を保持する手段を備えており、まず特徴を持つ画素の位置を検出保持した結果を用いて、特徴を持つ画素を除いた場所の評価値を求める処理を行えるので、あらかじめ画像領域を複数の領域に分割して、各評価値を求めておいた結果を用いて、領域の評価値結果を選択的に用いるより処理効率がよく、電子回路などで構成する場合、省電力の効果があることや、動画などの実時間処理が必要な場合においても、上記処理を実現する場合に、余分な評価値を求める処理が必要がなく、ソフトウェアで実現しやすい。

【実施例2】

【0020】

図6を用いて第2の実施例について説明する。図6はムービー、またはデジタルスチルカメラに代表される撮像装置であり、28は露光制御用の光量調節手段、29は集光するレンズ、30はレンズ29によって受光面上に結像された像に応じて光電変換を行う光電変換手段、31は光量調節手段28を駆動する駆動手段である。接続はレンズ29の前段に光量調節手段28を配置し、レンズ29の後段に光電変換手段30を配置し、光電変換手段30の出力した映像信号を抽出手段2に入力する。また、制御手段3の出力は駆動手段31に入力し、駆動手段31は光量調節手段28を調節可能な形で接続する。その他の接続は図1の実施例と同様である。

【0021】

動作について説明する。抽出手段2内に具備している特徴検出手段4、保持手段5、領域生成手段6、評価値抽出手段7は図1の実施例と同様の動作をするためここでの説明は割愛する。光量調節手段28により光量調節された光は、光電変換手段30の受光面に結像され電気信号に変換され映像信号となる。前記説明のあった抽出手段2の動作にて着目した任意の画素とその周辺の信号との特徴が変わる位置を外した評価値の抽出領域が決定し、該抽出領域で評価値の抽出を行った結果が得られる。制御手段3は、この結果を基に

評価値の基準値と比較を行い抽出した評価値が小さいときは、光量を増やす、逆に評価値が大きいたときは、光量を減らすように制御を決定し駆動手段31に命令を送る。駆動手段28は命令に従い光量を調節する。

【0022】

以上の動作によりスポット光が有効映像信号中に存在しても、スポット光の位置を評価値の抽出をする領域から除外する動作によりスポット光の影響を受けない評価値を抽出することが出来る。従来から挙げられていたスポット光が評価値抽出領域に存在すると評価値が大きくなりすぎ、制御手段3は全体の信号量を減らすように光量調節手段28に命令を出すためスポット光10以外のところが暗く沈みこむというように適正な光量調節の障害となっていた問題を解決することが出来る。

【実施例3】

【0023】

図7、8、9を用いて第3の実施例について説明する。図7はムービー、またはデジタルスチルカメラに代表される撮像装置であり、32は集光するレンズにフォーカスを合わせる手段を有するフォーカスレンズ、33は該フォーカスレンズ32のフォーカスを合わせる手段の駆動を行うフォーカスレンズ駆動手段、34はフォーカスを自動で合わせる為に必要な評価値を抽出するオートフォーカス用評価値抽出手段である。図8はオートフォーカス用評価値抽出手段34が具備しているハイ・パス・フィルタ（以下 H P Fとする）の特性例である。図9はフォーカスレンズの位置と図8のH P F出力の関係を示した図であり、中央の縦破線が合焦点の位置を示している。

【0024】

接続はレンズ32の後段に光電変換手段30を配置し、光電変換手段30の出力した映像信号を抽出手段2に入力する。また、制御手段3の出力はフォーカスレンズ駆動手段33に入力し、フォーカスレンズ駆動手段33はフォーカスレンズ32のフォーカスを調節可能な形で接続する。その他の接続は図1の実施例と同様である。

【0025】

動作について説明する。抽出手段2内に具備している特徴検出手段4、保持手段5、領域生成手段6は図1の実施例と同様の動作をするためここでの説明は割愛する。オートフォーカス用評価値抽出手段34は複数のH P Fを具備している。その一例のH P Fの特性は図8で示すように映像信号の周波数成分のうち高周波成分のみを通過させ、低周波成分になるに従い減衰させるようになっている。フォーカスが合っているということは映像信号中に高周波成分が多く存在しているため、このH P Fの出力は図9に示すように合焦点が最大となる。オートフォーカス用評価値抽出手段34はこのH P Fの出力を評価値として出力する。

【0026】

前記説明のあった抽出手段2の動作にて着目した任意の画素とその周辺の信号との特徴が変わる位置を外した評価値の抽出領域が決定し、該抽出領域で評価値の抽出を行った結果が得られる。制御手段3は、この結果を基に評価値が最大になるフォーカスレンズ32の位置を特定するためフォーカスレンズ駆動手段33にフォーカスレンズ32の位置を前、または後ろに移動させる命令を送る。フォーカスレンズ駆動手段33は命令に従いフォーカスレンズ32を前、または後ろに移動させる。

【0027】

以上の動作によりスポット光が有効映像信号中に存在しても、スポット光の位置を評価値の抽出をする領域から除外する動作によりスポット光の影響を受けない評価値を抽出することが出来る。従来から挙げられていたスポット光が評価値抽出領域に存在すると合焦点以外の位置での評価値が大きくなり、適正なオートフォーカス制御の障害となっていた問題を解決することが出来る。

【実施例4】

【0028】

図11、12を用いて第4の実施例について説明する。図11は図1の実施例において

、領域生成手段6の代わりに予め有効領域を細分化する領域細分化手段38と、該領域細分化手段が細分化した区画と保持手段5が出力した位置情報が重なるところを検出する重複検出手段39を有する領域生成手段37を具備した例である。図12は本実施例の領域生成手段37の動作を説明した図であり、40は領域細分化手段38が細分化した有効領域、41は重複検出手段39が出力した重複位置、42は領域細分化手段38が細分化したブロックを単位として生成した評価値抽出領域である。

【0029】

接続を説明する。保持手段5の出力は重複検出39の入力に接続し、領域細分化手段38の出力は重複検出39の別の入力に接続し、重複検出39の出力は領域生成手段37の出力として評価値抽出手段7の入力に接続する。他の接続は図1の実施例と同様である。動作について説明する。領域細分化手段38は水平カウンタ、垂直カウンタなどを用いて有効領域を有効領域40に示すように細分化する。重複検出39は保持手段5が保持していた位置情報が有効領域40のどこのブロックと重複するかを重複位置41に示すように検出し、該重複位置41を外したブロックにて評価値抽出領域42を生成する。評価値抽出手段7は評価値抽出領域42にて評価値抽出を行う。他の動作は図1の実施例と同様である。

【0030】

以上の動作によりスポット光が有効映像信号中に存在しても、スポット光の位置を評価値の抽出をする領域から除外する動作によりスポット光の影響を受けない評価値を抽出することが出来る。

【実施例5】

【0031】

図13、14を用いて第5の実施例について説明する。図13は図11の実施例での領域生成手段37の代わりに、評価値抽出領域の面積を常に一定に保つように評価値抽出領域を調整する面積調整手段44を具備する領域生成手段43に置き換えた例である。図14は面積調整手段44の動作を説明した図とフローチャートであり、45は初期に設定したスポット光10に位置を含む評価値抽出領域で初期評価値抽出領域、46は面積調整手段44によって調整した評価値抽出領域である。

【0032】

接続を説明する。保持手段5の出力は重複検出39の入力に接続し、領域細分化手段38の出力は重複検出39の別の入力に接続し、重複検出39の出力は面積調整手段44の入力に接続し、面積調整手段44の出力は領域生成手段43の出力として評価値抽出手段7の入力に接続する。他の接続は図11の実施例と同様である。

【0033】

動作について説明する。面積調整手段44は図14のフローチャーに示すように、最初に初期評価値抽出領域45の面積をブロック単位で把握する（ステップ1）。次に重複検出手段39の出力に変化があるかを監視し（ステップ2）、無ければ抽出領域の大きさは維持する（ステップ3）。変化があるときは変化後の評価値抽出領域42と初期評価値抽出領域45の面積を比較し（ステップ4）、同じであれば維持（ステップ3）し、評価値抽出領域42の面積が小さければ同じになるようにブロック数を増やす処理を行う（ステップ5）。その結果、評価値抽出領域46に示す領域になり常に抽出領域を一定に保つ。

【0034】

以上の動作によりスポット光が有効映像信号中に存在しても、スポット光の位置を評価値の抽出をする領域から除外する動作によりスポット光の影響を受けない評価値を抽出することが出来る。加えて、評価値抽出領域を一定に保つことができ、制御も簡素化できるといった効果もある。

【図面の簡単な説明】

【0035】

【図1】第1の実施例を説明した図

【図2】特徴検出手段4の動作を説明した図

- 【図3】 領域生成手段6の動作を説明した図
- 【図4】 領域生成手段6の動作を説明した図
- 【図5】 変更した領域での評価値抽出を示した図
- 【図6】 第2の実施例を説明した図
- 【図7】 第3の実施例を説明した図
- 【図8】 H P F の特性例
- 【図9】 フォーカスレンズの位置と図8のH P F 出力の関係を示した図
- 【図10】 制御対象を信号処理とした実施例を説明した図
- 【図11】 第4の実施例を説明した図
- 【図12】 領域生成手段37の動作を説明した図
- 【図13】 第5の実施例を説明した図
- 【図14】 面積調整手段44の動作を説明した図

【符号の説明】

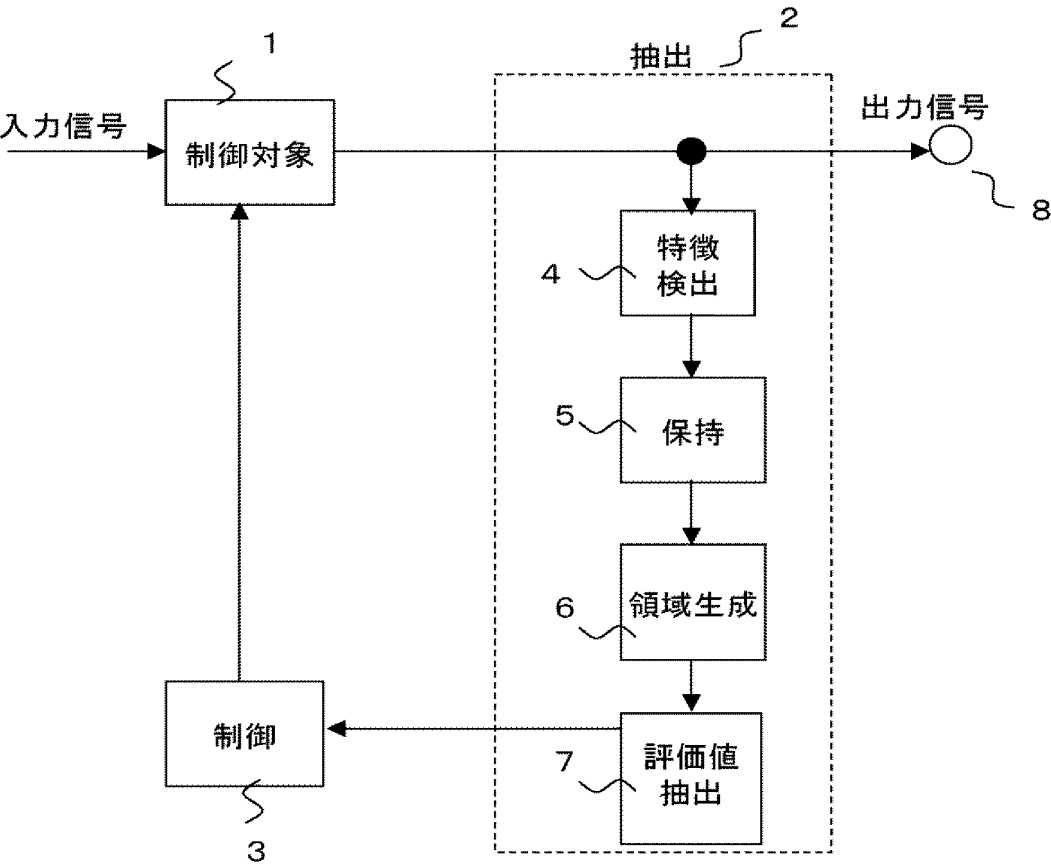
【0036】

- 1 処理手段
- 2 抽出手段
- 3 制御手段
- 4 特徴検出手段
- 5 保持手段
- 6、37、43 領域生成手段
- 7、34 評価値抽出手段
- 8 出力端子
- 9 有効映像信号
- 10 スポット光
- 11 垂直信号量分布
- 12 垂直微分結果
- 13 水平信号量分布
- 14 水平微分結果
- 15 位置情報表示
- 16、17、18、19、42 評価値抽出領域
- 20 領域16にて抽出した評価値
- 21 処理手段1を制御した後の領域16での評価値
- 22 領域17にて抽出した評価値
- 23 処理手段1を制御した後の領域17での評価値
- 24 領域18にて抽出した評価値
- 25 領域19にて抽出した評価値
- 26 処理手段1を制御した後の領域18での評価値
- 27 処理手段1を制御した後の領域19での評価値
- 28 光量調節手段
- 29 レンズ
- 30 光電変換手段
- 31 光量調節手段28を駆動する駆動手段
- 32 フォーカスレンズ
- 33 フォーカスレンズ駆動手段
- 38 領域細分化手段
- 39 重複検出手段
- 40 光電変換手段
- 41 領域細分化手段38が細分化した有効領域
- 44 面積調整手段
- 45 初期評価値抽出領域

4 6 面積調整手段 4 4 によって調整した評価値抽出領域

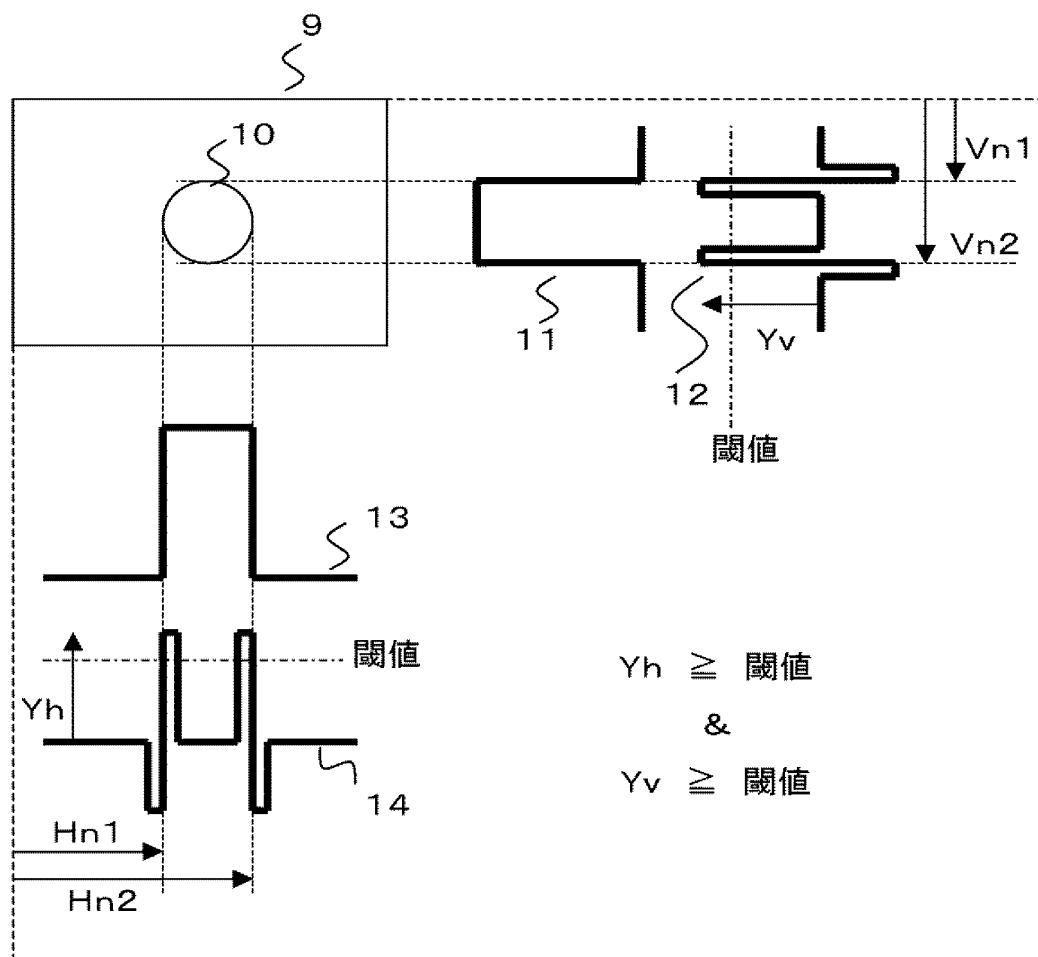
【書類名】 図面
【図 1】

図 1



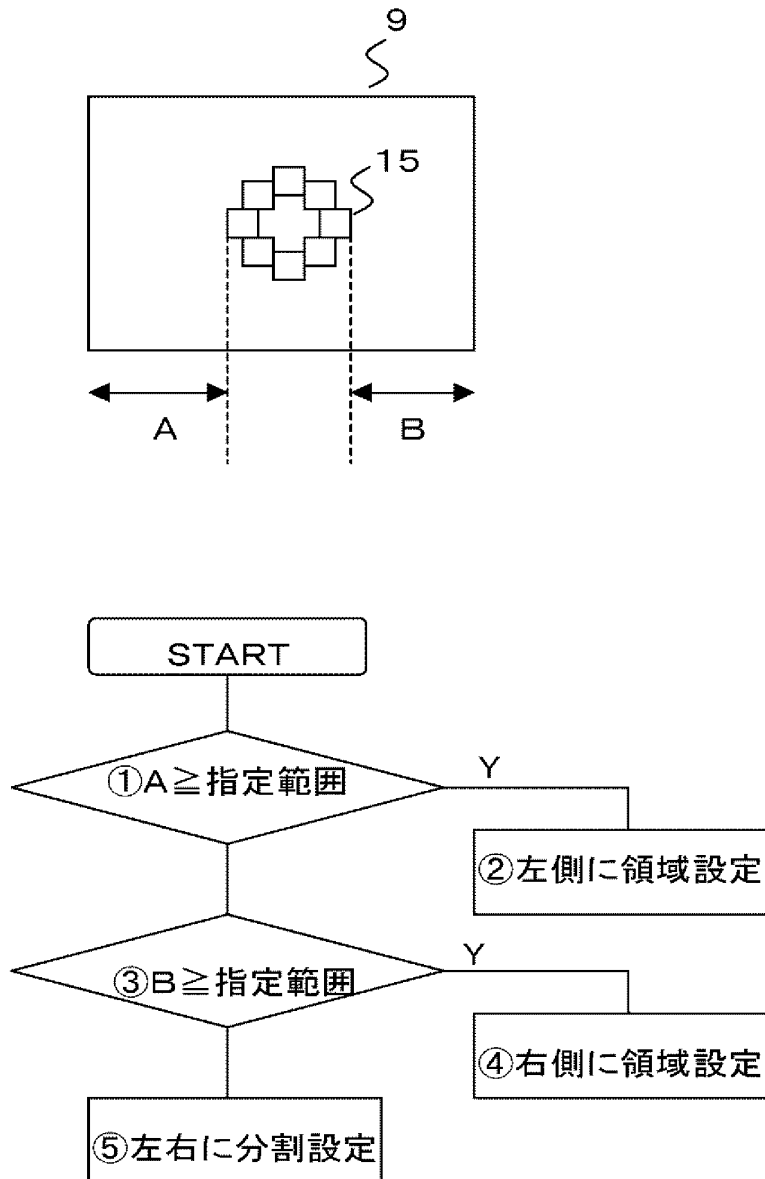
【図2】

図2



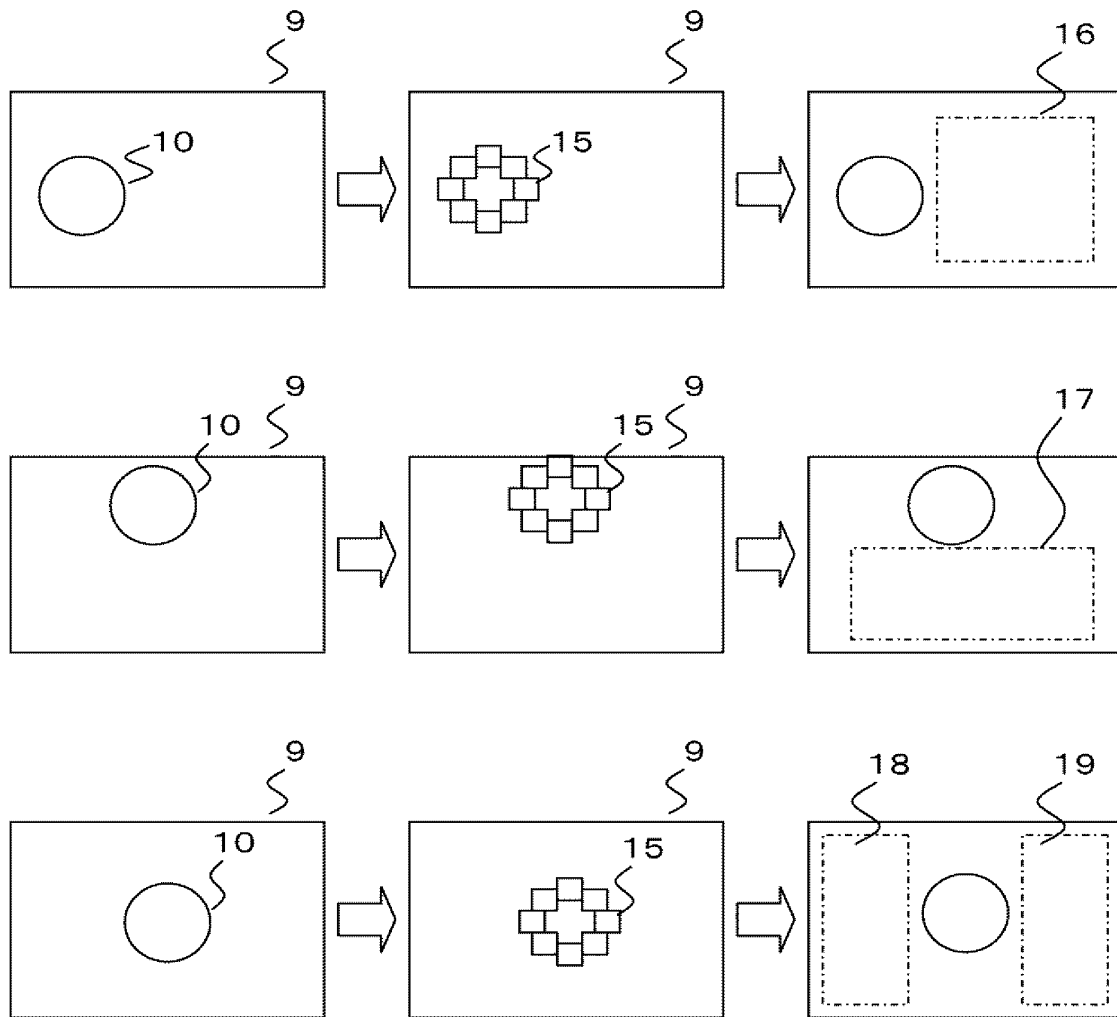
【図3】

図3



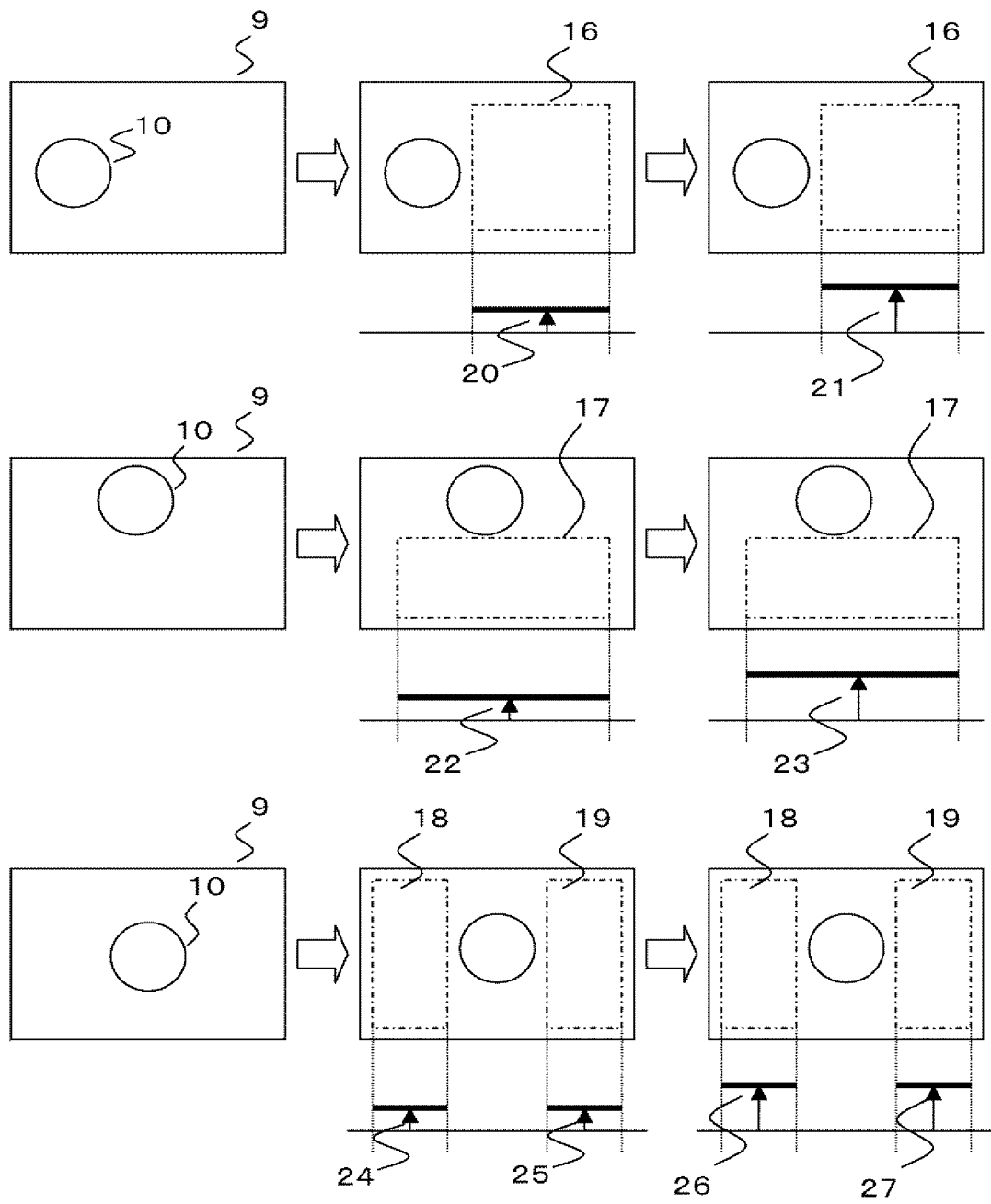
【図4】

図4



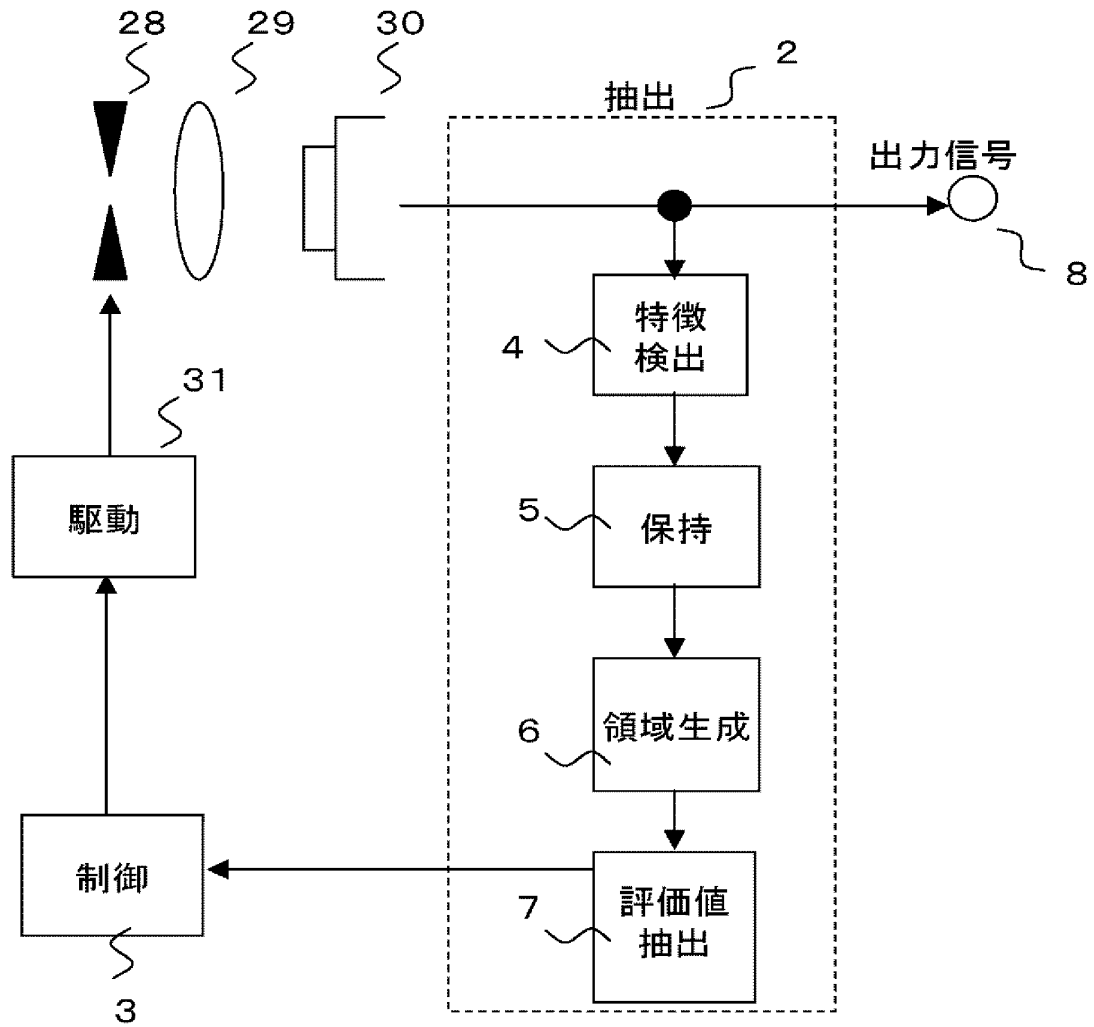
【図5】

図5



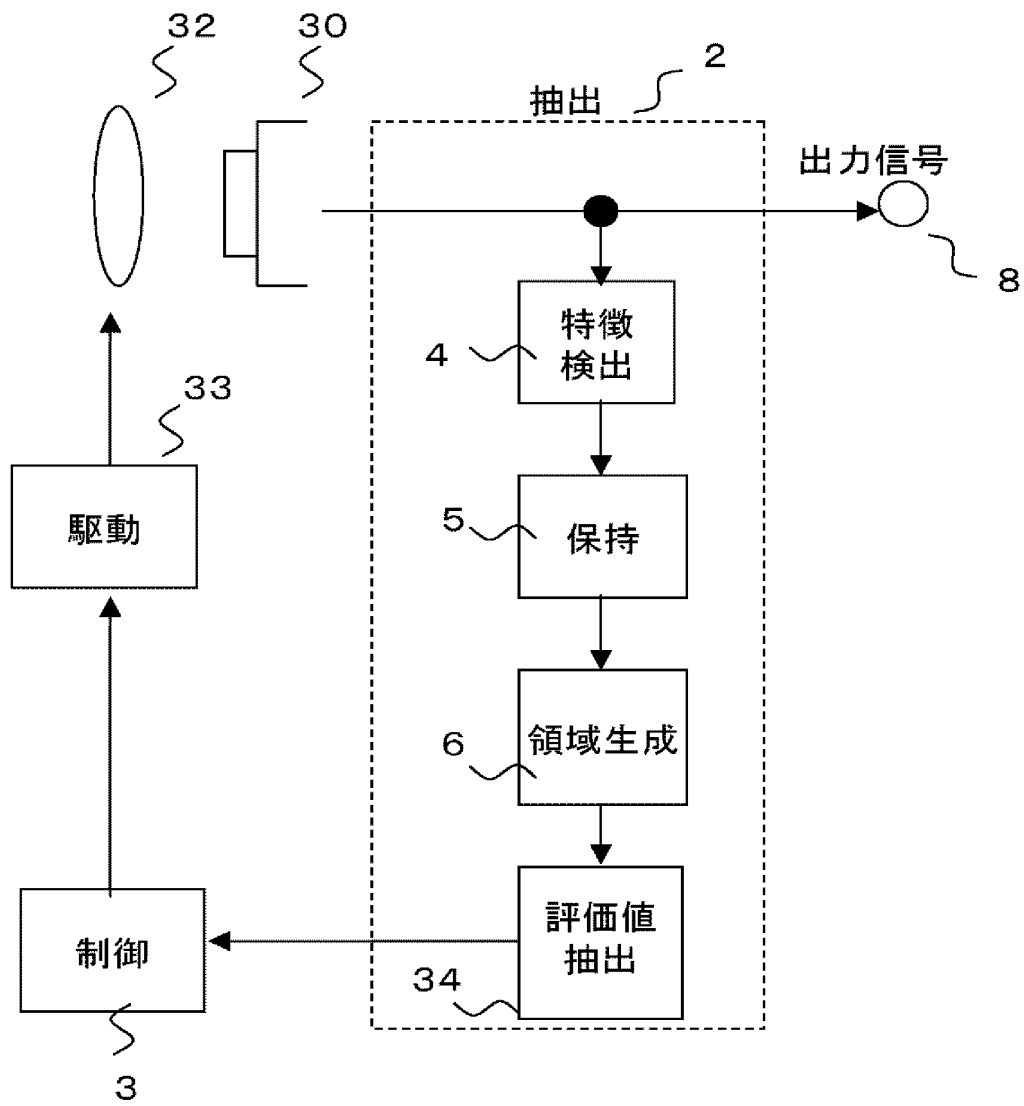
【図6】

図6



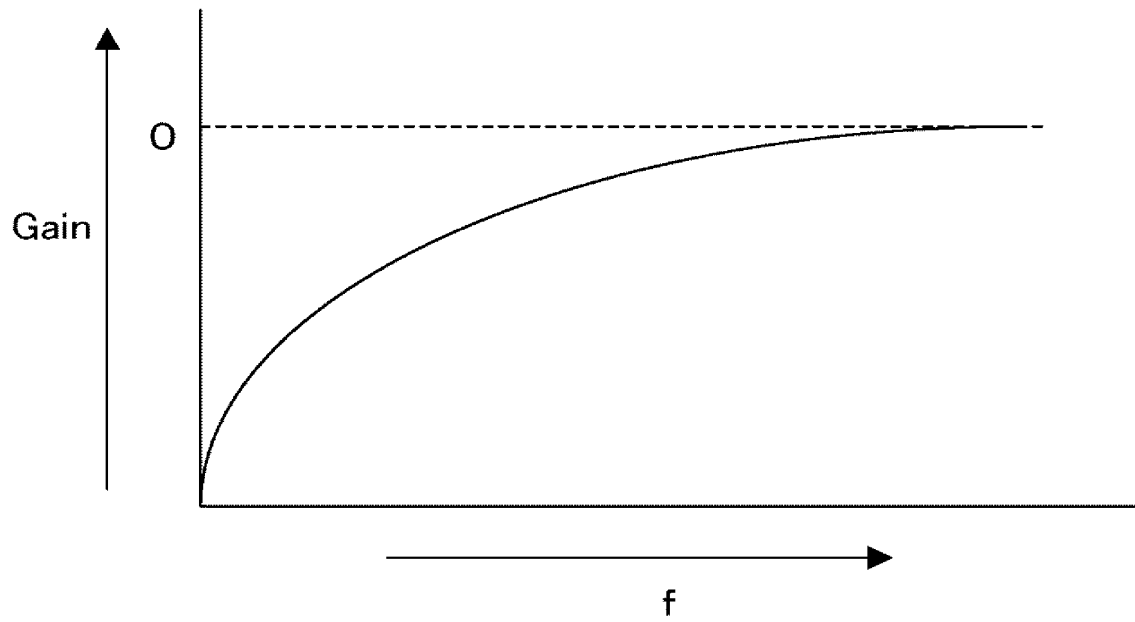
【図7】

図7



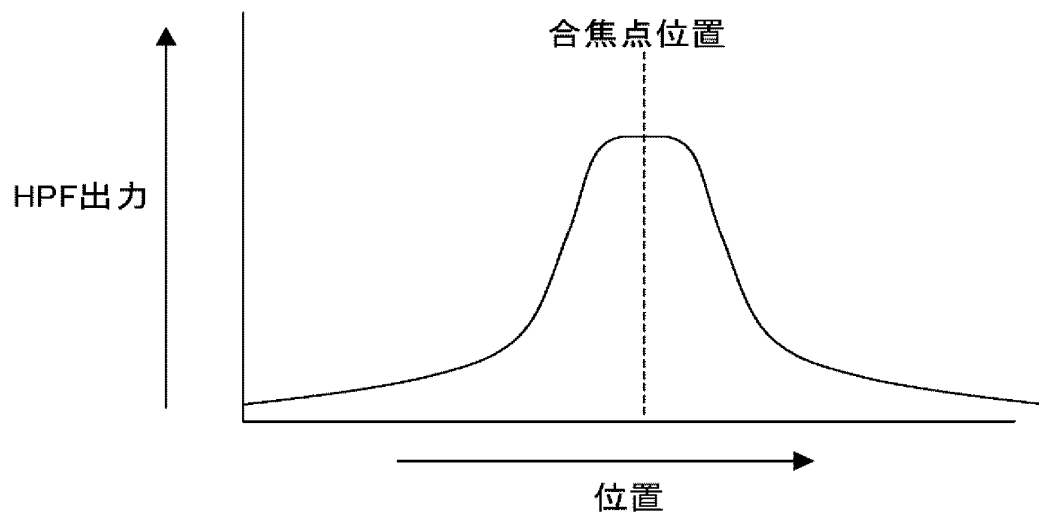
【図8】

図8



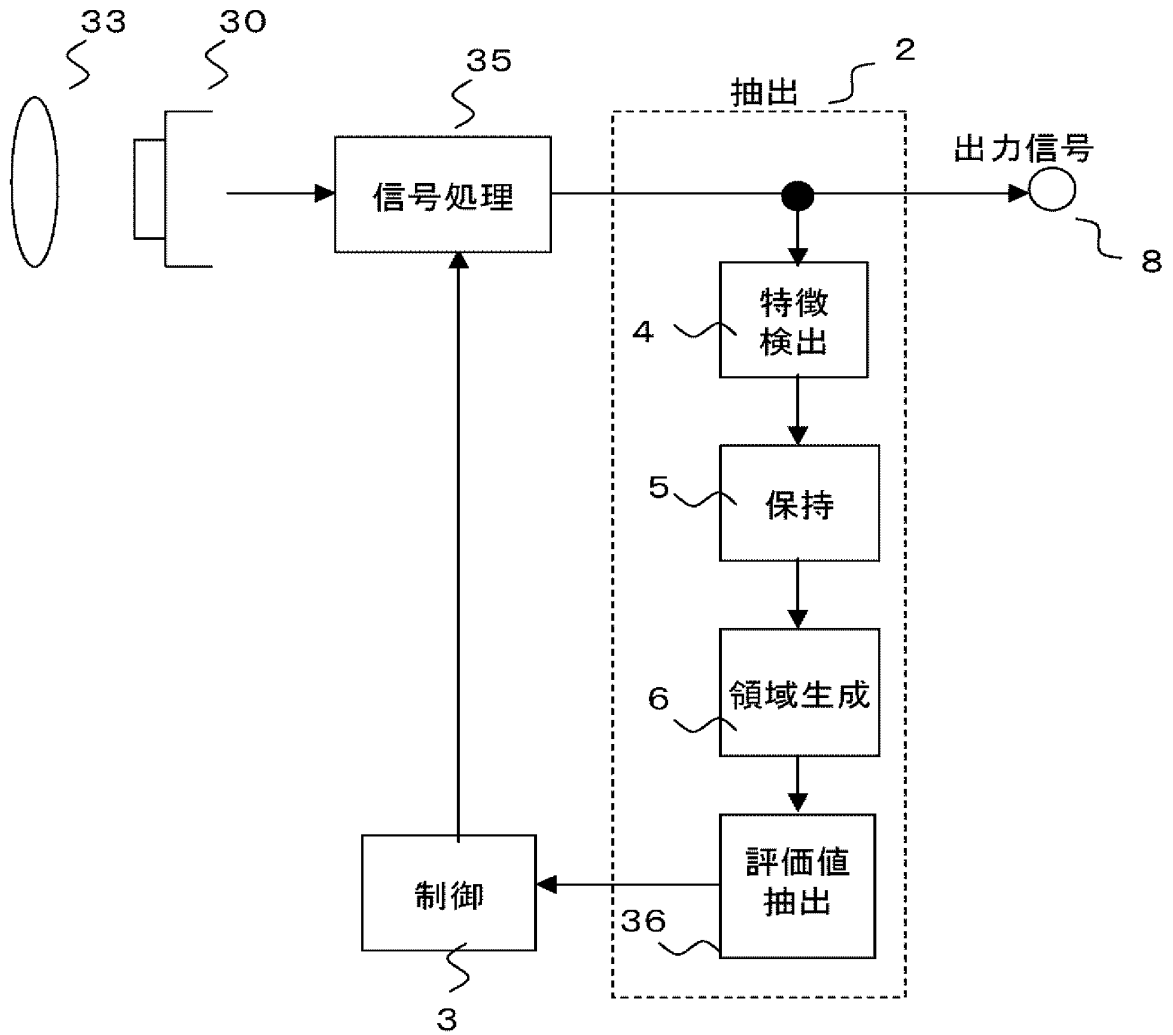
【図9】

図9



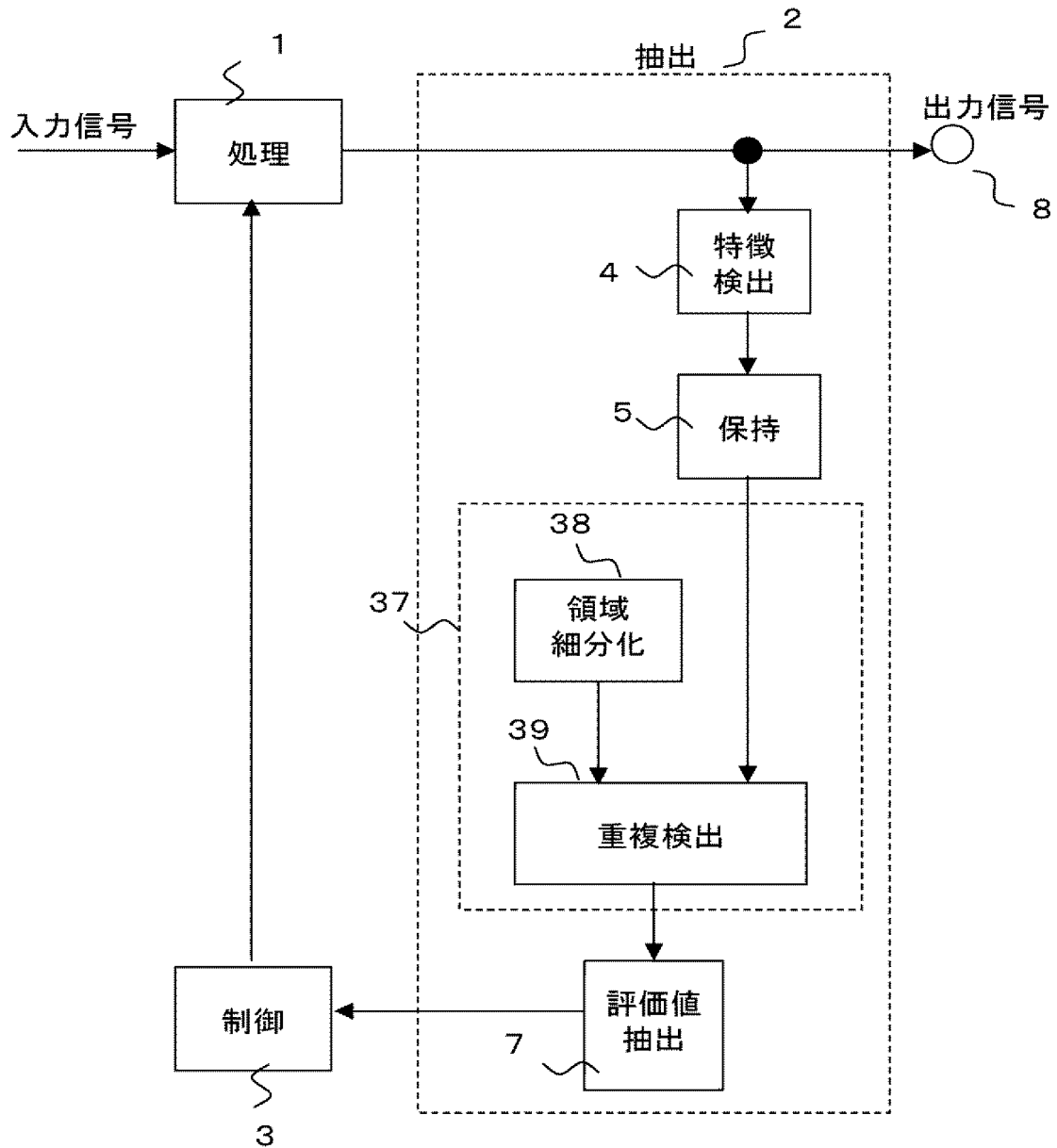
【図10】

図10



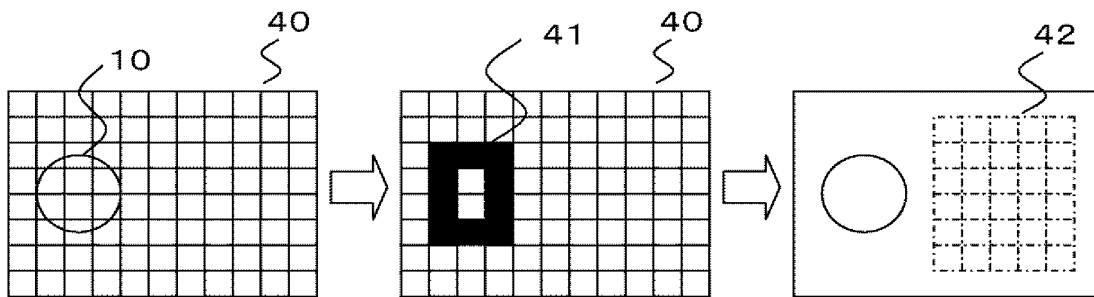
【図11】

図11



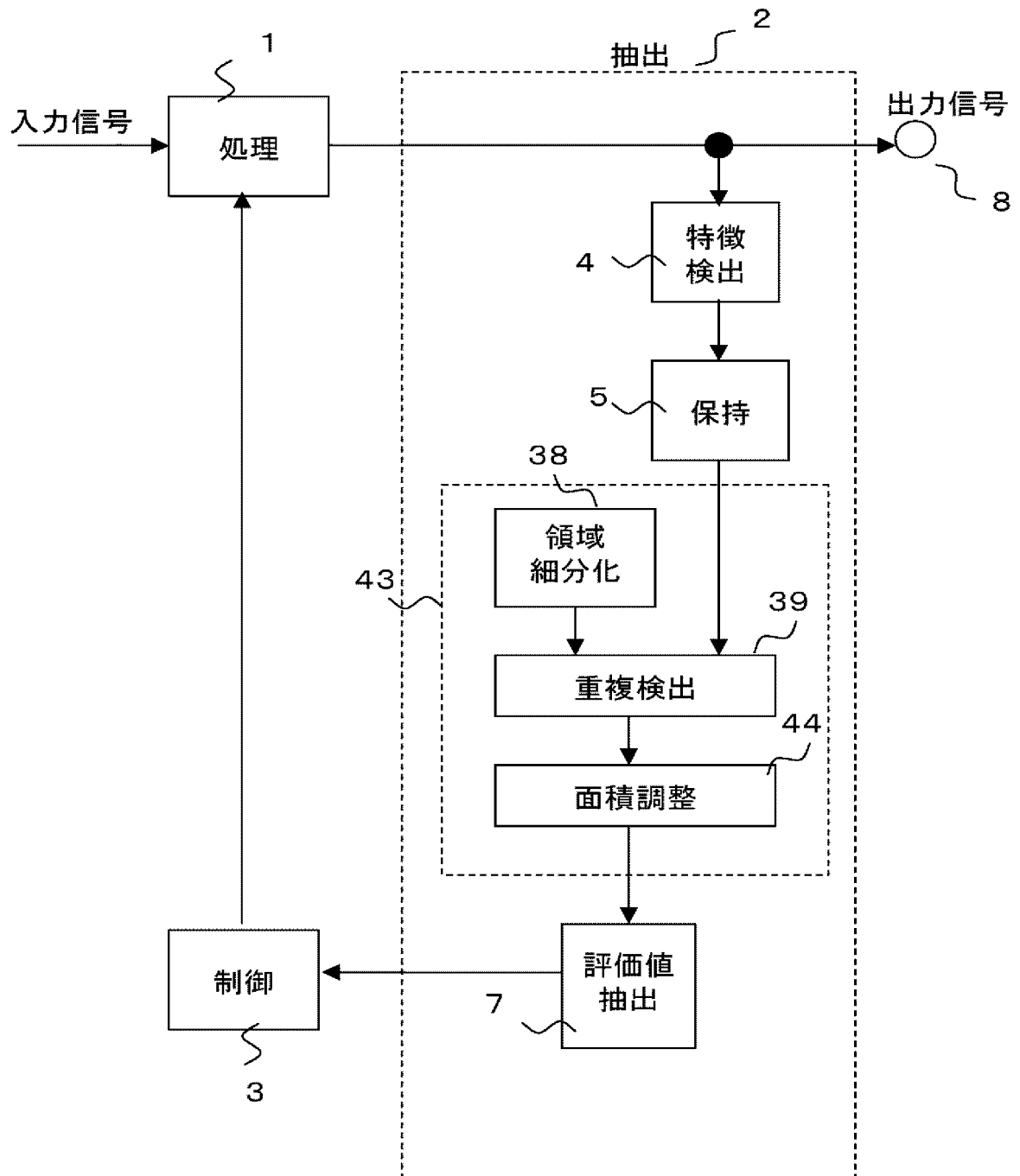
【図12】

図12



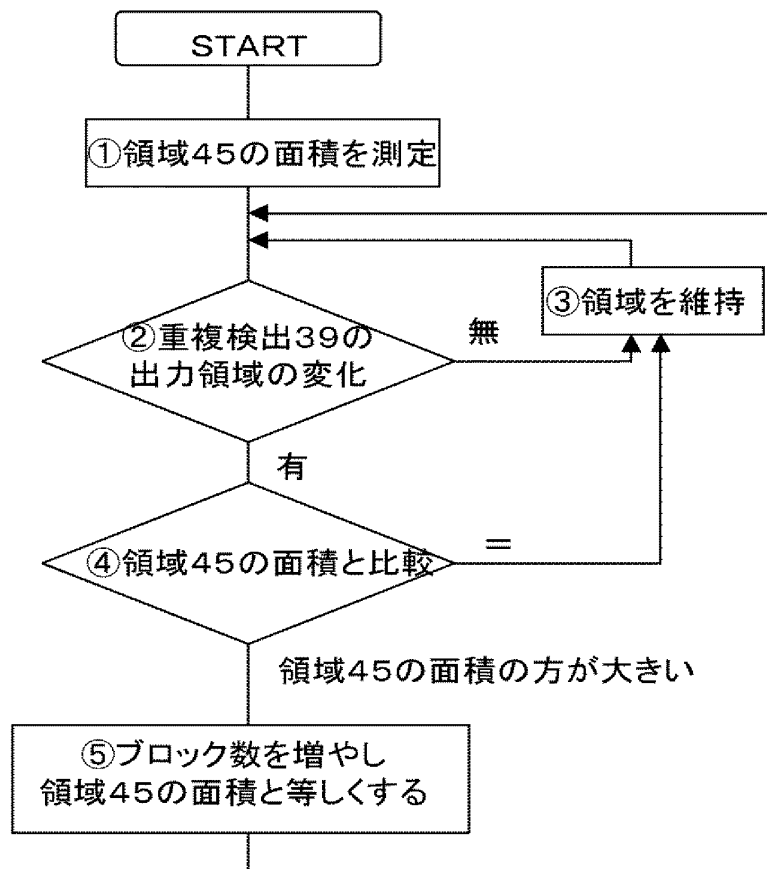
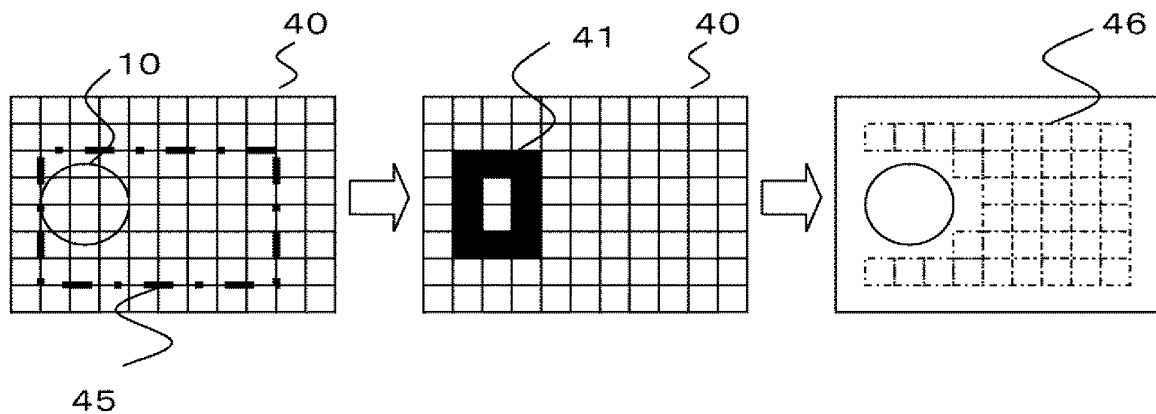
【図13】

図13



【図14】

図14



【書類名】 要約書

【要約】

【課題】

より適切に自動制御に用いる評価値の抽出を行なうことが可能な信号処理装置を提供する。

【解決手段】

入力された映像信号中の着目した任意の画素とその周辺の信号との特徴が変わる位置を検出する特徴検出手段と、該位置情報を保持する保持手段と、該保持した位置を評価値の抽出領域から外して領域を生成する領域生成手段と、該領域に従い評価値を抽出する評価値抽出手段で構成し、特徴が変わる位置を検出することで周辺と特徴の異なる不要部分を任意の画素単位で抽出し、該位置を評価値の抽出をする領域から除外する動作を行う。

【選択図】 図1

出願人履歴

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20040908

住所変更

508277874

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株式会社日立製作所



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
12/621,304	11/18/2009	2624	1220	16869S-242000US	17	1

CONFIRMATION NO. 2212

UPDATED FILING RECEIPT



OC000000039881320

20350

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

Date Mailed: 01/28/2010

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**

Applicant(s)

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Assignment For Published Patent Application

Hitachi Consumer Electronics Co., Ltd., Tokyo, JAPAN

Power of Attorney: The patent practitioners associated with Customer Number 20350

Domestic Priority data as claimed by applicant

Foreign Applications

JAPAN 2008-303423 11/28/2008

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/621,304**

Projected Publication Date: 06/03/2010

Non-Publication Request: No

Early Publication Request: No

Title

SIGNAL PROCESSOR

Preliminary Class

382

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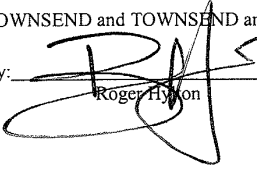
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By: 

Roger Hyman

PATENT
Attorney Docket No.: 16869S-242000US
Client Reference No.: W5402-01EQ

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Junji KAMIMURA, et al.

Application No.: 12/621,304

Filed: November 18, 2009

For: SIGNAL PROCESSOR

Customer No.: 20350

Confirmation No.: 2212

Examiner: Unassigned

Art Unit: 2624

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PARTS

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Pursuant to the Notice to File Missing Parts of Nonprovisional Application, dated
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application:

- 1) Executed Declaration and Power of Attorney

Please charge Deposit Account No. 20-1430 for the following fees:

Missing Parts Surcharge	\$130
TOTAL FEES TO BE CHARGED	\$130

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Respectfully submitted,


George B. F. Yee
Reg. No. 37,478

Customer No. 20350

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GBFY:rlh

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W5402-01

PTO/SB/106(5-00)

Approved for use through 10/31/02. OMB 0651-0032

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as United States Application Number or
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12/621304 and was amended on
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Prior Foreign Application(s)
外国での先行出願

Priority Not Claimed
優先権主張なし

2008-303423
(Number)
(番号)

Japan
(Country)
(国名)

28/November/2008
(Day/Month/Year Filed)
(出願日/月/年)

☐

(Number)
(番号)

(Country)
(国名)

(Day/Month/Year Filed)
(出願日/月/年)

☐

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(Application No.)
号)

(Filing Date)
(出願日)

(Application No.)
(出願番号)

(Filing Date)
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(Status: Patented, Pending, Abandoned)
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(Status: Patented, Pending, Abandoned)
(現況 : 特許許可、係属中、放棄)

私は、ここに表明された私自身の知識に係わる陳述が真実であり、且つ情報と信ずることに基づく陳述が、真実であると信じられることを宣言し、さらに、故意に虚偽の陳述などを行った場合は、米国法典第18編第1001条に基づき、罰金または拘禁、若しくはその両方により処罰され、またそのような故意による虚偽の陳述は、本出願またはそれに対して発行されるいかなる特許も、その有効性に問題が生ずることを理解した上で陳述が行われたことを、ここに宣言する。

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.

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.

Japanese Language Declaration
(日本語宣言書)

委任状 : 私は本出願を審査する手続を行い、且つ米国特許商標庁との全ての業務を遂行するために、記名された発明者として、下記の弁護士及び/または弁理士を任命する。(氏名及び登録番号を記載すること)

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (list name and registration number).

The patent practitioners associated with
Customer Number 20350

書類送付先

Send Correspondence to:

Robert C. Colwell
TOWNSEND and TOWNSEND and CREW LLP
379 Lytton Avenue
Palo Alto, California 94301-1431

直通電話連絡先 : (氏名及び電話番号)

Direct Telephone Calls to: (name and telephone number)

Telephone: (650) 326-2400
Fax: (650) 326-2422

唯一または第一発明者氏名	Full name of sole or first inventor Junji KAMIMURA		
発明者の署名	日付	Inventor's signature	Date
		Junji Kamimura	Jan, 6, 2010
住所	Residence Yokohama, Japan		
国籍	Citizenship Japan		
郵便の宛先	Post office Address c/o Hitachi, Ltd., Intellectual Property Group, 6-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8220, Japan		
第二共同発明者がいる場合、その氏名	Full name of second joint inventor, if any Akihito NISHIZAWA		
第二共同発明者の署名	日付	Second inventor's signature	Date
		Akihito Nishizawa	December 27, 2009
住所	Residence Yokosuka, Japan		
国籍	Citizenship Japan		
郵便の宛先	Post office Address c/o Hitachi, Ltd., Intellectual Property Group, 6-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8220, Japan		

(第三以下の共同発明者についても同様に記載し、署名をすること)

(Supply similar information and signature for third and subsequent joint inventors.)

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.

第三共同発明者がある場合、その氏名		Full name of third joint inventor, if any	
		Junji SHIOKAWA	
第三共同発明者の署名	日付	Third inventor's signature	Date
		<i>Junji Shiohama</i>	Jan. 6, 2010
住所		Residence	
		Chigasaki, Japan	
国籍		Citizenship	
		Japan	
郵便の宛先		Post office Address	
		c/o Hitachi, Ltd., Intellectual Property Group, 6-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8220, Japan	
第四共同発明者がある場合、その氏名		Full name of fourth joint inventor, if any	
		Shinichi NONAKA	
第四共同発明者の署名	日付	Fourth inventor's signature	Date
		<i>Shinichi NONAKA</i>	Dec. 22, 2009
住所		Residence	
		Zushi, Japan	
国籍		Citizenship	
		Japan	
郵便の宛先		Post office Address	
		c/o Hitachi, Ltd., Intellectual Property Group, 6-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-8220, Japan	
第五共同発明者がある場合、その氏名		Full name of fifth joint inventor, if any	
第五共同発明者の署名	日付	Fifth inventor's signature	Date
住所		Residence	
国籍		Citizenship	
郵便の宛先		Post office Address	
第六共同発明者がある場合、その氏名		Full name of sixth joint inventor, if any	
第六共同発明者の署名	日付	Sixth inventor's signature	Date
住所		Residence	
国籍		Citizenship	
郵便の宛先		Post office Address	

Supplemental Application Data Sheet

Application Information

Application number::	12/621,304
Filing Date::	11/18/09
Application Type::	Regular
Subject Matter::	Utility
Suggested classification::	
Suggested Group Art Unit::	
CD-ROM or CD-R??::	
Number of CD disks::	
Number of copies of CDs::	
Sequence Submission::	
Computer Readable Form (CRF)?::	
Number of copies of CRF::	
Title::	SIGNAL PROCESSOR
Attorney Docket Number::	16869S-242000US
Request for Early Publication::	No
Request for Non-Publication::	No
Suggested Drawing Figure::	
Total Drawing Sheets::	12
Small Entity?::	No
Latin name::	
Variety denomination name::	
Petition included?::	No
Petition Type::	
Licensed US Govt. Agency::	
Contract or Grant Numbers One::	
Secrecy Order in Parent Appl.::	No

Applicant Information

Applicant Authority Type:: Inventor
Primary Citizenship Country:: Japan
Status:: Full Capacity
Given Name:: Junji
Middle Name::
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Name Suffix::
City of Residence:: Yokohama
State or Province of Residence::
Country of Residence:: Japan
Street of Mailing Address:: c/o Hitachi, Ltd.
Postal Address Line Two:: Intellectual Property Group
Postal Address Line Three:: 6-1, Marunouchi 1-chome
Postal Address Line Four:: Chiyoda-ku
City of Mailing Address:: Tokyo
State or Province of mailing address::
Country of mailing address:: Japan
Postal or Zip Code of mailing address:: 100-8220

Applicant Authority Type:: Inventor
Primary Citizenship Country:: Japan
Status:: Full Capacity
Given Name:: Akihito
Middle Name::
Family Name:: NISHIZAWA
Name Suffix::
City of Residence:: Yokosuka
State or Province of Residence::
Country of Residence:: Japan
Street of Mailing Address:: c/o Hitachi, Ltd.

Postal Address Line Two:: Intellectual Property Group
Postal Address Line Three:: 6-1, Marunouchi 1-chome
Postal Address Line Four:: Chiyoda-ku
City of Mailing Address:: Tokyo
State or Province of mailing address::
Country of mailing address:: Japan
Postal or Zip Code of mailing address:: 100-8220

Applicant Authority Type:: Inventor
Primary Citizenship Country:: Japan
Status:: Full Capacity
Given Name:: Junji
Middle Name::
Family Name:: SHIOKAWA
Name Suffix::
City of Residence:: Chigasaki

State or Province of Residence::
Country of Residence:: Japan
Street of Mailing Address:: c/o Hitachi, Ltd.
Postal Address Line Two:: Intellectual Property Group
Postal Address Line Three:: 6-1, Marunouchi 1-chome
Postal Address Line Four:: Chiyoda-ku
City of Mailing Address:: Tokyo
State or Province of mailing address::
Country of mailing address:: Japan
Postal or Zip Code of mailing address:: 100-8220

Applicant Authority Type:: Inventor
Primary Citizenship Country:: Japan
Status:: Full Capacity
Given Name:: Shinichi

Middle Name::
Family Name:: NONAKA
Name Suffix::
City of Residence:: Zushi
State or Province of Residence::
Country of Residence:: Japan
Street of Mailing Address:: c/o Hitachi, Ltd.
Postal Address Line Two:: Intellectual Property Group
Postal Address Line Three:: 6-1, Marunouchi 1-chome
Postal Address Line Four:: Chiyoda-ku
City of Mailing Address:: Tokyo
State or Province of mailing address::
Country of mailing address:: Japan
Postal or Zip Code of mailing address:: 100-8220

Correspondence Information

Correspondence Customer Number:: 20350

Representative Information

Representative Designation::	Representative Number::	Representative Name::
Primary	37,478	George B. F. Yee

Domestic Priority Information

Application:: Continuity Type:: Parent Application:: Parent Filing Date::

Foreign Priority Information

Country::	Application number::	Filing Date::
Japan	2008-303423	11/28/08

Assignee Information

Assignee Name:: Hitachi Consumer Electronics Co., Ltd.
Street of mailing address:: 2-1, Otemachi 2-chome, Chiyoda-ku
City of mailing address:: Tokyo
State or Province of mailing address::
Country of mailing address:: Japan
Postal or Zip Code of mailing address::

Submitted by:

Signature



Date 1/29 '10

Printed Name

George B. F. Yee

Registration Number

37,478

Electronic Patent Application Fee Transmittal				
Application Number:		12621304		
Filing Date:		18-Nov-2009		
Title of Invention:		SIGNAL PROCESSOR		
First Named Inventor/Applicant Name:		Junji KAMIMURA		
Filer:		George B. F. Yee/Roger Hylton		
Attorney Docket Number:		16869S-242000US		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Late filing fee for oath or declaration	1051	1	130	130
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				130

Electronic Acknowledgement Receipt	
EFS ID:	6845164
Application Number:	12621304
International Application Number:	
Confirmation Number:	2212
Title of Invention:	SIGNAL PROCESSOR
First Named Inventor/Applicant Name:	Junji KAMIMURA
Customer Number:	20350
Filer:	George B. F. Yee/Roger Hylton
Filer Authorized By:	George B. F. Yee
Attorney Docket Number:	16869S-242000US
Receipt Date:	20-JAN-2010
Filing Date:	18-NOV-2009
Time Stamp:	14:21:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$130
RAM confirmation Number	622
Deposit Account	201430
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	2010_01_20_RESPNOMP_168695-242000US.pdf	56856	no	2
			74be87478cb3263e357a99765eea59c36b2d6efb		
Warnings:					
Information:					
2	Oath or Declaration filed	2010_01_20_DEC_168695-242000US.pdf	247594	no	4
			ffb01dcaf5e72225e78faae682ab3b74f872e06f		
Warnings:					
Information:					
3	Application Data Sheet	2010_01_20_SADS_168695-242000US.pdf	145195	no	5
			5dda9abb30ebff59f80d5fb0d65fe1ad1a789cb		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
4	Fee Worksheet (PTO-875)	fee-info.pdf	30145	no	2
			9e4879fd09cd6cb5a801948c63c16dbdd319cdaf		
Warnings:					
Information:					
Total Files Size (in bytes):			479790		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
12/621,304	11/18/2009	2624	1090	16869S-242000US	17	1

CONFIRMATION NO. 2212

20350
TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

FILING RECEIPT



OC000000039024534

Date Mailed: 12/03/2009

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**

Applicant(s)

Junji KAMIMURA, Yokohama, JAPAN;
Akihito Nishizawa, Yokosuka, JAPAN;
Junji Shiokawa, Chigasaki, JAPAN;
Shinichi Nonaka, Zushi, JAPAN;

Assignment For Published Patent Application

Hitachi Consumer Electronics Co., Ltd., Tokyo, JAPAN

Power of Attorney: None

Domestic Priority data as claimed by applicant

Foreign Applications

JAPAN 2008-303423 11/28/2008

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 11/30/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/621,304**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

Title

SIGNAL PROCESSOR

Preliminary Class

382

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/621,304	11/18/2009	Junji KAMIMURA	16869S-242000US

CONFIRMATION NO. 2212

FORMALITIES LETTER



20350
TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

Date Mailed: 12/03/2009

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing.

A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.

Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of **\$130** for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **\$130** for a non-small entity

- **\$130** Surcharge.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.

<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/tvo/

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

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Application Number	
				Filing Date	
				First Named Inventor	KAMIMURA, Junji
				Art Unit	
				Examiner Name	
Sheet	1	of	1	Attorney Docket Number	16869S-242000US

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number Kind Code ² (if known)			
	0001	US-5,978,027	11-02-1999	Takeda	
	0002	US-			
	0003	US-			
	0004	US-			
	0005	US-			
	0006	US-			
	0007	US-			
	0008	US-			
	0009	US-			
	0010	US-			
	0011	US-			
	0012	US-			
	0013	US-			
	0014	US-			
	0015	US-			
	0016	US-			
	0017	US-			
	0018	US-			

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)				
	0019							☐
	0020							☐
	0021							☐
	0022							☐
	0023							☐

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

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

62317455 v1

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		SIGNAL PROCESSOR		
First Named Inventor/Applicant Name:		Junji KAMIMURA		
Filer:		George B. F. Yee/Clara Alcazar-Ragan		
Attorney Docket Number:		16869S-242000US		
Filed as Large Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	330	330
Utility Search Fee	1111	1	540	540
Utility Examination Fee	1311	1	220	220
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1090

Electronic Acknowledgement Receipt	
EFS ID:	6477940
Application Number:	12621304
International Application Number:	
Confirmation Number:	2212
Title of Invention:	SIGNAL PROCESSOR
First Named Inventor/Applicant Name:	Junji KAMIMURA
Customer Number:	20350
Filer:	George B. F. Yee
Filer Authorized By:	
Attorney Docket Number:	168695-242000US
Receipt Date:	18-NOV-2009
Filing Date:	
Time Stamp:	17:49:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$1090
RAM confirmation Number	4147
Deposit Account	201430
Authorized User	
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File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	ADS_168695-242000US.pdf	118792 745ad6bd066b36839169773c46733f178a1876a7	no	5
Warnings:					
Information:					
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2		PAT_Appln_168695-242000US.pdf	1071379 6c5c6d4114d7632df6fc18425f0a28fa2582fd96	yes	29
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	22	
	Claims		23	28	
	Abstract		29	29	
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3	Drawings-only black and white line drawings	Drawings_168695-242000US.pdf	344204 8d2523b354c202bcd6b68dd8f9f0fb33797981f7e	no	12
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4		IDS_168695-242000US.pdf	96341 ad2cfafacee4c44ff1059afb2c6677e816a7b1e2	yes	3
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	Transmittal Letter		1	2	
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5	Fee Worksheet (PTO-875)	fee-info.pdf	33236 0cc27e5e01edfdb51a3c4409a24acee86021563	no	2
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Application Data Sheet

Application Information

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Filing Date::

Application Type:: Regular

Subject Matter:: Utility

Suggested classification::

Suggested Group Art Unit::

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Number of copies of CDs::

Sequence Submission::

Computer Readable Form (CRF)?::

Number of copies of CRF::

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PATENT APPLICATION

SIGNAL PROCESSOR

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SIGNAL PROCESSOR

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a signal processor. For example, it is concerned with an automatic control system in an apparatus such as a video camera, a digital still camera, etc.

Description of the Background Art

JP-A-6-14236 has described an object "to obtain safe and accurate focusing information from an image region (ranging frame) with exposure most suitable for AF and without high luminance" and use of a solution "a system control circuit changes an image region for detection of a focusing lens position when a high luminance detection circuit detects a high luminance portion".

In the signal processor according to the background art, when there is a high luminance portion in a focusing lens position detection region currently selected, the region is changed. However, the change of the region is not performed after the absence of the high luminance portion in the changed region is confirmed, that is, a process of confirming the absence of the high luminance portion in the region is performed after the region is changed. Therefore, when there are a plurality of high luminance portions, there

is a problem that it is necessary to repeat the change of the region and the process of confirming the absence of the high luminance portion.

In a method in which a plurality of focusing
5 lens position detection regions are prepared so that an optimum one is extracted from the regions, there is a possibility that a high luminance portion may exist in any region in accordance with the size of each region, the size of each high luminance portion, the position
10 of each high luminance portion and the number of high luminance portions. Therefore, there is a problem that there may be no optimum region.

However, the aforementioned problems have not been described in JP-A-6-14236.

15 SUMMARY OF THE INVENTION

The problems are improved by the configuration described in the scope of claims by way of example.

The invention can provide a signal processor,
20 for example, which can extract an evaluated value used for automatic control more appropriately.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram for explaining Embodiment
1;

25 Fig. 2 is a view for explaining the operation of a feature detection unit;

Fig. 3 is a view for explaining the operation of a region creation unit;

Fig. 4 is a view for explaining the operation of the region creation unit;

5 Fig. 5 is a view showing evaluated value extraction in a changed region;

Fig. 6 is a diagram for explaining Embodiment 2;

10 Fig. 7 is a diagram for explaining Embodiment 3;

Fig. 8 is a graph showing an example of characteristic of HPF;

15 Fig. 9 is a graph showing the relation between the position of a focus lens and the HPF output shown in Fig. 8;

Fig. 10 is a diagram for explaining Embodiment 4 in which signal processing is a target to be controlled;

20 Fig. 11 is a diagram for explaining Embodiment 5;

Fig. 12 is a view for explaining the operation of a region creation unit;

Fig. 13 is a diagram for explaining Embodiment 6; and

25 Fig. 14 is a view for explaining the operation of an area adjustment unit.

DETAIED DESCRIPTION OF THE INVENTION

Embodiments of the invention will be described below.

[Embodiment 1]

Embodiment 1 will be described with reference to Figs. 1, 2, 3, 4 and 5. Fig. 1 is a diagram showing an example of a signal processor according to the invention. Fig. 2 is a view for explaining a method of extracting a pixel position where feature changes. Fig. 3 is a view for explaining the operation of a region creation unit. Fig. 4 is a view showing a state in which a region is changed. Fig. 5 is a view showing evaluated value extraction in a changed region.

In Fig. 1, the reference numeral 1 designates a processing unit which performs processing to adjust the image quality of an input picture signal; 2, an extraction unit which extracts evaluated values of the input picture signal; 3, a control unit which controls the degree of adjustment of the processing unit in accordance with the evaluated values output from the extraction unit; 4, a feature detection unit which detects a position where features of any target pixel and its peripheral signal in the input picture signal change; 5, a hold unit which holds the position information; 6, a region creation unit which creates a region by removing the held positions from the evaluated value extraction region; 7, an evaluated value extraction unit which extracts an evaluated value in accordance with the region; and 8, an output

terminal which outputs a picture signal to a subsequent stage. Connection will be described. The input picture signal is connected to an input of the processing unit 1. An output of the processing unit 1 is connected to an input of the feature detection unit 4 and the output terminal 8. An output of the feature detection unit 4 is connected to an input of the hold unit 5. An output of the hold unit 5 is connected to an input of the region creation unit 6. An output of the region creation unit 6 is connected to an input of the evaluated value extraction unit 7. An output of the evaluated value extraction unit 7 is connected to an input of the control unit 3. An output of the control unit 3 is connected to an input of the processing unit 1.

In Fig. 2, the reference numeral 9 designates an effective picture signal in the input picture signal; 10, a spotlight (e.g. in the case of a picture signal in which a point light source is reflected in a dark place) component existing in the effective picture signal 9; 11, a vertical signal intensity distribution of the effective picture signal 9 viewed vertically; 12, a vertical differential result obtained by applying a differentiating process to the signal intensity distribution 11; 13, a horizontal signal intensity distribution of the effective picture signal 9 viewed horizontally; and 14, a horizontal differential result obtained by applying a differentiating process to the

signal intensity distribution 13.

In Fig. 3, the reference numeral 15 designates a position information indicator which indicates the position information held by the hold
5 unit on the effective picture signal 9. In Fig. 3, the flow chart shows a flow of processing in the case where the region creation unit 6 determines a region.

In Fig. 4, the reference numeral 16 designates a region which is created by the region
10 creation unit 6 when there is the spotlight 10 at the left end of the effective picture signal 9; 17, a region which is created by the region creation unit 6 when there is the spotlight 10 at the upper end of the effective picture signal 9; and 18 and 19, two regions
15 which are created by the region creation unit 6 when there is the spotlight 10 in the center of the effective picture signal 9.

In Fig. 5, the reference numerals 9 and 10 designate an effective picture signal and a spotlight
20 like those shown in Fig. 2; and 16, 17, 18 and 19, regions like those shown in Fig. 4. The reference numeral 20 designates an evaluated value extracted in the region 16; 21, an evaluated value after the control unit 3 controls the processing unit 1 to increase
25 signal intensity in response to the evaluated value 20; 22, an evaluated value extracted in the region 17; 23, an evaluated value after the control unit 3 controls the processing unit 1 to increase signal intensity in

response to the evaluated value 22; 24, an evaluated value extracted in the region 18; 25, an evaluated value after the control unit 3 controls the processing unit 1 to increase signal intensity in response to the evaluated value 24; 26, an evaluated value extracted in the region 19; and 27, an evaluated value after the control unit 3 controls the processing unit 1 to increase signal intensity in response to the evaluated value 26.

Operation will be described. In Fig. 1, when a picture signal is input, a position where feature changes is detected by the feature detection unit 4. Description will be made here by use of the example where a feature change position is detected by differentiation of signal intensity of a target pixel and signal intensity of left and right adjacent pixels. As shown in Fig. 2, when there is a spotlight 10 on an effective picture signal 9, signal intensity changes suddenly as represented by the horizontal signal intensity distribution 13 so that an image different in feature from the periphery is obtained. When a process of calculating differentiation of signal intensity of a target pixel and signal intensity of left and right adjacent pixels is applied to the horizontal signal intensity distribution 13, a waveform as represented by the horizontal differential result 14 is obtained. On this occasion, when the differential value exceeds a threshold set in advance, the spotlight 10 is excluded

from an evaluated value extraction region. On this occasion, the hold unit 5 (Fig. 1) holds positions Hn1 and Hn2 distant from the left end of the effective picture signal 9 as feature change positions.

5 Similarly as shown in Fig. 2, vertical signal intensity changes suddenly as represented by the vertical signal intensity distribution 11 so that an image different in feature from the periphery is obtained. When a process of calculating differentiation of signal intensity of a
10 target pixel and signal intensity of upper and lower adjacent pixels is applied to the vertical signal intensity distribution 11, a waveform as represented by the vertical differential result 12 is obtained. On this occasion, when the differential value exceeds a
15 threshold set in advance, the spotlight 10 is excluded from an evaluated value extraction region. On this occasion, the hold unit 5 (Fig. 1) holds positions Vn1 and Vn2 distant from the upper end of the effective picture signal 9 as feature change positions. When
20 this operation is applied to all pixels of the effective picture signal 9, the hold unit 5 (Fig. 1) holds positions where the spotlight 10 is fringed as represented by the position information indicator 15 shown in Fig. 3.

25 The region creation unit 6 (Fig. 1) performs an operation shown in the flow chart of Fig. 3 in order to exclude the position information indicator 15 (Fig. 3) from the evaluated value extraction region. When a

region (A) on the left side of the position information indicator 15 is not smaller than the evaluated value extraction region designated in advance (step 1), the evaluated value extraction region is set in the region

5 (A) on the left side of the position information indicator 15 (step 2). When the region (A) on the left side of the position information indicator 15 is smaller but a region (B) on the right side of the position information indicator 15 is not smaller than

10 the evaluated value extraction region designated in advance (step 3), the evaluated value extraction region is set in the region (B) on the right side of the position information indicator 15 (step 4). When each of the region (A) on the left side and the region (B)

15 on the right side is smaller than the evaluated value extraction region designated in advance, the evaluated value extraction region is divided into two to be set in the region (A) on the left side and the region (B) on the right side, respectively (step 5). As a result,

20 the region in the horizontal direction is determined. The same operation is performed also in the vertical direction so that the region in the vertical direction is determined. In this manner, a frame of the region is determined. As shown in Fig. 5, the region 16 is a

25 frame of the region when the spotlight 10 is at the left end of the effective picture signal 9, the region 17 is a frame of the region created by the region creation unit 6 when the spotlight 10 is at the upper

end of the effective picture signal 9, and the regions 18 and 19 are frames of the two regions created by the region creation unit 6 when the spotlight 10 is in the center of the effective picture signal 9. When the regions 16, 17, 18 and 19 thus determined are used so that the evaluated value extraction unit 7 extracts evaluated values by a commonly known method of integrating signal intensity of all pixels, for example, in each of the regions, evaluated values 20, 22, 24 and 25 can be detected consequently without any influence of the spotlight 10. Here, the control unit 3 controls the processing unit 1 to adjust signal intensity. An example of control to increase signal intensity will be described here. When evaluated value extraction is performed again by using the regions 16, 17, 18 and 19 based on a result of the control unit 3's controlling the processing unit 1 to increase signal intensity, evaluated values 21, 23, 26 and 27 are obtained consequently.

By the aforementioned operation, evaluated values without influence of the spotlight can be extracted because the position of the spotlight is excluded from the evaluated value extraction range even when there is the spotlight in the effective picture signal.

Moreover, the feature detection unit and the hold unit for holding the positions of pixels having a feature are provided so that a process of calculating

an evaluated value of a place where pixels having a feature are excluded can be performed by using a result of detection/holding of positions of pixels having the feature. Accordingly, this embodiment is more
5 excellent in processing efficiency than the method in which an image region is divided into a plurality of regions and evaluated values of the regions are calculated in advance so that an optimum one is selectively used from the evaluated values of the
10 regions. This embodiment is effective in reduction of power consumption when this embodiment is achieved by an electronic circuit or the like. This embodiment can be easily achieved by software because it is not necessary to provide any process of calculating extra
15 evaluated values when the aforementioned processing is achieved in the case where real time processing for motion pictures or the like is required.

[Embodiment 2]

Embodiment 2 will be described with reference
20 to Fig. 6. Fig. 6 shows an image pickup apparatus represented by a movie camera or a digital still camera. In Fig. 6, the reference numeral 28 designates a light intensity adjustment unit for controlling exposure; 29, a lens for collecting light; 30, a
25 photoelectric conversion unit for performing photoelectric conversion in accordance with an image formed on a photo acceptance surface by the lens 29; and 31, a drive unit for driving the light intensity

adjustment unit 28. With respect to connection, the light intensity adjustment unit 28 is disposed in front of the lens 29, the photoelectric conversion unit 30 is disposed in the rear of the lens 29, and a picture
5 signal output from the photoelectric conversion unit 30 is input to the extraction unit 2. An output of the control unit 3 is input to the drive unit 31. The drive unit 31 is connected so that the light intensity adjustment unit 28 can be adjusted. Other connections
10 are the same as in Embodiment 1 shown in Fig. 1.

Operation will be described. The feature detection unit 4, the hold unit 5, the region creation unit 6 and the evaluated value extraction unit 7 included in the extraction unit 2 operate in the same
15 manner as in Embodiment 1 shown in Fig. 1 and description thereof will be omitted. Light with light intensity adjusted by the light intensity adjustment unit 28 is converged on a photo acceptance surface of the photoelectric conversion unit 30 and converted into
20 an electric signal serving as a picture signal. An evaluated value extraction region in which a feature change position of any target pixel and its peripheral signal is excluded is determined by the aforementioned operation of the extraction unit 2, so that a result of
25 evaluated value extraction in the extraction region is obtained. The control unit 3 compares the extracted evaluated value with a reference value based on the result, determines control to increase light intensity

when the evaluated value is smaller than the reference value and decrease light intensity when the evaluated value is not smaller than the reference value, and issues a command to the drive unit 31. The drive unit
5 31 adjusts light intensity in accordance with the command.

By the aforementioned operation, even when there is a spotlight in the effective picture signal, the evaluated value not affected by the spotlight can
10 be extracted because the position of the spotlight is excluded from the evaluated value extraction region. It is possible to solve the problem which has been described in the background art and in which a barrier to optimum light intensity adjustment is brought so
15 that other places than the spotlight 10 are sunk darkly because the evaluated value is too large when there is a spotlight in the evaluated value extraction region so that the control unit 3 issues a command to the light intensity adjustment unit 28 to decrease total signal
20 intensity.

[Embodiment 3]

Embodiment 3 will be described with reference to Figs. 7, 8 and 9. Fig. 7 shows an image pickup apparatus represented by a movie camera or a digital
25 still camera. In Fig. 7, the reference numeral 32 designates a focus lens having a focusing unit for adjusting the focus of the lens in order to condense light; 33, a focus lens drive unit for driving the

focusing unit of the focus lens 32; and 34, an auto-focus evaluated value extraction unit for extracting an evaluated value necessary for auto focusing. Fig. 8 shows an example of characteristic of a high pass filter (hereinafter referred to as HPF) included in the auto-focus evaluated value extraction unit 34. Fig. 9 is a graph showing the relation between the position of the focus lens and the output of the HPF shown in Fig. 8. In Fig. 9, the vertical broken line in the center shows a focusing position.

With respect to connection, the photoelectric conversion unit 30 is disposed in the rear of the lens 32, and a picture signal output from the photoelectric conversion unit 30 is input to the extraction unit 2. An output of the control unit 3 is input to the focus lens drive unit 33. The focus lens drive unit 33 is connected so that the focus of the focus lens 32 can be adjusted. Other connections are the same as in Embodiment 1 shown in Fig. 1.

Operation will be described. The feature detection unit 4, the hold unit 5 and the region creation unit 6 included in the extraction unit 2 operate in the same manner as in Embodiment 1 shown in Fig. 1 and description thereof will be omitted. The auto-focus evaluated value extraction unit 34 has a plurality of HPFs. As shown in Fig. 8 which shows an example of characteristic of an HPF, only a high-frequency component in frequency components of a

picture signal passes through the HPF so that the frequency components are attenuated as the frequency becomes lower. Because focusing means the presence of a large amount of high-frequency component in the picture signal, the output of the HPF is maximized at a focusing point as shown in Fig. 9. The auto-focus evaluated value extraction unit 34 outputs the output of the HPF as an evaluated value.

An evaluated value extraction region in which a feature change position of any target pixel and its peripheral signal is excluded is determined by the aforementioned operation of the extraction unit 2, so that a result of extraction of an evaluated value in the extraction region is obtained. The control unit 3 issues a command to the focus lens drive unit 33 based on the result to move back or forth the position of the focus lens 32 to specify the position of the focus lens 32 where the evaluated value is maximized. The focus lens drive unit 33 moves back or forth the focus lens 32 in accordance with the command.

By the aforementioned operation, even when there is a spotlight in the effective picture signal, the evaluated value not affected by the spotlight can be extracted because the position of the spotlight is excluded from the evaluated value extraction region. It is possible to solve the problem which has been described in the background art and in which a barrier to optimum light intensity adjustment is brought

because the evaluated value of the other position than the focusing point is too large when there is a spotlight in the evaluated value extraction region.

[Embodiment 4]

5 Embodiment 4 will be described with reference to Fig. 10. In Fig. 10, the reference numeral 35 designates a signal processing unit which performs a general picture signal generating process while adjusting white balance of a signal output from the
10 photoelectric conversion unit 30. The reference numeral 36 designates a white balance evaluated value extraction unit which extracts an evaluated value necessary for the signal processing unit 35 to adjust white balance. Other numerals are the same as in the
15 aforementioned embodiments.

 Operation will be described. The feature detection unit 4, the hold unit 5 and the region creation unit 6 included in the extraction unit 2 operate in the same manner as in the aforementioned
20 embodiments. The white balance evaluated value extraction unit 36 extracts an evaluated value necessary for white balance from the region created by the region creation unit 6 as described above and outputs the extraction result to the control unit 3.
25 For example, the white balance evaluated value extraction unit 36 sets a white component range of an image by determining a white component from color signals generated by the picture signal generating

process and extracts and differentiates the color signals contained in the white component range to thereby detect a white balance difference and output the white balance difference as a result. Upon
5 reception of the result, the control unit 3 controls the signal processing unit 35 to adjust white balance. For example, the control unit 3 controls gains of color signals such as a primary color signal R (red), a primary color signal B (blue), etc. in the picture
10 signal generating process based on the result of detection of the white balance difference.

By the aforementioned operation, even when there is a spotlight in the effective picture signal, an evaluated value not affected by the spotlight can be
15 extracted because the position of the spotlight is excluded from the evaluated value extraction region. Accordingly, the problem of the white balance difference caused by the spotlight can be solved.
[Embodiment 5]

20 Embodiment 5 will be described with reference to Figs. 11 and 12. Fig. 11 shows an example in which the region creation unit 6 in Embodiment 1 shown in Fig. 1 is replaced by a region creation unit 37 having a region segmentation unit 38 for segmenting an
25 effective region in advance, and an overlap detection unit 39 for detecting overlap of blocks segmented by the region segmentation unit with position information output from the hold unit 5. Fig. 12 is a view for

explaining the operation of the region creation unit 37 in this embodiment. In Fig. 12, the reference numeral 40 designates an effective region segmented by the region segmentation unit 38; 41, an overlap position
5 output from the overlap detection unit 39; and 42, an evaluated value extraction region created from blocks segmented by the region segmentation unit 38.

Connection will be described. An output of the hold unit 5 is connected to an input of the overlap
10 detection unit 39. An output of the region segmentation unit 38 is connected to another input of the overlap detection unit 39. An output of the overlap detection unit 39 is connected as an output of the region creation unit 37 to an input of the
15 evaluated value extraction unit 7. Other connections are the same as in Embodiment 1 shown in Fig. 1.

Operation will be described. The region segmentation unit 38 segments the effective region as represented by the effective region 40 by using a horizontal counter,
20 a vertical counter, etc. The overlap detection unit 39 detects overlap of the position information held in the hold unit 5 with blocks of the effective region 40 as represented by the overlap position 41 and creates an evaluated value extraction region 42 from blocks by
25 excluding the overlap position 41. The evaluated value extraction unit 7 performs evaluated value extraction in the evaluated value extraction region 42. Other operations are the same as in Embodiment 1 shown in

Fig. 1.

By the aforementioned operation, even when there is a spotlight in the effective picture signal, evaluated values not affected by the spotlight can be
5 extracted because the position of the spotlight is excluded from the evaluated value extraction region.

[Embodiment 6]

Embodiment 6 will be described with reference to Figs. 13 and 14. Fig. 13 shows an example in which
10 the region creation unit 37 in Embodiment 5 shown in Fig. 11 is replaced by a region creation unit 43 having an area adjustment unit 44 for adjusting the evaluated value extraction region to always keep the area of the evaluated value extraction region constant. Fig. 14 is
15 a view and flow chart for explaining the operation of the area adjustment unit 44. In Fig. 14, the reference numeral 45 designates an initial evaluated value extraction region as an evaluated value extraction region initially set to contain the position of the
20 spotlight 10; and 46, an evaluated value extraction region adjusted by the area adjustment unit 44.

Connection will be described. An output of the hold unit 5 is connected to an input of the overlap detection unit 39. An output of the region
25 segmentation unit 38 is connected to another input of the overlap detection unit 39. An output of the overlap detection unit 39 is connected to an input of the area adjustment unit 44. An output of the area

adjustment unit 44 is connected as an output of the region creation unit 43 to an input of the evaluated value extraction unit 7. Other connections are the same as in Embodiment 5 shown in Fig. 11.

5 Operation will be described. As shown in the flow chart of Fig. 14, the area adjustment unit 44 first grasps the area of the initial evaluated value extraction region 45 by blocks (step 1). Then, the area adjustment unit 44 monitors whether there is any
10 change in the output of the overlap detection unit 39 or not (step 2). When there is no change, the area adjustment unit 44 keeps the area of the extraction region (step 3). When there is any change, the area adjustment unit 44 compares the area of the changed
15 evaluated value extraction region 42 with the area of the initial evaluated value extraction region 45 (step 4). When the areas are equal to each other, the area adjustment unit 44 keeps the area of the extraction region (step 3). When the area of the evaluated value
20 extraction region 42 is smaller, the area adjustment unit 44 performs a process of increasing the number of blocks to make the areas equal to each other (step 5). As a result, a region as represented by the evaluated value extraction region 46 is obtained so that the area
25 of the extraction region is always kept constant.

By the aforementioned operation, even when there is a spotlight in the effective picture signal, evaluated values not affected by the spotlight can be

extracted because the position of the spotlight is
excluded from the evaluated value extraction region.
In addition, there is an effect that the area of the
evaluated value extraction region can be kept constant,
5 and that control can be simplified.

It should be further understood by those
skilled in the art that although the foregoing
description has been made on embodiments of the
invention, the invention is not limited thereto and
10 various changes and modifications may be made without
departing from the spirit of the invention and the
scope of the appended claims.

CLAIMS:

1. A signal processor comprising:

an extraction unit which extracts a feature and position of each pixel of an input picture signal and outputs an evaluated value corresponding to the extracted feature and position of the pixel;

a processing unit which applies predetermined processing to the picture signal; and

a control unit which controls the processing unit in accordance with the evaluated value output from the extraction unit;

wherein the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

2. A signal processor according to Claim 1, wherein the extraction unit includes:

a feature detection unit which detects a feature change position of any pixel and its peripheral pixels in the input picture signal;

a hold unit which holds position information of the detected pixels;

a region creation unit which creates a region by excluding the held positions from an evaluated value extraction region; and

an evaluated value extraction unit which extracts evaluated values in accordance with the region.

3. A signal processor according to Claim 2,
wherein:

the processing unit is a light intensity
adjustment unit for controlling exposure;

a lens and a photoelectric conversion unit
for performing photoelectric conversion are disposed
between the light intensity adjustment unit and the
extraction unit; and

the control unit controls the processing unit
by using an evaluated value of a region from which
pixels having an extracted predetermined feature are
removed.

4. A signal processor according to Claim 1,
wherein:

the processing unit is a light intensity
adjustment unit for controlling exposure;

a lens and a photoelectric conversion unit
for performing photoelectric conversion are disposed
between the light intensity adjustment unit and the
extraction unit; and

the control unit controls the processing unit
by using an evaluated value of a region from which
pixels having an extracted predetermined feature are
removed.

5. A signal processor according to Claim 1,
wherein:

the processing unit includes a focus lens,
and a drive unit for driving the focus lens;

a photoelectric conversion unit for performing photoelectric conversion is disposed between the focus lens and the extraction unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

6. A signal processor according to Claim 2, wherein:

the processing unit includes a focus lens, and a drive unit for driving the focus lens;

a photoelectric conversion unit for performing photoelectric conversion is disposed between the focus lens and the extraction unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

7. A signal processor according to Claim 1, wherein:

the processing unit is a signal processing unit for adjusting white balance of an input picture signal; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

8. A signal processor according to Claim 2,

wherein:

the processing unit is a signal processing unit for adjusting white balance of an input picture signal; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

9. A signal processor according to Claim 5, wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

10. A signal processor according to Claim 1, wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

11. A signal processor according to Claim 2, wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

12. A signal processor according to Claim 3, wherein:

the region creation unit includes a region segmentation unit for segmenting an effective region in advance, and an overlap detection unit which detects overlap of position information output from the hold unit with blocks segmented by the region segmentation unit; and

the control unit controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed.

13. A signal processor according to Claim 1, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

14. A signal processor according to Claim 2, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

15. A signal processor according to Claim 3, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

16. A signal processor according to Claim 5, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

17. A signal processor according to Claim 7, wherein the region creation unit includes a unit which keeps the total area of the evaluated value extraction region constant by excluding unnecessary portions from the evaluated value extraction region.

ABSTRACT OF THE DISCLOSURE

A signal processor capable of extracting evaluated values used for automatic control more appropriately, including: a feature detection unit which detects a feature change position of any target pixel and its peripheral pixels in an input picture signal; a hold unit which holds the position information; a region creation unit which creates a region by excluding the held positions from an evaluated value extraction region; and an evaluated value extraction unit which extracts evaluated values in accordance with the region; wherein unnecessary portions different in feature from the periphery are extracted in accordance with any pixel unit by detection of the feature change position so that the feature change position is excluded from the evaluated value extraction region.

FIG. 1

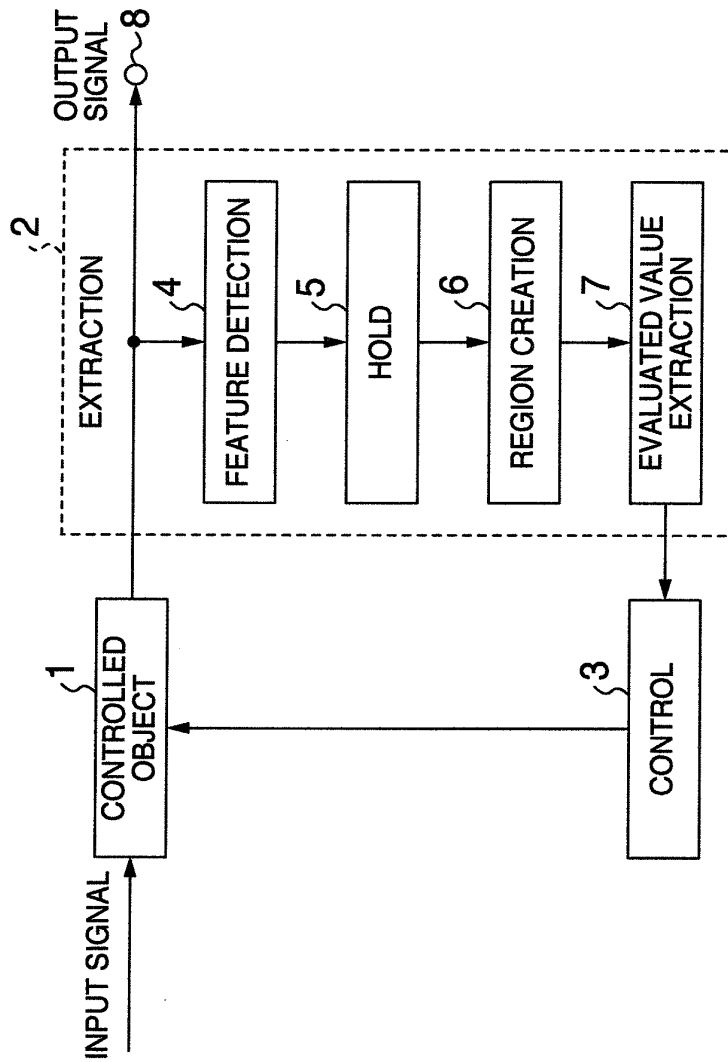


FIG. 2

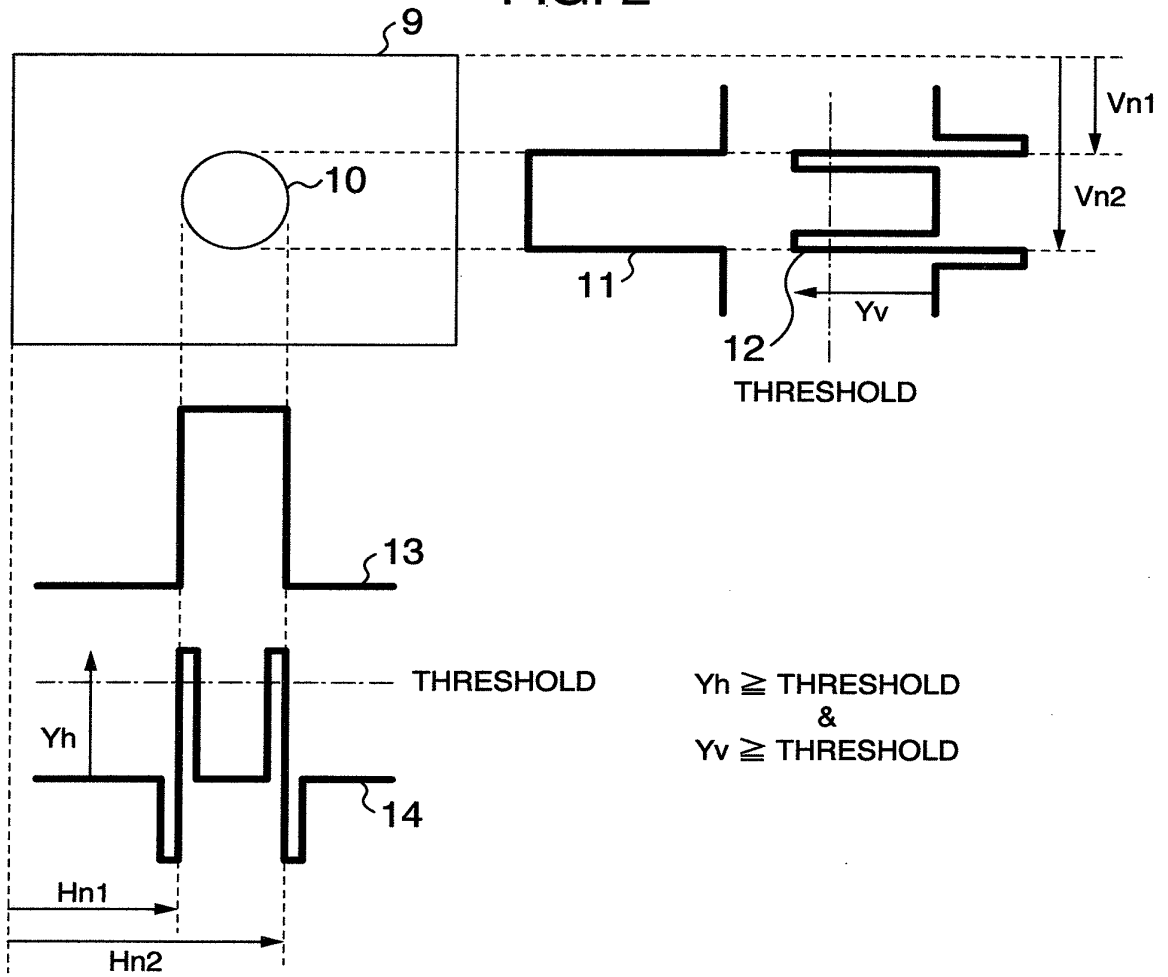


FIG. 3

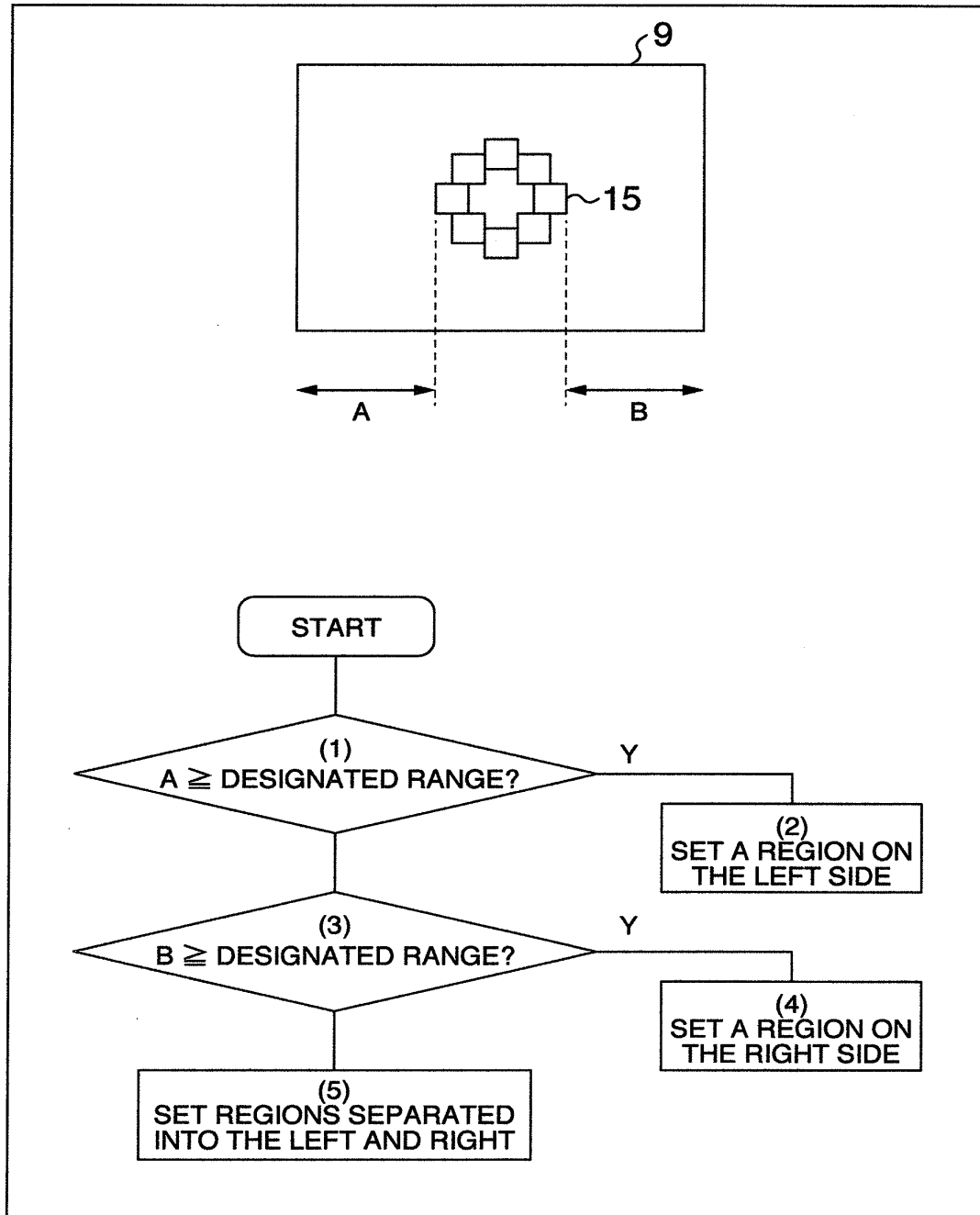


FIG. 4

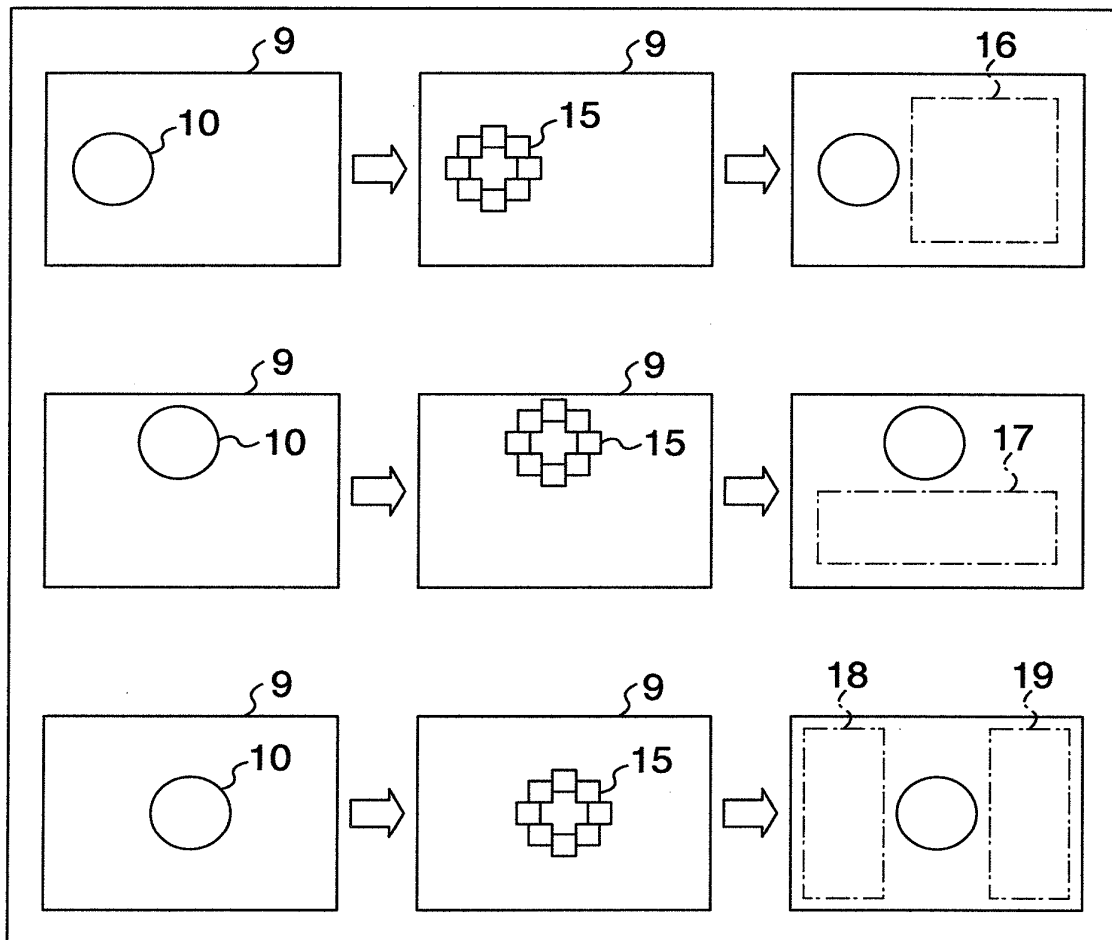


FIG. 5

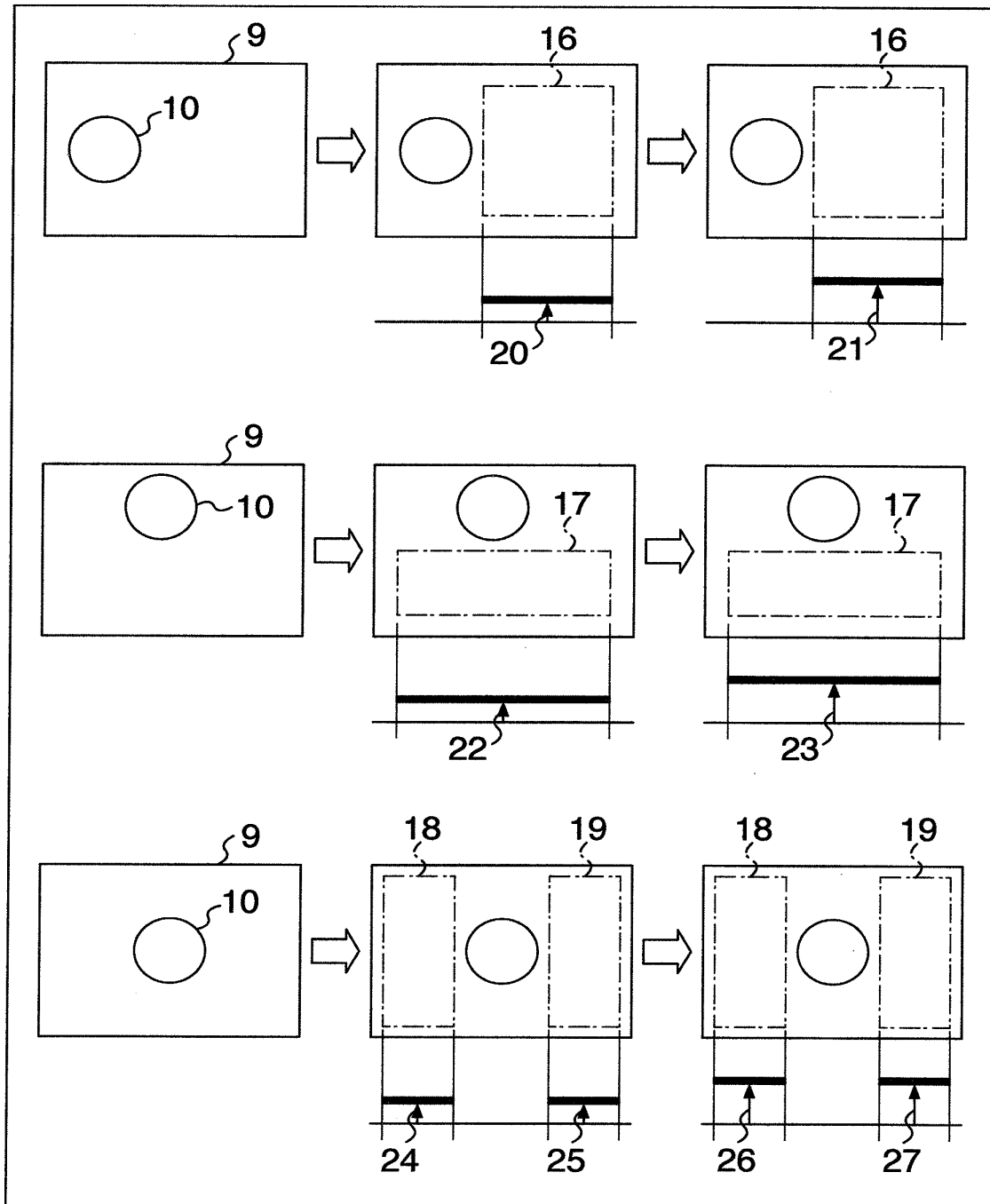


FIG. 6

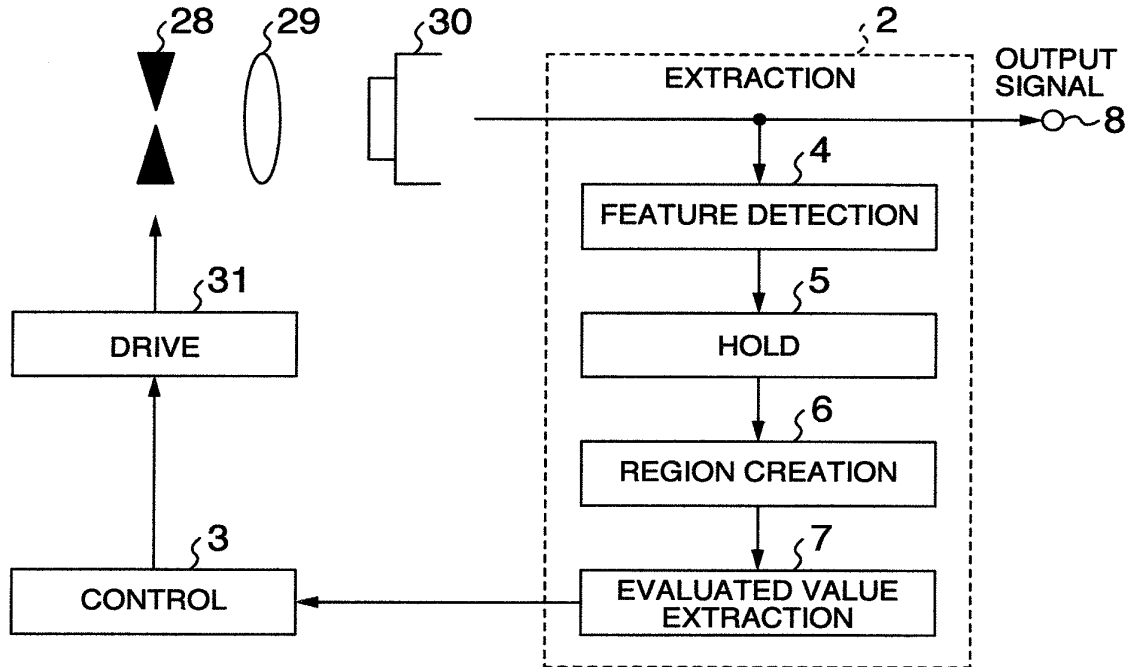


FIG. 7

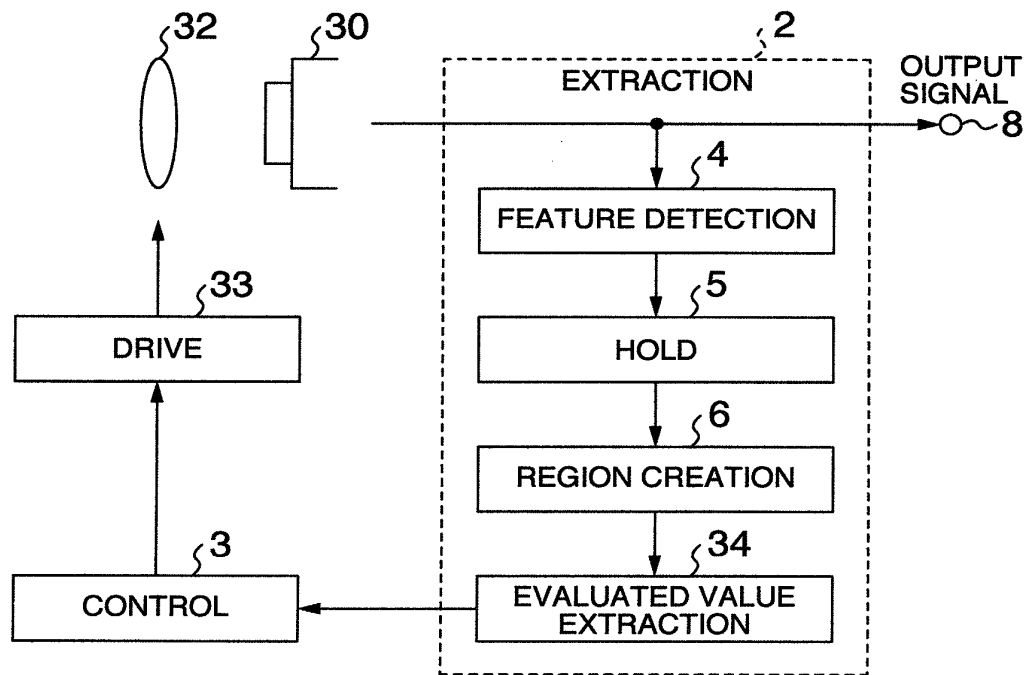


FIG. 8

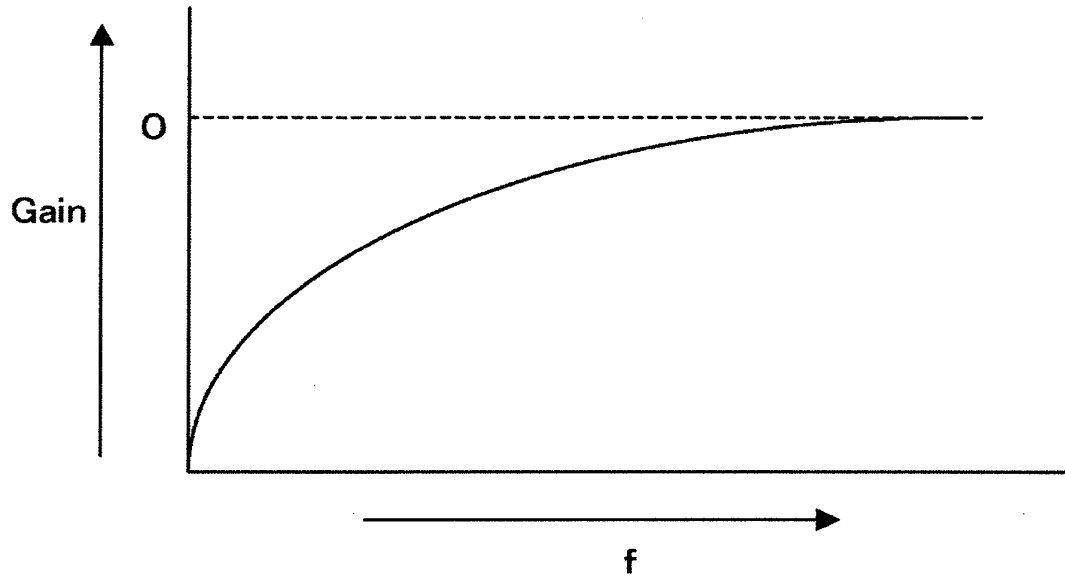


FIG. 9

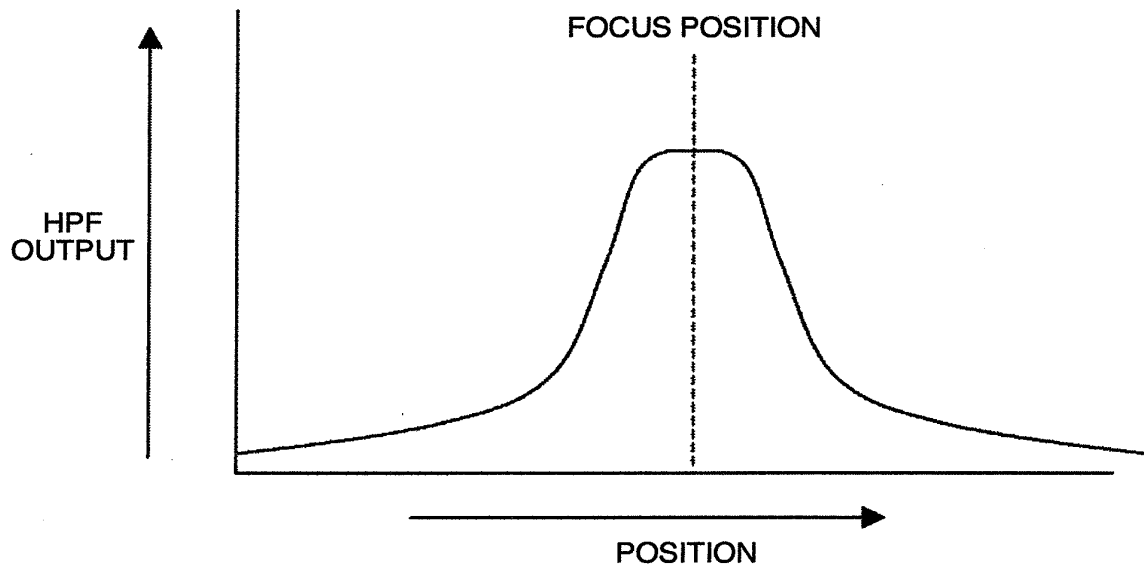


FIG. 10

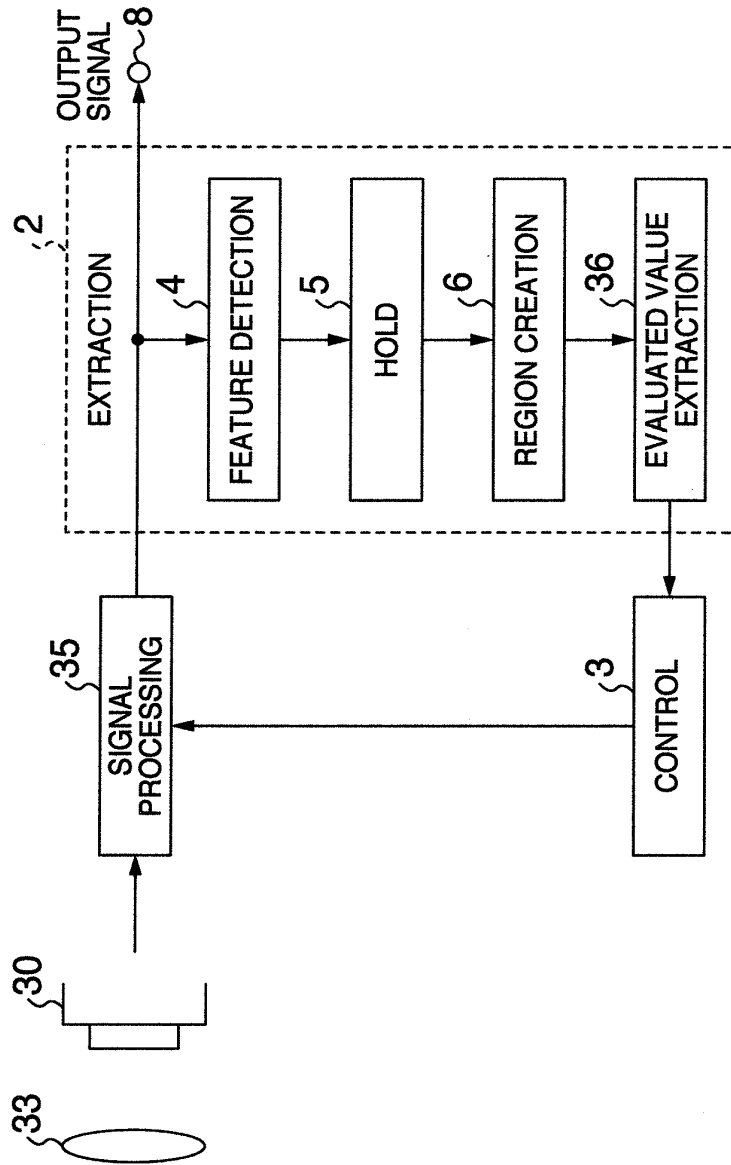


FIG. 11

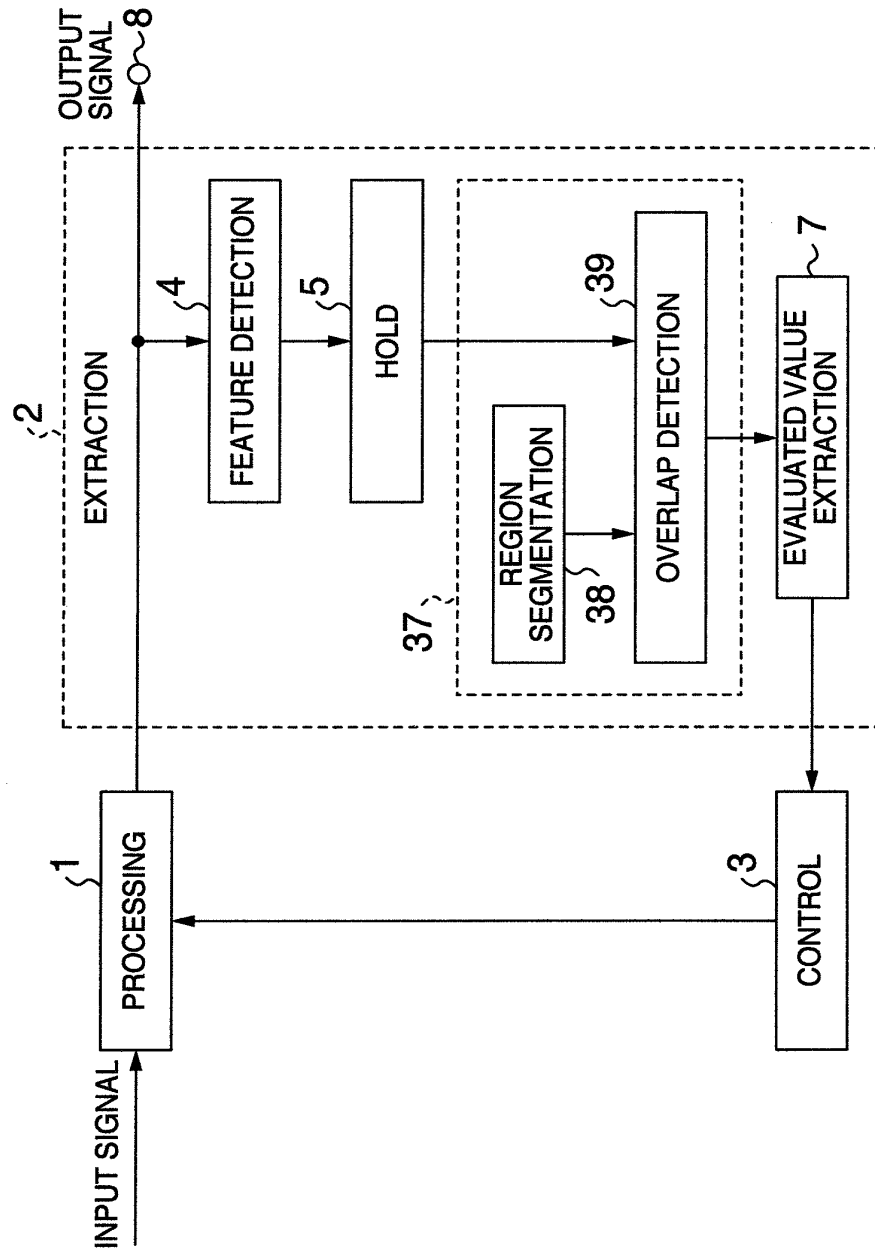


FIG. 12

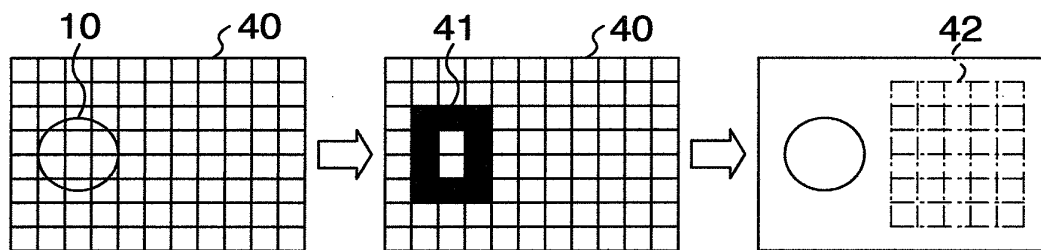


FIG. 13

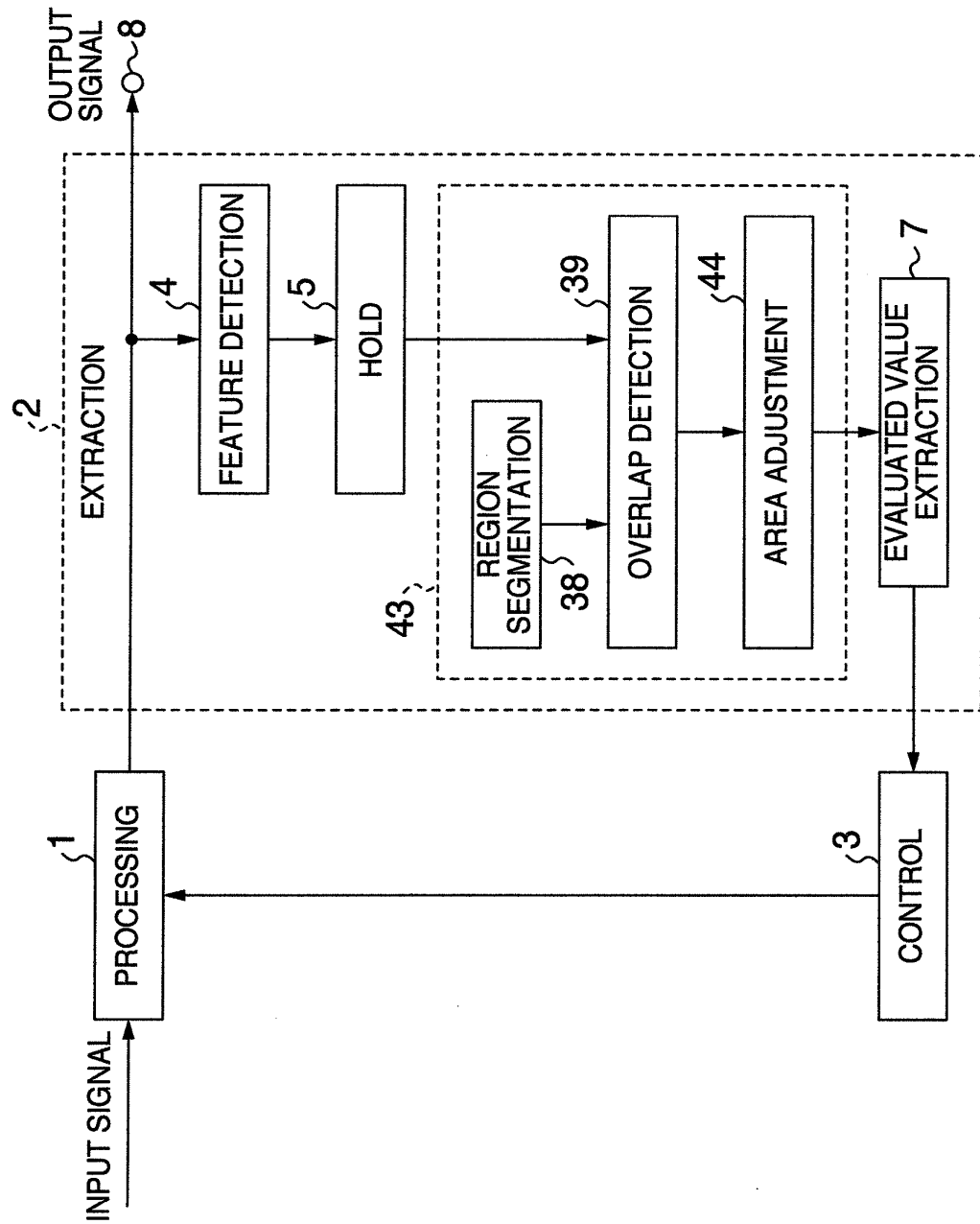
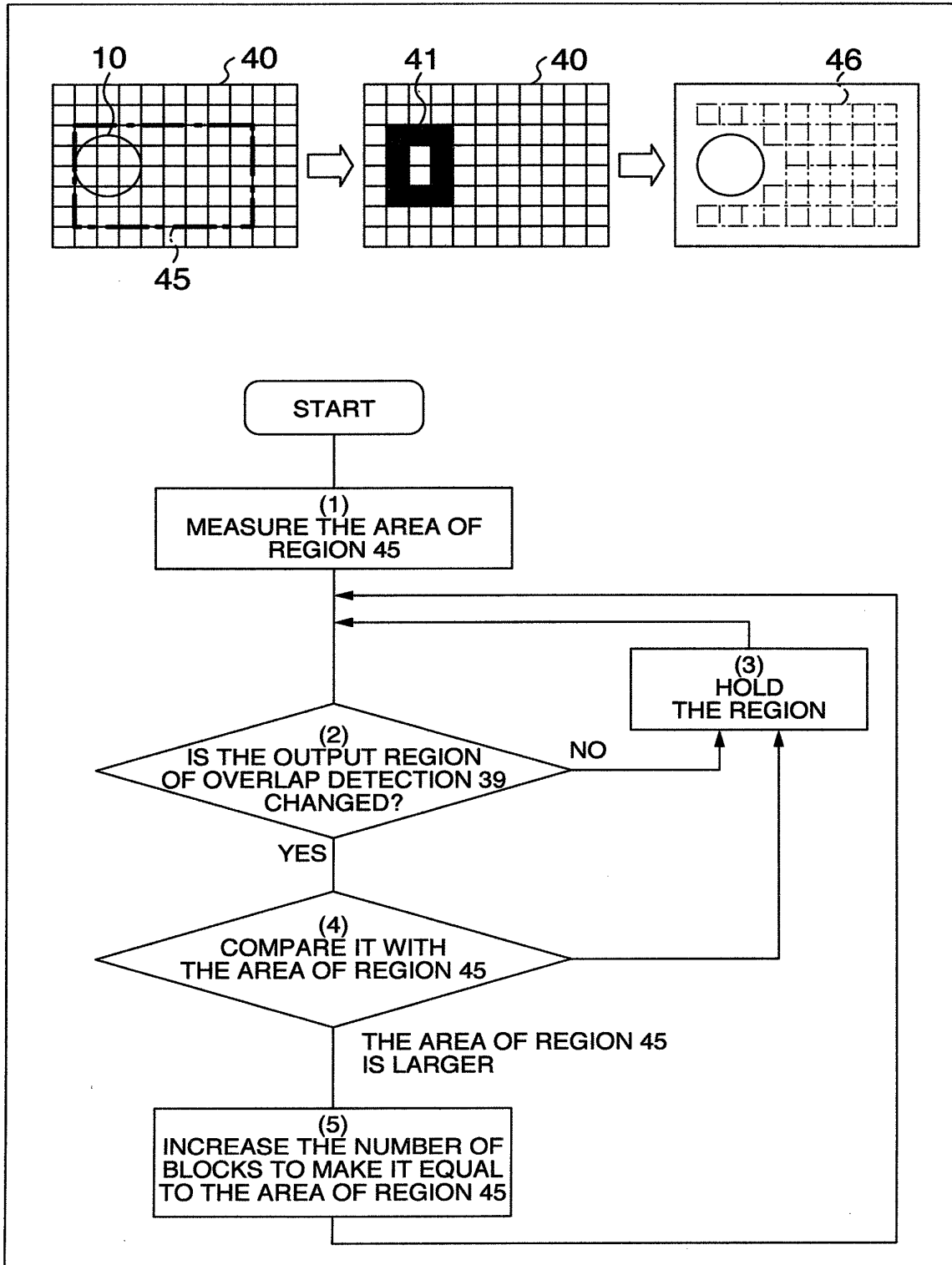


FIG. 14



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Junji KAMIMURA, et al.

Application No.: Unassigned

Filed: Herewith

For: SIGNAL PROCESSOR

Customer No.: 20350

Confirmation No.:

Examiner:

Art Unit:

INFORMATION DISCLOSURE
STATEMENT UNDER 37 CFR §1.97 and
§1.98

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

The reference cited on attached form PTO/SB/08A is being called to the attention of the Examiner. A copy of the U. S. reference is not enclosed. It is respectfully requested that the cited reference be expressly considered during the prosecution of this application, and the reference be made of record therein and appear among the "references cited" on any patent to issue therefrom.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Junji KAMIMURA, et al.
Application No.:
Page 2

PATENT

Respectfully submitted,

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 12/621,304		
APPLICATION AS FILED – PART I							
(Column 1)			(Column 2)		SMALL ENTITY OR OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)	
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A	330	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A	540	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A	220	
TOTAL CLAIMS (37 CFR 1.16(i))	17	minus 20 =	x\$26		x\$52		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *	x\$110		x\$220		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$260 (\$130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			195		390		
			TOTAL		TOTAL	1090	
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED – PART II							
(Column 1)		(Column 2)		(Column 3)			
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA				
	Total (37 CFR 1.16(i))	Minus **	=				
	Independent (37 CFR 1.16(h))	Minus ***	=				
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				SMALL ENTITY OR OTHER THAN SMALL ENTITY			
				RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
				X =		X =	
				X =		X =	
				N/A		N/A	
				TOTAL ADD'T FEE		TOTAL ADD'T FEE	
(Column 1)		(Column 2)		(Column 3)			
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA				
	Total (37 CFR 1.16(i))	Minus **	=				
	Independent (37 CFR 1.16(h))	Minus ***	=				
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				SMALL ENTITY OR OTHER THAN SMALL ENTITY			
				RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)
				X =		X =	
				X =		X =	
				N/A		N/A	
				TOTAL ADD'T FEE		TOTAL ADD'T FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
 *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

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

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