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P.O. Box 1450
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/471,567	09/09/2014	8830293	0370.0224C (959999)	6112

99499 7590 08/20/2014
Edell, Shapiro, & Finnan, LLC
9801 Washingtonian Blvd.
Suite 750
Gaithersburg, MD 20878

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 1506 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):

J. William Mauchly, Berwyn, PA;
Richard Thayer Wales, Sunnyvale, CA;

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)

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.

99499 7590 05/09/2014
Edell, Shapiro, & Finnan, LLC
9801 Washingtonian Blvd.
Suite 750
Gaithersburg, MD 20878

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.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C (959999)	6112

TITLE OF INVENTION: Video Superposition for Continuous Presence

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	08/11/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
DU, HUNG K	2645	348-014070

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 Edell, Shapiro & Finnan, LLC

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)

Cisco Technology, Inc.

San Jose, CA

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. XXXXXXXXXXXXXXXX
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 050460 (enclose an extra copy of this form).

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature /D. Andrew Floam/

Date August 1, 2014

Typed or printed name D. Andrew Floam

Registration No. 34597

Electronic Patent Application Fee Transmittal

Application Number:	12471567			
Filing Date:	26-May-2009			
Title of Invention:	Video Superposition for Continuous Presence			
First Named Inventor/Applicant Name:	J. William Mauchly			
Filer:	D. Andrew Floam/Amanda Johnson			
Attorney Docket Number:	0370.0224C (959999)			
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	960	960
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt

EFS ID:	19749819
Application Number:	12471567
International Application Number:	
Confirmation Number:	6112
Title of Invention:	Video Superposition for Continuous Presence
First Named Inventor/Applicant Name:	J. William Mauchly
Customer Number:	99499
Filer:	D. Andrew Floam/Amanda Johnson
Filer Authorized By:	D. Andrew Floam
Attorney Docket Number:	0370.0224C (959999)
Receipt Date:	01-AUG-2014
Filing Date:	26-MAY-2009
Time Stamp:	10:45:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$960
RAM confirmation Number	7916
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part (.zip if appl.)	Pages (if appl.)
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1	Issue Fee Payment (PTO-85B)	PTO-85B.pdf	135951 9cac80a90539d50719ba85a43714cfa63d7abc98	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30217 97805f805ce6c79faeb4525e1d87f4212d20e11c	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			166168		
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.					

Issue Classification 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	

CPC						
Symbol					Type	Version
H04N		21	/	4788	I	2013-01-01
H04N		21	/	44008	I	2013-01-01
H04N		7	/	147	I	2013-01-01
H04N		7	/	15	F	2013-01-01
H04N		21	/	440263	I	2013-01-01
H04N		21	/	42203	I	2013-01-01
H04N		21	/	4223	I	2013-01-01
			/			
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			/			
			/			
			/			
			/			
			/			

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

/HUNG DU/ Examiner.Art Unit 2645 (Assistant Examiner)	05/02/2014 (Date)	Total Claims Allowed: 20	
/GEORGE ENG/ Supervisory Patent Examiner.Art Unit 2645 (Primary Examiner)	05/04/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

Issue Classification 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	

US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION									
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED				
348		14.07				H	0	4	N	7 / 14 (2006.01.01)					
CROSS REFERENCE(S)						H	0	4	N	9 / 74 (2006.01.01)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)														
348	586														

/HUNG DU/ Examiner.Art Unit 2645 (Assistant Examiner)	05/02/2014 (Date)	Total Claims Allowed: 20	
/GEORGE ENG/ Supervisory Patent Examiner.Art Unit 2645 (Primary Examiner)	05/04/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

Issue Classification 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

☐ 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	14	17												
	2	15	18												
2	3	16	19												
3	4	17	20												
4	5	18	21												
5	6	19	22												
6	7	20	23												
7	8														
8	9														
9	10														
10	11														
	12														
11	13														
12	14														
13	15														
	16														

/HUNG DU/ Examiner.Art Unit 2645 (Assistant Examiner)	05/02/2014 (Date)	Total Claims Allowed: 20	
/GEORGE ENG/ Supervisory Patent Examiner.Art Unit 2645 (Primary Examiner)	05/04/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C (959999)	6112
99499	7590	06/02/2014		
Edell, Shapiro, & Finnan, LLC 9801 Washingtonian Blvd. Suite 750 Gaithersburg, MD 20878			EXAMINER DU, HUNG K	
			ART UNIT 2645	PAPER NUMBER
			NOTIFICATION DATE 06/02/2014	DELIVERY MODE 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):

epatent@usiplaw.com

Corrected Notice of Allowability	Application No. 12/471,567	Applicant(s) MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	AIA (First Inventor to File) Status No

-- 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 04/24/2014.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1,3-11,13-15 and 17-23. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
 a) ☐ All b) ☐ Some *c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 * Certified copies not received: _____.

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

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____. 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material 4. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____.	5. ☐ Examiner's Amendment/Comment 6. ☐ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____.
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/WESLEY KIM/ Primary Examiner, Art Unit 2645	/HUNG DU/ Examiner, Art Unit 2645
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**UNITED STATES DEPARTMENT OF COMMERCE****U.S. Patent and Trademark Office**

Address : COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/471,567	26 May, 2009	MAUCHLY ET AL.	0370.0224C (959999)

Edell, Shapiro, & Finnan, LLC 9801 Washingtonian Blvd. Suite 750 Gaithersburg, MD 20878		EXAMINER	
		HUNG DU	
		ART UNIT	PAPER
		2645	20140527

DATE MAILED:

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

Commissioner for Patents

Attached corrected Notice of Allowance

/HUNG DU/
Examiner, Art Unit 2645

<i>Applicant-Initiated Interview Summary</i>	Application No. 12/471,567	Applicant(s) MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	

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

(1) HUNG DU. (3) ____.

(2) Amol Purohit (reg # 65547). (4) ____.

Date of Interview: 23 May 2014.

Type: ☒ Telephonic ☐ Video Conference
 ☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
 If Yes, brief description: ____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
 (For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: ____.

Identification of prior art discussed: ____.

Substance of Interview
 (For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant informed the examiner that claim 15, which the examiner had indicated as allowable, is missing in the Notice Of Allowance cover sheet. The Applicant requested a corrected Notice of Allowance cover sheet.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

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

☒ Attachment

/WESLEY KIM/ Primary Examiner, Art Unit 2645	/HUNG DU/ Examiner, Art Unit 2645
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Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.



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NOTICE OF ALLOWANCE AND FEE(S) DUE

99499 7590 05/09/2014
Edell, Shapiro, & Finnan, LLC
9801 Washingtonian Blvd.
Suite 750
Gaithersburg, MD 20878

EXAMINER

DU, HUNG K

ART UNIT

PAPER NUMBER

2645

DATE MAILED: 05/09/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/471,567

05/26/2009

J. William Mauchly

0370.0224C (959999)

6112

TITLE OF INVENTION: Video Superposition for Continuous Presence

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	08/11/2014

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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)

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.

99499 7590 05/09/2014
Edell, Shapiro, & Finnan, LLC
9801 Washingtonian Blvd.
Suite 750
Gaithersburg, MD 20878

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.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C (959999)	6112

TITLE OF INVENTION: Video Superposition for Continuous Presence

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	08/11/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
DU, HUNG K	2645	348-014070

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 credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C (959999)	6112

99499 7590 05/09/2014
Edell, Shapiro, & Finnan, LLC
9801 Washingtonian Blvd.
Suite 750
Gaithersburg, MD 20878

EXAMINER

DU, HUNG K

ART UNIT	PAPER NUMBER
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2645

DATE MAILED: 05/09/2014

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

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

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

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

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 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.

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. 12/471,567	Applicant(s) MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	AIA (First Inventor to File) Status No

-- 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 04/24/2014.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1,3-11,13,14 and 17-23. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
a) ☐ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

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

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892) 2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material 4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____	5. ☐ Examiner's Amendment/Comment 6. ☒ Examiner's Statement of Reasons for Allowance 7. ☐ Other _____
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/HUNG DU/ Examiner, Art Unit 2645	/GEORGE ENG/ Supervisory Patent Examiner, Art Unit 2645
--------------------------------------	--

DETAILED ACTION

1. This action is responsive to the amendment filed on 04/24/2014. The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

2. Claims 1, 3-11, 13-15, 17-23 are allowed.

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

- Claims 1, 11, 15 recite "*scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames; removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream*".

Leibow (US 2008/0048975 A1) discloses the method of superimposing a first background separated image of a first video stream over a second background separated image of a second video stream to produce a combined video stream where the first video stream is in the anterior position and the

second video stream is in the posterior position. Goose (US 2009/0033737 A1) discloses the method of superimposing a first background separated video stream over a second background separated video stream for a video conference. However, neither Leibow nor Goose discloses the method of scaling and repositioning the image of the video stream. Chao (US 2008/0095470 A1) discloses the method of resizing and repositioning of an image. However Chao does not disclose the superimposing of a background separated first image over a second image. Leibow, Goose, Chao, alone or in combination disclose the method steps of first *"scaling the video frames of the first video strea"*, second *"repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames"*, third *"removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream"*, and fourth *"superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream"*.

Dependent claims 3-10, 13-14, 17-23 are allowed for the reason cited above.

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

Art Unit: 2645

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 HUNG DU whose telephone number is (571)270-1810. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571)272-7495. 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.

/GEORGE ENG/
Supervisory Patent Examiner, Art Unit 2645

/HUNG DU/
Examiner, Art Unit 2645

Notice of References Cited	Application/Control No. 12/471,567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0095470 A1	04-2008	Chao et al.	382/298
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1300113	((scal\$3 re\$1scal\$3 siz\$3 re\$1siz\$3 crop\$4 reduc\$3 enlarg\$3 smaller larger) with (image frame picture video))	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:29
L2	501504	((overlay\$3 superimpos\$3 merg\$3 multiplex\$3 combin\$3) with (image frame picture video))	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:29
L3	28775	(l1 and l2 and (position\$3 re\$1position\$3) and ((video near3 (conferenc\$3 stream\$3)) teleconferenc\$3))	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:30
L4	0	(G09G2340/("02,04,10,12,125,407,442,045,0464,0492").cpc.)	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:31
L5	5784	(G09G2340/02,04,10,12,125,407,442,045,0464,0492.cpc.)	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:31
L6	2068	(G06T3/40,4023.cpc.)	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:32
L7	895	(G06T7/0022.cpc.)	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:32
L8	24623	((H04N5/45 H04N19/00757 H04N21/434 H04N21/47 H04N5/44508 H04N7/15 H04N7/147 H04N21/2365 H04N21/23614 H04N5/272 H04N5/2628 H04M3/567).CPC.)	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:32
L9	32484	l5 l6 l7 l8	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:32
L10	3955	l3 and l9	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:32
L11	4643	l1 same l2 and l9	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:33
L12	1645	l1 same l2 and l9 and (position\$3 re\$1position\$3) and ((video near3 (conferenc\$3 stream\$3)) (teleconferenc\$3))	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:34
L13	69476	((overlay\$3 superimpos\$3 merg\$3 multiplex\$3 combin\$3) with first with (image frame picture video))	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:34
L14	3288	l1 and l13 and l9	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:35
L15	1225	l1 and l13 and l9 and (position\$3 re\$1position\$3) and ((video near3 (conferenc\$3 stream\$3)) (teleconferenc\$3))	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:35
L16	376	l1 same l13 and l9 and (position\$3 re\$1position\$3) and ((video near3 (conferenc\$3 stream\$3)) (teleconferenc\$3))	US-PGPUB; USPAT; DERWENT	OR	ON	2014/05/02 13:36
L17	2	("20080095470").pn.	US-PGPUB; USPAT;	OR	ON	2014/05/02 14:15

			DERWENT			
L19	1803992	((scal\$3 re\$1scal\$3 siz\$3 re\$1siz\$3 crop\$4 reduc\$3 enlarg\$3 smaller larger) with (image frame picture video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 14:26
L20	1803992	((scal\$3 re\$1scal\$3 siz\$3 re\$1siz\$3 crop\$4 reduc\$3 enlarg\$3 smaller larger) with (image frame picture video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 14:26
L21	1803992	((scal\$3 re\$1scal\$3 siz\$3 re\$1siz\$3 crop\$4 reduc\$3 enlarg\$3 smaller larger) with (image frame picture video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/05/02 14:27

EAST Search History (I nterference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L18	5795	(H04N21/44008 H04N7/147 H04N21/440263 A01B12/006).cpc.	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:25
L22	985734	((scal\$3 re\$1scal\$3 siz\$3 re\$1siz\$3 crop\$4 reduc\$3 enlarg\$3 smaller larger) with (image frame picture video))	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:28
L23	65504	((overlay\$3 superimpos\$3 merg\$3 multiplex\$3 combin\$3) with first with (image frame picture video))	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:28
L24	596	l18 and l22 and l23	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:28
L25	0	(l18 and l22 and l23).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:29
L26	5959	(l22 and l23).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:29
L27	90	l26 and l18	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:29
L28	51118	((overlay\$3 superimpos\$3 combin\$3) with first with (image frame picture video))	US-PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:30
L29	4867	(l22 and l28).clm.	US-PGPUB; USPAT;	OR	ON	2014/05/02 14:30

			UPAD			
L30	68	l29 and l18	US- PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:31
L31	2590	((overlay\$3 superimpos\$3 merg\$3 multiplex\$3 combin\$3) with first with (image frame picture video)) and ((separa\$4 remov\$3) with background	US- PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:32
L32	2590	((((overlay\$3 superimpos\$3 merg\$3 multiplex\$3 combin\$3) with first with (image frame picture video)) and ((separa\$4 remov\$3) with background))	US- PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:33
L33	48	(l22 and l28 and ((separa\$4 remov\$3) with background)).clm.	US- PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:34
L34	2	l33 and l18	US- PGPUB; USPAT; UPAD	OR	ON	2014/05/02 14:35

5/ 2/ 2014 2:36:23 PM
C:\ Users\ hdu1\ Documents\ EAST\ Workspaces\ 12471567.wsp

Issue Classification 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	

CPC						
Symbol					Type	Version
H04N		21		4788	I	2013-01-01
H04N		21		4223	I	2013-01-01
H04N		7		15	F	2013-01-01
H04N		21		42203	I	2013-01-01
H04N		21		44008	I	2013-01-01
H04N		7		147	I	2013-01-01
H04N		21		440263	I	2013-01-01

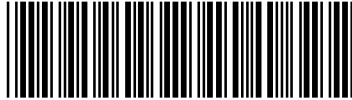
CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

/HUNG DU/ Examiner.Art Unit 2645 (Assistant Examiner)	05/02/2014 (Date)	Total Claims Allowed: 20	
/GEORGE ENG/ Supervisory Patent Examiner.Art Unit 2645 (Primary Examiner)	05/04/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

Issue Classification 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

☐ 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	17	17												
	2	18	18												
3	3	19	19												
4	4	20	20												
5	5	21													
6	6	22													
7	7	23													
8	8														
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11	11														
	12														
13	13														
14	14														
15	15														
	16														

/HUNG DU/ Examiner.Art Unit 2645 (Assistant Examiner)	05/02/2014 (Date)	Total Claims Allowed: 20	
/GEORGE ENG/ Supervisory Patent Examiner.Art Unit 2645 (Primary Examiner)	05/04/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

<i>Index of Claims</i> 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

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

☐ Claims renumbered in the same order as presented by applicant						☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE									
Final	Original	08/06/2012	06/29/2013	01/22/2014	05/02/2014						
	1	✓	✓	✓	=						
	2	✓	✓	○	-						
	3	✓	○	○	=						
	4	✓	○	○	=						
	5	✓	○	○	=						
	6	✓	○	○	=						
	7	✓	✓	✓	=						
	8	✓	✓	✓	=						
	9	✓	✓	✓	=						
	10	✓	✓	✓	=						
	11	✓	✓	✓	=						
	12	✓	○	○	-						
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	14	✓	✓	✓	=						
	15	✓	✓	✓	=						
	16	✓	○	○	-						
	17	✓	○	○	=						
	18	✓	○	○	=						
	19	✓	○	○	=						
	20	✓	○	○	=						
	21				=						
	22				=						
	23				=						

Search Notes 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

CPC- SEARCHED		
Symbol	Date	Examiner
G09G2340/02,04,10,12,125,407,442,045,0464,0492	5/1/2014	HD
H04N5/45 H04N19/00757 H04N21/434 H04N21/47 H04N5/44508 H04N7/15 H04N7/147 H04N21/2365 H04N21/23614 H04N5/272 H04N5/2628 H04M3/567	5/1/2014	HD
G06T3/40,4023	5/1/2014	HD
G06T7/0022	5/1/2014	HD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
348	14.01,14.02,14.05,14.07,14.09,14.1,14.14,14.15,14.16	8/6/2012	HD
348	14.07,14.08,14.09,14.1,14.13,14.14,14.15,452,552,575,576,578,581,584,586	6/26/2013	HD
345	629,630,660,668,670,671	6/26/2013	HD

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor search in EAST	8/6/2012	HD
Google Patent search	8/6/2012	HD
Consult with George Eng on objecting claims 2, 4, 6	6/26/2013	HD
Consult with George Eng, Wesley Kim, Kenneth Weider on 112 fourth and doing second non-final	6/28/2013	HD
Text search for overlaying foreground images	1/17/2014	HD
Applicant moved objected claims to independent claims; consult with George Eng on CPC search area	5/1/2014	HD

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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C (959999)	6112
99499	7590	04/30/2014		
Edell, Shapiro, & Finnan, LLC 9801 Washingtonian Blvd. Suite 750 Gaithersburg, MD 20878			EXAMINER DU, HUNG K	
			ART UNIT 2645	PAPER NUMBER
			NOTIFICATION DATE 04/30/2014	DELIVERY MODE 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):

epatent@usiplaw.com

<i>Applicant-Initiated Interview Summary</i>	Application No. 12/471,567	Applicant(s) MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	

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

(1) HUNG DU. (3) Amol Purohit (reg # 65547).

(2) George Eng. (4) ____.

Date of Interview: 23 April 2014.

Type: ☒ Telephonic ☐ Video Conference
 ☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

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

Issues Discussed ☐ 101 ☐ 112 ☐ 102 ☐ 103 ☒ Others
 (For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1.

Identification of prior art discussed: _____.

Substance of Interview
 (For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant informed that AFCP 2.0 program may file with modified claims that include allowable subject matter indicated in the previous office action. Further search and consideration may require upon an official response is filed. Examiner agreed to contact the applicant if new art is found.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

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

☐ Attachment

/HUNG DU/ Examiner, Art Unit 2645	/GEORGE ENG/ Supervisory Patent Examiner, Art Unit 2645
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Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 12/471,567
First Named Inventor : J. William MAUCHLY
Confirmation No. : 6112
Filed : May 26, 2009
TC/A.U. : 2645
Examiner : Hung K. DU
Customer No. : 99499
Docket No. : 0370.0224C (959999)
Title : Video Superposition for Continuous Presence

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

AMENDMENT AFTER FINAL REJECTION

Sir:

This paper responds to the final Office Action mailed January 29, 2014. This paper constitutes a Request for Consideration under the After Final Consideration Program (AFCP) 2.0. As such, Applicant submits the transmittal form PTO/SB/434 concurrently herewith. Additionally, Applicant respectfully requests that the above-identified application be amended as follows:

Listing of the Claims begins on page 2 of this paper.

A Summary of the Examiner Interview is provided on page 10 of this paper.

Remarks begin on page 11.

Amendments to the Claims:

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

Listing of Claims:

1. (Currently Amended) A method comprising:
receiving at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;
combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame,
wherein the combining comprises:
scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and
superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream; and
~~supplying to an endpoint device with a video display the combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the subject image of the second video stream in the posterior position of the combined frame to a~~
video display for displaying the combined video stream.

2. (Canceled)

3. (Currently Amended) The method of claim [[2]] 1, wherein the subject image of video frames of the first video stream comprises images of multiple videoconference participants and the subject image of video frames of the second video stream comprises images of multiple videoconference participants.

4. (Currently Amended) The method of claim 1, wherein combining comprises:

~~scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;~~

~~removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;~~

scaling the video frames of the second video stream and repositioning in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

5. (Original) The method of claim 4, wherein the second direction is opposite to the first direction.

6. (Currently Amended) The method of claim 1, wherein combining further comprises:
 ~~scaling the video frames of the first video stream and repositioning in a first direction the~~
 ~~resulting pictures in the video frames of the first video stream to produce a first sequence of~~
 ~~sealed video frames;~~
 removing the background image in the video frames of the first and second video streams
to produce first and second background separated video frames;
 generating supplemental background image video frames that comprise a supplemental
background image; and
 superimposing corresponding ones of the first background separated video frames and the
second background separated video frames onto corresponding ones of the supplemental
background video frames to produce the combined video frames of the combined video stream.
7. (Original) The method of claim 1, wherein the first and second video streams are
produced at a same video conferencing site.
8. (Original) The method of claim 1, wherein the first and second video streams are
produced at different video conferencing sites.
9. (Original) The method of claim 1, wherein combining is performed at a site other than
where the first and second video streams are produced.
10. (Original) The method of claim 1, wherein the subject images of video frames of the first
and second video streams are images of video conference participants.

11. (Currently Amended) An apparatus comprising:

a first memory configured to store data for at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image; and

at least one data processor configured to:

combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a first combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame, wherein the at least one data processor is configured to combine the subject images of video frames by:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

~~supply to an endpoint device with a video display the combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the subject image of the second video stream in the posterior position of the combined frame for displaying the combined video stream.~~

12. (Canceled)

13. (Currently Amended) The apparatus of claim 11, wherein the at least one data processor is configured to combine the subject images of video frames by:

~~scaling the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;~~

~~removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;-~~

scaling the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

14. (Original) A system comprising the apparatus of claim 11, and further comprising:

a first video conferencing endpoint configured to communicate with the apparatus, the first endpoint including:

a first video camera configured to generate the first real-time video stream, wherein the subject image of the first real-time video stream comprises an image of a first video conferencing participant at the first endpoint;

a second video camera configured to generate the second real-time video stream, wherein the subject image of the second real-time video stream comprises an image of a second video conferencing participant at the first endpoint; and

a first control unit configured to forward the first and second real-time video streams to the apparatus; and

a second video conferencing endpoint configured to communicate with the apparatus, the second endpoint including:

a second control unit configured to receive the combined video stream of the apparatus; and

a display configured to receive and render the combined video stream from the control unit.

15. (Currently Amended) Logic encoded in one or more tangible non-transitory storage media for execution and when executed operable to:

receive at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;

combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame, wherein the subject images are combined by:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream; and

~~supply to an endpoint device with a video display the combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the~~

~~subject image of the second video stream in the posterior position of the combined frame to a video display for displaying the combined video stream.~~

16. (Canceled)

17. (Currently Amended) The logic of claim 15 ~~46~~, wherein the logic that receives is configured to receive video frames of the first video stream comprising images of multiple videoconference participants in the subject image and video frames of the second video stream comprising images of multiple videoconference participants in the subject image.

18. (Currently Amended) The logic of claim 15, wherein the logic that combines is configured to:

~~scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;~~

~~— remove the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;~~

scale the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extend the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimpose the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

19. (Original) The logic of claim 18, wherein the second direction is opposite to the first direction.

20. (Currently Amended) The logic of claim 15, wherein the logic that combines is configured to:

~~scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;~~

remove the background image in the video frames of the first and second video streams to produce first and second background separated video frames;

generate supplemental background image video frames that comprise a supplemental background image; and

superimpose corresponding ones of the first background separated video frames, and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream.

21. (New) The logic of claim 15, wherein the first and second video streams are produced at the same video conferencing site.

22. (New) The logic of claim 15, wherein the first and second video streams are produced at different video conferencing sites.

23. (New) The logic of claim 15, wherein the logic that combines is configured to be performed at a site other than where the first and second video streams are produced.

Summary of the Examiner Interview

Applicant would like to thank the Examiner for the courtesies extended during the telephone Examiner Interview on April 23, 2014. During the Examiner Interview, the 35 U.S.C. § 102 and 35 U.S.C. § 103 rejections were discussed in view of proposed amendments to the independent claims. In particular, Applicant proposed amendments to the independent claims to include subject matter indicated in the Office Action as being allowable. The Examiner agreed that the amendments to the independent claims are sufficient to overcome the cited art. The Examiner also agreed to consider this response under the After Final Consideration Program 2.0.

REMARKS

Claims 1-20 have been examined: claims 1, 7-11, 14 and 15 stand rejected, and claims 2-6, 12, 13 and 16-20 are indicated as containing allowable subject matter. By the above amendments, claims 1, 4, 6, 11, 13, 15, 17, 18 and 20 have been amended, claims 2, 12 and 16 have been canceled, and new claims 21-23 have been added. Accordingly claims 1, 3-11, 13-15 and 17-23 are now pending in the subject application. Applicant respectfully requests favorable reconsideration of the application and allowance of all of the pending claims in view of the above amendments and the following remarks.

Request for Consideration under the After Final Consideration Program 2.0

Applicant hereby requests consideration for this application under the After Final Consideration Program 2.0. During the Examiner Interview on April 23, 2014, the Examiner agreed to consider this case under the After Final Consideration Program 2.0. Applicant submits the transmittal form PTO/SB/434 concurrently herewith. Additionally, Applicant is willing and able to participate in an Examiner Interview initiated by the Examiner concerning this request.

Claim rejections under 35 U.S.C. § 102

Claims 1, 9, 11 and 15 stand rejected under 35 U.S.C. § 102 as allegedly being unpatentable over United States Pre-Grant Publication No. 2008/0048975 to Leibow et al. (hereinafter "Leibow").

Applicant traverses this rejection.

Independent claims 1, 11 and 15 are amended herein to recited patentable subject matter. In particular, independent claims 1, 11 and 15 are amended herein to recite subject matter recited in now canceled claims 2, 12 and 16, respectively, which are indicated in the Office Action as being allowable. During the Examiner Interview, the Examiner agreed that the amendments to independent claims 1, 11 and 15 are sufficient to overcome every rejection set forth in the Office Action. Thus, Applicant respectfully requests that independent claims 1, 11 and 15 be allowed.

Claims 3-10 depend from claim 1, directly or indirectly. Claims 13 and 14 depend from claim 11. Claims 17-23 depend from claim 15, directly or indirectly. Thus, claims 3-10, 13, 14

and 17-23 should be allowed since they depend from what is now believed to be allowable claims 1, 11 and 15.

Claim rejections under 35 U.S.C. § 103

Claims 7, 8 and 10 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Leibow in view of United States Pre-Grant Publication No. 2009/0033737 to Goose et al. (hereinafter “Goose”).

Claim 14 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Leibow in view of United States Patent No. 5,572,248 to Allen et al. (hereinafter “Allen”).

Applicant traverses these rejections.

As stated above, claims 7, 8 and 10 depend from what is now believed to be allowable claim 1. Claim 14 depends from what is now believed to be allowable claim 11. Thus, claims 7, 8, 10 and 14 should be allowed. Additionally, Goose and Allen do not compensate for the deficiencies of Leibow, and thus, no combination of Leibow, Goose and Allen would render independent claims 1, 11 and 15, or their respective dependent claims, obvious.

Allowed claims

Claims 2-6, 12, 13 and 16-20 are indicated as being allowable. Additionally, the Office Action states that claims 2, 4, 6, 12, 13, 16, 18 and 20 would be allowable if rewritten to overcome the rejections under...35 U.S.C. § 112, second paragraph, set forth in this Office Action.” Applicant, however, asserts that there is no 35 U.S.C. § 112, second paragraph, rejection of claims 2, 4, 6, 12, 13, 16, 18 and 20 in the Office Action. During the Examiner Interview, the Examiner agreed with the Applicant that there is no 35 U.S.C. § 112, second paragraph, rejection of any claims. Accordingly, Applicant requests that this requirement for claims 2, 4, 6, 12, 13, 16, 18 and 20 be withdrawn.

New claims are patentable

Claims 21-23 have been added. Claims 21-23 are fully supported in Applicant’s specification, for example, at paragraphs [0026] and elsewhere. Claim 21 recites subject matter

similar to claim 7, claim 22 recites subject matter similar to claim 8, and claim 23 recites subject matter similar to claim 9. Claims 21-23 should be allowed since they depend from claim 15, which is now believed to be allowable.

In view of the foregoing, Applicant respectfully requests the Examiner to find the application to be in condition for allowance with claims 1, 3-11, 13-15 and 17-23. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to discuss any unresolved issues and to expedite the disposition of the application.

No new fees are required, since the number of newly added claims equals the number of canceled claims. Applicant hereby petitions for any extension of time that may be necessary to maintain the pendency of this application. The Commissioner is hereby authorized to charge payment of any additional fees required for the above-identified application or credit any overpayment to Deposit Account No. 05-0460.

Dated: April 24, 2014

Respectfully submitted by:

EDELL, SHAPIRO & FINNAN, LLC
Customer No. 99499
9801 Washingtonian Blvd., Suite 750
Gaithersburg, MD 20878
(301) 424-3640

/Amol Purohit/
Amol Purohit
Reg. No. 65547

CERTIFICATION AND REQUEST FOR CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0		
Practitioner Docket No.: 0370.0224C (959999)	Application No.: 12/471,567	Filing Date: May 26, 2009
First Named Inventor: J. William Mauchly	Title: Video Superposition for Continuous Presence	
APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS CONSIDERATION UNDER THE AFTER FINAL CONSIDERATION PILOT PROGRAM 2.0 (AFCP 2.0) OF THE ACCOMPANYING RESPONSE UNDER 37 CFR 1.116. 1. The above-identified application is (i) an original utility, plant, or design nonprovisional application filed under 35 U.S.C. 111(a) [a continuing application (<i>e.g.</i>, a continuation or divisional application) is filed under 35 U.S.C. 111(a) and is eligible under (i)], or (ii) an international application that has entered the national stage in compliance with 35 U.S.C. 371(c). 2. The above-identified application contains an outstanding final rejection. 3. Submitted herewith is a response under 37 CFR 1.116 to the outstanding final rejection. The response includes an amendment to at least one independent claim, and the amendment does not broaden the scope of the independent claim in any aspect. 4. This certification and request for consideration under AFCP 2.0 is the only AFCP 2.0 certification and request filed in response to the outstanding final rejection. 5. Applicant is willing and available to participate in any interview requested by the examiner concerning the present response. 6. This certification and request is being filed electronically using the Office's electronic filing system (EFS-Web). 7. Any fees that would be necessary consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, extension of time fees, are being concurrently filed herewith. [There is no additional fee required to request consideration under AFCP 2.0.] 8. By filing this certification and request, applicant acknowledges the following: • Reissue applications and reexamination proceedings are not eligible to participate in AFCP 2.0. • The examiner will verify that the AFCP 2.0 submission is compliant, <i>i.e.</i>, that the requirements of the program have been met (see items 1 to 7 above). For compliant submissions: ○ The examiner will review the response under 37 CFR 1.116 to determine if additional search and/or consideration (i) is necessitated by the amendment and (ii) could be completed within the time allotted under AFCP 2.0. If additional search and/or consideration is required but cannot be completed within the allotted time, the examiner will process the submission consistent with current practice concerning responses after final rejection under 37 CFR 1.116, <i>e.g.</i>, by mailing an advisory action. ○ If the examiner determines that the amendment does not necessitate additional search and/or consideration, or if the examiner determines that additional search and/or consideration is required and could be completed within the allotted time, then the examiner will consider whether the amendment places the application in condition for allowance (after completing the additional search and/or consideration, if required). If the examiner determines that the amendment does not place the application in condition for allowance, then the examiner will contact the applicant and request an interview. ▪ The interview will be conducted by the examiner, and if the examiner does not have negotiation authority, a primary examiner and/or supervisory patent examiner will also participate. ▪ If the applicant declines the interview, or if the interview cannot be scheduled within ten (10) calendar days from the date that the examiner first contacts the applicant, then the examiner will proceed consistent with current practice concerning responses after final rejection under 37 CFR 1.116.		
Signature /Amol Purohit/	Date April 24, 2014	
Name (Print/Typed) Amol Purohit	Practitioner Registration No. 65547	
Note: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.		
☒ * Total of <u>1</u> forms are submitted.		

Privacy Act Statement

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

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

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

Electronic Acknowledgement Receipt

EFS ID:	18846962
Application Number:	12471567
International Application Number:	
Confirmation Number:	6112
Title of Invention:	Video Superposition for Continuous Presence
First Named Inventor/Applicant Name:	J. William Mauchly
Customer Number:	99499
Filer:	Amol Purohit/Aja Turesko
Filer Authorized By:	Amol Purohit
Attorney Docket Number:	0370.0224C (959999)
Receipt Date:	24-APR-2014
Filing Date:	26-MAY-2009
Time Stamp:	11:49:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AmdReFINAL01-29-2014.pdf	157375 a1c6fc091a3c4807762587d84a10ac38fd1b5c02	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	9
	Applicant summary of interview with examiner	10	10
	Applicant Arguments/Remarks Made in an Amendment	11	13

Warnings:

Information:

2	After Final Consideration Program Request	sb0434.pdf	226489	no	2
			0e6ab67b6fa7020a80b752dd54e3849577ba3ad2		

Warnings:

Information:

Total Files Size (in bytes):			383864
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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.

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 12/471,567	Filing Date 05/26/2009	☐ To be Mailed
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ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	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 \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ 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	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	04/24/2014	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	X \$420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

(Column 1)

(Column 2)

(Column 3)

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

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

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

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

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

LIE
/LAWANDA MILTON/

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

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



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C (959999)	6112
99499	7590	01/29/2014		
Edell, Shapiro, & Finnan, LLC 9801 Washingtonian Blvd. Suite 750 Gaithersburg, MD 20878			EXAMINER DU, HUNG K	
			ART UNIT 2645	PAPER NUMBER
			NOTIFICATION DATE 01/29/2014	DELIVERY MODE 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):

epatent@usiplaw.com

Office Action Summary	Application No. 12/471,567	Applicant(s) MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	

-- 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 10/04/2013.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1,7-11,14 and 15 is/are rejected.
- 8) ☒ Claim(s) 2-6,12,13 and 16-20 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 26 May 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 ____. | 6) ☐ Other: ____. |

DETAILED ACTION

Response to Amendment

1. This action is responsive to the amended application filed on 10/04/2013. Claims 1, 11, 15 have been amended. Claims 1-20 are presented for examination. Claims 1, 11, 15 are independent claims. The present application is being examined under the pre-AIA first to invent provisions. This Action is made FINAL.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 11, 15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

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

A person shall be entitled to a patent unless –

(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.

4. Claims 1, 9, 11, 15 rejected under 35 U.S.C. 102(b) as being anticipated by

Leibow (US 2008/0048975 A1).

Consider claims 1, 11, 15

Leibow teaches a method, logic, and apparatus comprising: the apparatus comprising: a first memory and at least one data processor (**see Leibow fig 1 for**

management device (200)); receiving at least first and second real-time video streams (see Leibow fig 1, 5 par 0046 discusses a first video stream from host computer 1 and a second video stream received from host computer 2), comprising video frames containing a picture comprising a subject image and a background image (see Leibow fig 1, 5 par 0046 discusses each video stream comprises a subject window (312), the subject image, and other background video data, the background image); combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream (see Leibow fig 1, 5 par 0046 discusses the management device (200) removes the background of the first video output of host computer 1 and the second video output of host computer 2 to generate a merged display (330) comprising the windows (332, 336) associated with the foreground windows (312, 326) of the host computers 1 and 2) such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame (see Leibow fig 5 par 0046 discusses the window (336) is displayed in front of the window (332) in the generated merged display (330)) and supplying to an endpoint device with a video display the combined video stream (see Leibow fig 1, 5 par 0046 discusses the management device (200) generating the merged display (330) for display on the display (330) of computer (102)) with the subject image of the first video stream in the anterior

position of the combined frame and the subject image of the second video stream in the posterior position (**see Leibow fig 5 par 0046 discusses the window (336) is displayed in front of the window (332) in the generated merged display (330))** of the combined frame for displaying the combined video stream (**see Leibow fig 5 the merged display (330))**).

Consider claim 9

Leibow teaches the method of claim 1, wherein combining is performed at a site other than where the first and second video streams are produced (**see Leibow fig 1, 5 par 0046 discusses the management device (200) used for generating the merged display (330) is physically separated from the host computers generating the first and second video streams and is connected to the host computers by cables; thus the combining can be performed at a site different from the site where the first and second video streams are produced as long as they are interconnected as shown**).

Claim Rejections - 35 USC § 103

5. 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.

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6. Claims 7-8, 10 rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibow (US 2008/0048975 A1)** in view of **Goose et al (US 2009/0033737 A1)**.

Consider claim 10

Leibow teaches the method of claim 1.

However, Leibow does not specifically disclose the video streams are video streams of video conference participants. Goose discloses a video conference system where the subject images of video frames of the first and second video streams are images of video conference participants **(see Goose fig 7, 8 par 0044-0052, 0055 discusses a video conferencing system comprising three video conferencing clients)**, where the first and second video streams are produced at a same video conferencing site, where the first and second video streams are produced at different video conferencing sites **(see Goose fig 8 par 0041-0042 discusses the video conferencing clients are interconnected by a network, each client produced its own video streams; hence the clients can be located at the same site or at different sites)**.

At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Leibow with Goose. One would be motivated to modify Leibow by replacing the host computers with the video conferencing clients as taught by Goose, connecting the video conferencing clients to the management device via the network cable only, and moving the method of separating the foreground images of video conference participants

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from the video streams as discussed by Goose to the management device and performing the combining at the management device as taught by Leibow. The motivation to combine Leibow and Goose is to offload the CPU intensive foreground image combining function to generate a combined video stream to the network side to ensure any video capable device can participate in a video conference, thereby increasing the usefulness of the system since the combining is no longer dependent on CPU of the device. The combination of Leibow and Goose as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Leibow with Goose to obtain the invention as specified in the claim.

7. Claim 14 rejected under 35 U.S.C. 103(a) as being unpatentable over **Leibow (US 2008/0048975 A1)** in view of **Allen et al (US 5,572,248)**.

Consider claim 14

Leibow teaches a system comprising the apparatus of claim 11.

However, Leibow does not specifically disclose the video streams are video streams of video conference participants. Allen discloses a first video conferencing endpoint (**see Allen figure 1A**) configured to communicate with the apparatus, the first endpoint including: a first video camera configured to generate the first real-time video stream (**see Allen fig 1A-62, col 7 lines 9-12**), wherein the subject image of the first real-time video stream comprises an image

of a first video conferencing participant at the first endpoint (**see Allen fig 5A, col 7 line 56 - col 8 line19 where Allen discusses the received video signals I-64, I-62 comprising a subject and background**); a second video camera configured to generate the second real-time video stream (**see Allen fig 1A-62, col 7 lines 9-12**), wherein the subject image of the second real-time video stream comprises an image of a second video conferencing participant at the first endpoint (**see Allen fig 5A, col 7 line 56 - col 8 line19 where Allen discusses the received video signals I-64, I-62 comprising a subject and background**); and a first control unit configured to forward the first and second real-time video streams (**see Allen col 9 lines 8-13**) to the apparatus (**see fig 1B.92**); and a second video conferencing endpoint configured to communicate with the apparatus (**see Allen figure 1B.92**).

At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Leibow with Allen. One would be motivated to modify Leibow by replacing the host computers with the video conference endpoints as taught by Allen, connecting the video conference endpoints to the management device via the network cables, and applying the method of separating the foreground images from the video streams in the management device to generate a video stream of combined foreground images as taught by Leibow. The motivation to combine Leibow and Allen is to offload the CPU intensive foreground image combining function to generate a combined video stream to the network side to ensure any video capable device can

participate in a video conference, thereby increasing the usefulness of the system since the combining is no longer dependent on CPU of the device. The combination of Leibow and Allen as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Leibow with Allen to obtain the invention as specified in the claim.

Allowable Subject Matter

8. Claims 2, 4, 6, 12, 13, 16, 18, 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

9. Claims 2-6, 12-13, 16-20 are allowed.

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

Allen discloses a system and method for providing face-to-face teleconferencing in which two video streams received and combined at a remote teleconferencing site for display. Leibow discloses a method to receive multiple video streams where each video stream frame comprise a subject matter and background, to remove the background image, and to place a subject matter image in the anterior and the other subject matter images in the posterior of a combined video frame. However, neither Allen, Leibow, Goose, alone or in combination, discloses scaling the video frames of a video stream

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and repositioning in a first direction the resulting pictures in the video frames of the video stream to produce a first sequence of scaled video frames prior to removing the background.

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

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2645

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG DU whose telephone number is (571)270-1810. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571)272-7495. 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.

/GEORGE ENG/
Supervisory Patent Examiner, Art Unit 2645

/HUNG DU/
Examiner, Art Unit 2645

Notice of References Cited	Application/Control No. 12/471,567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0048975 A1	02-2008	Leibow, Michael	345/156
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Search Notes 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
348	14.01,14.02,14.05,14.07,14.09,14.1,14.14,14.15,14.16	8/6/2012	HD
348	14.07,14.08,14.09,14.1,14.13,14.14,14.15,452,552,575,576,578,581,584,586	6/26/2013	HD
345	629,630,660,668,670,671	6/26/2013	HD

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor search in EAST	8/6/2012	HD
Google Patent search	8/6/2012	HD
Consult with George Eng on objecting claims 2, 4, 6	6/26/2013	HD
Consult with George Eng, Wesley Kim, Kenneth Weider on 112 fourth and doing second non-final	6/28/2013	HD
Text search for overlaying foreground images	1/17/2014	HD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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EAST Search History

EAST Search History (Prior Art)

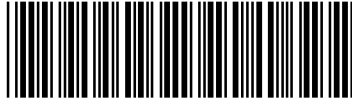
Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1157	(multiple with video adj3 (stream source)) and ((scal\$3) with (image picture frame)) and (overlay\$3 overlap\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/22 17:53
L2	464	(multiple with video adj3 (stream source)) and ((scal\$3) with (image picture frame)) and (overlay\$3 overlap\$4) and (front foreground) and (back background)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/22 17:54
S1	51	(video near2 conference) and (foreground participant speaker) same background same (overlap\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/01/22 17:48

EAST Search History (Interference)

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1/ 22/ 2014 5:55:07 PM

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<i>Index of Claims</i> 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

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

☐ Claims renumbered in the same order as presented by applicant					☐ CPA					☐ T.D.					☐ R.1.47				
CLAIM		DATE																	
Final	Original	08/06/2012	06/29/2013	01/22/2014															
	1	✓	✓	✓															
	2	✓	✓	○															
	3	✓	○	○															
	4	✓	○	○															
	5	✓	○	○															
	6	✓	○	○															
	7	✓	✓	✓															
	8	✓	✓	✓															
	9	✓	✓	✓															
	10	✓	✓	✓															
	11	✓	✓	✓															
	12	✓	○	○															
	13	✓	○	○															
	14	✓	✓	✓															
	15	✓	✓	✓															
	16	✓	○	○															
	17	✓	○	○															
	18	✓	○	○															
	19	✓	○	○															
	20	✓	○	○															

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	12/471,567
First Named Inventor	:	J. William Mauchly
Confirmation No.	:	6112
Filed	:	May 26, 2009
TC/A.U.	:	2645
Examiner	:	Du, Hung K
Customer No.	:	99499
Docket No.	:	0370.0224C (959999)
Title	:	Video Superposition for Continuous Presence

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

AMENDMENT

Sir:

In response to the Office Action mailed July 5, 2013, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks begin after the claims.

Amendments to the Claims:

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

Listing of Claims:

1. (Currently Amended) A method comprising:
receiving at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;
combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame; and
supplying to an endpoint device with a video display the combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the subject image of the second video stream in the posterior position of the combined frame ~~to a video display~~ for displaying the combined video stream.
2. (Original) The method of claim 1, wherein combining comprises:
scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and
superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

3. (Original) The method of claim 2, wherein the subject image of video frames of the first video stream comprises images of multiple videoconference participants and the subject image of video frames of the second video stream comprises images of multiple videoconference participants.

4. (Original) The method of claim 1, wherein combining comprises:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scaling the video frames of the second video stream and repositioning in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

5. (Original) The method of claim 4, wherein the second direction is opposite to the first direction.

6. (Original) The method of claim 1, wherein combining further comprises:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the video frames of the first and second video streams to produce first and second background separated video frames;

generating supplemental background image video frames that comprise a supplemental background image; and

superimposing corresponding ones of the first background separated video frames and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream.

7. (Original) The method of claim 1, wherein the first and second video streams are produced at a same video conferencing site.

8. (Original) The method of claim 1, wherein the first and second video streams are produced at different video conferencing sites.

9. (Original) The method of claim 1, wherein combining is performed at a site other than where the first and second video streams are produced.

10. (Original) The method of claim 1, wherein the subject images of video frames of the first and second video streams are images of video conference participants.

11. (Currently Amended) An apparatus comprising:

a first memory configured to store data for at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image; and

at least one data processor configured to:

combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a first combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the

combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame; and

supply to an endpoint device with a video display the combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the subject image of the second video stream in the posterior position of the combined frame for displaying the combined video stream.

12. (Original) The apparatus of claim 11, wherein the at least one data processor is configured to combine the subject images of video frames by:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

13. (Original) The apparatus of claim 11, wherein the at least one data processor is configured to combine the subject images of video frames by:

scaling the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scaling the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

14. (Original) A system comprising the apparatus of claim 11, and further comprising:

a first video conferencing endpoint configured to communicate with the apparatus, the first endpoint including:

a first video camera configured to generate the first real-time video stream, wherein the subject image of the first real-time video stream comprises an image of a first video conferencing participant at the first endpoint;

a second video camera configured to generate the second real-time video stream, wherein the subject image of the second real-time video stream comprises an image of a second video conferencing participant at the first endpoint; and

a first control unit configured to forward the first and second real-time video streams to the apparatus; and

a second video conferencing endpoint configured to communicate with the apparatus, the second endpoint including:

a second control unit configured to receive the combined video stream of the apparatus; and

a display configured to receive and render the combined video stream from the control unit.

15. (Currently Amended) Logic encoded in one or more tangible non-transitory storage media for execution and when executed operable to:

receive at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;

combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame; and

supply to an endpoint device with a video display the combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the subject image of the second video stream in the posterior position of the combined frame ~~to a video display~~ for displaying the combined video stream.

16. (Original) The logic of claim 15, wherein the logic that combines is configured to:

scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

remove the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and

superimpose the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

17. (Original) The logic of claim 16, wherein the logic that receives is configured to receive video frames of the first video stream comprising images of multiple videoconference participants in the subject image and video frames of the second video stream comprising images of multiple videoconference participants in the subject image.

18. (Original) The logic of claim 15, wherein the logic that combines is configured to:

scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

remove the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scale the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extend the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimpose the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

19. (Original) The logic of claim 18, wherein the second direction is opposite to the first direction.

20. (Original) The logic of claim 15, wherein the logic that combines is configured to:

scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

remove the background image in the video frames of the first and second video streams to produce first and second background separated video frames;

generate supplemental background image video frames that comprise a supplemental background image; and

superimpose corresponding ones of the first background separated video frames, and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream.

REMARKS

Claims 1-20 have been examined. Claims 1, 7-11, 14 and 15 stand rejected, and claims 2-6, 12, 13 and 16-20 are indicated as containing allowable subject matter. By the above amendments, claims 1, 11 and 15 have been amended. Applicant respectfully requests favorable reconsideration of the application and allowance of all of the pending claims in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 7, 9-11, 14 and 15 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over United States Patent No. 5,572,248 to Allen et al. (hereinafter “Allen”) in view of United States Pre-Grant Publication No. 2008/0048975 to Leibow et al. (hereinafter “Leibow”).

Claim 6 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Allen and Leibow and further in view of United States Pre-Grant Publication No. 2009/0033737 to Goose et al. (hereinafter “Goose”).

The subject matter of the present application, in general, involves combining real-time video streams onto displays to users participating in a video conference. A non-limiting example of the display techniques is shown in FIG. 1 and FIG. 5G of the present application. In FIG. 1, a first endpoint 100 and a second endpoint 200 are shown. The first endpoint has video cameras 110 and 120, and the second endpoint has video cameras 210 and 220. The video cameras are configured to record audio and video of participants of a video conference (not shown in FIG. 1). For example, video camera 110 may record audio and video of a first participant (or group of participants), and video camera 120 may record audio and video of a second participant.

Each video stream recording of the participants have two components: a subject image that comprises the body of the participant and a background image that comprises background portions (e.g., a background wall or display) that is located behind the participant. The video recordings of the participants are captured by the video cameras and are sent to a control unit (e.g., a control unit shown at reference numeral 170/270 in FIG. 1). The control unit extracts the subject image from the video recordings for each participant and combines the subject recordings

together to be displayed. In other words, the control unit combines only the subject images (e.g., participants' face and body) of the captured video records and combines these images such that only the subject images of the participants are displayed together on a screen. Thus, when the control unit at the first endpoint combines these subject images together and sends this combined image to the second endpoint, participants at the second endpoint view the combined image (on display 250) that shows only the subject image of each participant together on one display, as shown in FIG. 5G. This is in contrast to the conventional "Hollywood squares" technique described in Applicant's specification, where video images (subject images and background images) are shown on separate display tiles on a display. When the video images are combined, one of the video images may be displayed in front of the other video image, also as shown in FIG. 5G. Thus, upon receiving the combined video images, participants in the video conference see only the subject images of the participants, where one of the subject images is positioned in front of the other subject image.

Independent claims 1, 11 and 15 recite novel features of the subject application. In particular, the independent claims, as amended, recite receiving real-time video streams that comprise a subject image and a background image. The subject images of the streams are combined into a video stream such that the subject image of one video stream is positioned in an anterior portion of a combined frame and the subject image of another video stream is positioned in a posterior portion of the combined frame. The video stream is supplied to an endpoint device with a video display for displaying the combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the subject image of the second video stream in the posterior position of the combined frame. Independent claim 1 is recited as a method claim, while independent claim 11 is an apparatus claim and independent claim 15 recites logic encoded in tangible media.

The Examiner alleges that the combination of Allen and Leibow renders the independent claims obvious. Applicant respectfully disagrees. In general, Allen involves techniques for utilizing a video mirror for providing face-to-face video conferencing. In Allen, video streams are enhanced and are combined by a multiplexer to allow two video streams to be displayed on one screen. The cited portions of Allen describe a first video stream being multiplexed and

combined with a second video stream such that the first video stream and the second video stream are displayed together (see Col. 15, lines 12-28 in Allen). Leibow, in general, teaches merging foreground images into a single image display (see paragraph [0046] in Leibow).

The combination of Allen and Leibow does not render the independent claims obvious. In particular, neither Allen nor Leibow, alone or in combination, however, teaches *supplying to an endpoint device* a combined video stream with the subject image of the first video stream in the anterior position of the combined frame and the subject image of the second video stream in the posterior position of the combined frame. In Allen, video images (including background and subject images) are combined without any removal of background portions. In Leibow, foreground portions of an image are combined into one image, but that combined image is only *displayed* to an endpoint user. The combined image is *not supplied* to any other endpoint device. In other words, in Leibow, an endpoint device removes the background portions of an image only for the purpose of displaying the modified image to a user *at that endpoint device*. The modified image is not sent to other endpoint devices.

Thus, the combination of Allen and Leibow does not teach or render obvious the independent claims. Applicant respectfully requests that the 35 U.S.C. § 103 rejection for independent claims 1, 11 and 15 be withdrawn and that these claims be allowed.

Claims 2-10 depend from claim 1, directly or indirectly. Claims 12-14 directly depend from claim 11. Claims 16-20 depend from claim 15, directly or indirectly. Thus, claims 2-10, 12-14 and 16-20 should be allowed since they depend from what is now believed to be allowable claims 1, 11 and 15 respectively. The Examiner relies upon Goose for allegedly teaching subject matter in dependent claim 8. Without conceding to the Examiner's characterization of Goose, Applicant asserts that Goose does not compensate for the deficiencies of Allen and Leibow, and thus, no combination of Allen, Leibow and Goose would render independent claims 1, 11 and 15, or their respective dependent claims, obvious.

Allowable subject matter

The Examiner indicates that claims 2-6, 12, 13 and 16-20 contain allowable subject matter. Furthermore, the Examiner indicates that claims 2, 4, 6, 12, 13, 16, 18 and 20 would be

allowed if rewritten to overcome alleged 35 U.S.C. § 112 rejections. Applicant asserts that the Office Action dated July 5, 2013 does not set forth any 35 U.S.C. § 112 rejections for any of the pending claims, and thus, Applicant contends that there is no 35 U.S.C. § 112 rejections for any of the pending claims. Additionally, Applicant respectfully requests that the Examiner hold in abeyance the requirement of rewriting of claims 2-6, 12, 13 and 16-20 in independent form, until the Examiner has had an opportunity to reconsider (and withdraw) the rejection of the parent claims.

In view of the foregoing, Applicant respectfully requests the Examiner to find the application to be in condition for allowance with claims 1-20. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to discuss any unresolved issues and to expedite the disposition of the application.

Applicant hereby petitions for any extension of time that may be necessary to maintain the pendency of this application. The Commissioner is hereby authorized to charge payment of any additional fees required for the above-identified application or credit any overpayment to Deposit Account No. 05-0460.

Dated: October 4, 2013

Respectfully submitted by:

EDELL, SHAPIRO & FINNAN, LLC
Customer No. 99499
9801 Washingtonian Blvd., Suite 750
Gaithersburg, MD 20878
(301) 424-3640

/Patrick J. Finnan/
Patrick J. Finnan
Reg. No. 39189

Electronic Acknowledgement Receipt

EFS ID:	17041219
Application Number:	12471567
International Application Number:	
Confirmation Number:	6112
Title of Invention:	Video Superposition for Continuous Presence
First Named Inventor/Applicant Name:	J. William Mauchly
Customer Number:	99499
Filer:	Patrick J. Finnan/Amanda Johnson
Filer Authorized By:	Patrick J. Finnan
Attorney Docket Number:	0370.0224C (959999)
Receipt Date:	04-OCT-2013
Filing Date:	26-MAY-2009
Time Stamp:	13:40:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AmdReOA07-05-13.pdf	82694 41cdf0416e39f10f0d8a64c1a57c29086908d62f	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	9
	Applicant Arguments/Remarks Made in an Amendment	10	13
Warnings:			
Information:			
Total Files Size (in bytes):		82694	
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.			



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C (959999)	6112
99499	7590	07/05/2013		
Edell, Shapiro, & Finnan, LLC 9801 Washingtonian Blvd. Suite 750 Gaithersburg, MD 20878			EXAMINER DU, HUNG K	
			ART UNIT 2645	PAPER NUMBER
			NOTIFICATION DATE 07/05/2013	DELIVERY MODE 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):

epatent@usiplaw.com

Office Action Summary	Application No.	Applicant(s)	
	12/471,567	MAUCHLY ET AL.	
	Examiner	Art Unit	
	HUNG DU	2645	

-- 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 13 November 2012.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1,7-11,14 and 15 is/are rejected.
- 8) ☒ Claim(s) 2-6,12,13 and 16-20 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 26 May 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) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) ☐ Other: ____. |

DETAILED ACTION

Response to Amendment

1. This action is responsive to the amended application filed on 11/13/2012. Claims 1-20 are presented for examination. Claims 1, 11, 14, 15 are independent claims.

Response to Arguments

3. Applicant's arguments with respect to claim 14 have been fully considered and are persuasive.

Claim Rejections - 35 USC § 103

4. 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.

5. Claims 1, 7, 9-11, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Allen et al (US 5,572,248)** in view of **Leibow (US 2008/0048975 A1)**.

Consider claims 1, 11, 15

Allen teaches a method, logic, and apparatus comprising: the apparatus comprising: a first memory (**see col 13 lines 1-7 where Allen discusses capturing live images; hence memory to store the captured images**) and at

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least one data processor (**see col 15 lines 14-20 where Allen discusses the multiplexer**); receiving at least first and second real-time video streams (**see Allen figs 1B, 5A-B col 4 lines 50-63, col 14 line 61 – col 15 line 7 discusses a second station (1B.14) , remote from the first station, receiving a first (fig 1A.VS1, 5B.EVS-1) and a second video signal (fig 1A.VS1, 5B.EVS-1) captured by the cameras (fig 1A.66, 1A.68), encoded by the codecs (fig 1A.78, 1A.80), and transmitted to the second station (1B) over the network (1B.84)), and supplying the combined video stream to a video display for displaying the combined video stream (**see Allen col 15 lines 46**).**

Allen discloses a face-to-face video conferencing system. However, Allen does not specifically disclose each video frame of each received video stream comprising a subject image and a background image and positioning a subject image from a video stream in the anterior position in the combine video image frame. Goose teaches the method of receiving video streams where each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image (**see Leibow fig 5 par 0046 discusses the video processing module removes the background display data from the video streams received from each host computer; therefore the received video streams includes both a subject image and a background**) and combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an

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anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame (**see Leibow fig 5 par 0046 discusses a merged desktop of a console where a first window image of a first video stream input is superimposed on a second window image of a second video stream input**).

At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Allen with Leibow. One would be motivated to modify Allen by adding the method to receive video streams comprising subject images and background, remove the background, and to position a subject image in the anterior as taught by Leibow. The motivation to combine Allen and Leibow is to provide the video conferencing system the capability to provide visual cues indicating the currently active subject by placing image of the active subject in front, thus delivering better user experience. The combination of Allen and Leibow as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Allen with Leibow to obtain the invention as specified in the claim.

Consider claim 7

Allen in view of Leibow teaches the method of claim 1, wherein the first and second video streams are produced at a same video conferencing site (**see fig 2 – items 62, 64, col 7 lines 20-31**).

Consider claim 9

Allen in view of Leibow teaches the method of claim 1, wherein combining is performed at a site other than where the first and second video streams are produced (**see Allen figs 1B, 5A-B col 4 lines 50-63, col 14 line 61 – col 15 line 7 discusses a second station (1B.14), remote from the first station, combines the first (fig 1A.VS1, 5B.EVS-1) and second video signal (fig 1A.VS1, 5B.EVS-1)).**

Consider claim 10

Allen in view of Leibow teaches the method of claim 1, wherein the subject images of video frames of the first and second video streams are images of video conference participants (**see Allen fig 5A - 112, 114).**

Consider claim 14

Allen teaches a system (**see col 4 lines 49-51**) comprising the apparatus of claim 11, and further comprising: a first video conferencing endpoint (**see figure 1A**) configured to communicate with the apparatus, the first endpoint including: a first video camera (**see fig 1A-62, col 7 lines 9-12**) configured to generate the first real-time video stream, wherein the subject image of the first real-time video stream comprises an image of a first video conferencing participant at the first endpoint (**see fig 5A, col 7 line 56 - col 8 line 19 where Allen discusses the received video signals I-64, I-62 comprising a subject and background**); a second video camera (**see fig 1A-62, col 7 lines 9-12**) configured to generate the second real-time video stream, wherein the subject

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image of the second real-time video stream comprises an image of a second video conferencing participant at the first endpoint (**see fig 5A, col 7 line 56 - col 8 line 19 where Allen discusses the received video signals I-64, I-62 comprising a subject and background**); and a first control unit configured to forward the first and second real-time video streams (**col 9 lines 8-13**) to the apparatus (**see fig 1B.92**); and a second video conferencing endpoint (**see figure 1B**) configured to communicate with the apparatus (**see fig 1B.92**), the second endpoint including: a second control unit configured to receive the combined video stream of the apparatus and a display configured to receive and render the combined video stream from the control unit (**see col 13 lines 56-62 where Allen discusses the projector receiving signal from the compositor for display on the screen**).

6. Claim 8 rejected under 35 U.S.C. 103(a) as being unpatentable over **Allen et al (US 5,572,248)** in view of **Leibow (US 2008/0048975 A1)** further in view of **Goose et al (US 2009/0033737 A1)**.

Consider claim 8

Allen in view of Leibow teaches the method of claim 1.

However Allen in view of Leibow does not specifically disclose the first and second video streams are produced at different video conferencing sites. Goose teaches the first and second video streams are produced at different video conferencing sites (**see Goose par 0055**).

At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Allen in view of Leibow with Goose. One would be motivated to modify Allen in view of Leibow by adding the method to support receipt of video streams from different sites as taught by Goose. The motivation to combine Allen in view of Leibow and Goose is to provide the video conferencing system the capability to conference participants from different locations, thus enhancing the usefulness of the system. The combination of Allen in view of Leibow and Goose as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Allen in view of Leibow with Goose to obtain the invention as specified in the claim.

Allowable Subject Matter

1. Claims 2, 4, 6, 12, 13, 16, 18, 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. Claims 2-6, 12-13, 16-20 are allowed.

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

Allen discloses a system and method for providing face-to-face teleconferencing in which two video streams received and combined at a remote teleconferencing site for display. Leibow discloses a method to receive multiple video streams where each video stream frame comprise a subject matter and background, to remove the background image, and to place a subject matter image in the anterior and the other subject matter images in the posterior of a combined video frame. However, neither Allen, Leibow, Goose, alone or in combination, discloses scaling the video frames of a video stream and repositioning in a first direction the resulting pictures in the video frames of the video stream to produce a first sequence of scaled video frames prior to removing the background.

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 HUNG DU whose telephone number is (571)270-1810. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571)272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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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.

/George Eng/
Supervisory Patent Examiner, Art Unit 2645

/HUNG DU/
Examiner, Art Unit 2645

Notice of References Cited	Application/Control No. 12/471,567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2645	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0048975 A1	02-2008	Leibow, Michael	345/156
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

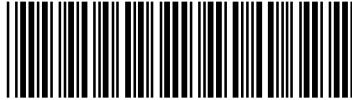
FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Index of Claims</i> 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

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

☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE							
Final	Original	08/06/2012	06/29/2013						
	1	✓	✓						
	2	✓	✓						
	3	✓	○						
	4	✓	○						
	5	✓	○						
	6	✓	○						
	7	✓	✓						
	8	✓	✓						
	9	✓	✓						
	10	✓	✓						
	11	✓	✓						
	12	✓	○						
	13	✓	○						
	14	✓	✓						
	15	✓	✓						
	16	✓	○						
	17	✓	○						
	18	✓	○						
	19	✓	○						
	20	✓	○						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	15944	(multiple with video with (stream source))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/26: 22:39
S2	11853	(multiple with video with (stream source)) and ((scal\$3 enlarg\$3 reduc\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/26: 22:40
S3	5320	(multiple with video with (stream source)) and ((scal\$3 enlarg\$3 reduc\$4) with (image picture frame))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/26: 22:40
S4	94	(multiple with video with (stream source)) and ((scal\$3 enlarg\$3 reduc\$4) with (image picture frame)) and (anterior posterior)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/26: 22:41
S5	26	(multiple with video with (stream source)) and ((scal\$3 enlarg\$3 reduc\$4) with (image picture frame)) and (anterior posterior) and teleconferenc\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/26: 22:42
S6	137	(multiple with video adj3 (stream source)) and ((scal\$3) with (image picture frame)) and teleconferenc\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/26: 22:49
S7	139	(multiple with video adj3 (stream source)) and ((scal\$3 resiz\$3) with (image picture frame)) and teleconferenc\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27: 09:44
S8	24	(multiple with video adj3 (stream source)) same ((scal\$3 resiz\$3) with (image picture frame)) and teleconferenc\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27: 09:44
S9	7	(multiple with video adj3 (stream source)) same ((scal\$3 resiz\$3) with (image picture frame)) same (superimpos\$3 overlay\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27: 09:45
S10	73	(multiple with video adj3 (stream source)) same ((scal\$3 resiz\$3) with (image picture frame)) and (superimpos\$3 overlay\$3)	US-PGPUB; USPAT;	OR	ON	2013/06/27: 09:47

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S11	9	(multiple with video adj3 (stream source)) same ((scal\$3 resize\$3) with (image picture frame video)) same (superimpos\$3 overlay\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 09:57
S12	1037	(multiple with video adj3 (stream source)) and ((scal\$3 resize\$3) with (image picture frame video)) and (superimpos\$3 overlay\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:24
S13	228122	("348"/\$.cds.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:24
S14	351	S12 and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:24
S15	7622	(348/14.07,14.08,14.09,14.1,14.13,14.14,14.15,452,552,575,576,578,581,584,586.cds.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:50
S16	5344	(345/629,630,660,668,670,671.cds.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:54
S17	12730	(S15 S16)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:54
S18	91	S17 and S12	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:54
S19	2458	(multiple with video adj3 (stream source)) and ((scal\$3 resize\$3) with (image picture frame video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:54
S20	248	S17 and S19	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 10:55
S21	414	(multiple with video adj3 (stream source)) and ((scal\$3 resize\$3) with (image picture frame video)) and (crop\$4 cutout (foreground adj (image picture)))	US-PGPUB; USPAT;	OR	ON	2013/06/27 11:10

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S22	384	((multiple with video adj3 (stream source)) and ((scal\$3 resiz\$3) with (image picture frame video)) and (crop\$4 cutout with (foreground background)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 11:11
S23	15	((multiple with video adj3 (stream source)) and ((scal\$3 resiz\$3) with (image picture frame video)) and ((crop\$4 cutout) with (foreground background)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 11:11
S24	1037	((multiple with video adj3 (stream source)) and ((scal\$3 resiz\$3) with (image picture frame video)) and (superimpos\$3 overlay\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 11:27
S25	91	S17 and S24	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 11:28
S26	1621	((multiple with video adj3 (stream source)) and ((resiz\$3 bigger enlarg\$3 smaller reduc\$3) with (image picture frame video)) and (superimpos\$3 overlay\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 11:46
S27	112	S17 and S26	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 11:47
S28	200	((multiple with video adj3 (stream source)) and ((resiz\$3) with (image picture frame video)) and (superimpos\$3 overlay\$3))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 11:48
S29	175	((multiple with video adj3 (stream source)) and ((resiz\$3) with (image picture frame video)) and ((superimpos\$3 overlay\$3) with (image picture frame video)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 12:00
S30	273	((multiple with video adj3 (stream source)) and ((scal\$3 resiz\$3) with (image picture frame video)) and ((crop\$4 cutout) with (image picturd frame video)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 12:01
S31	288	((multiple with video adj3 (stream source)) and ((scal\$3 resiz\$3) with (image picture frame video)) and (((crop\$4 cutout) with (image picturd frame video)) (extract\$3 with foreground)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 12:01
S32	53	S17 and S31	US-PGPUB; USPAT;	OR	ON	2013/06/27 12:02

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S33	102	((multiple with video adj\$3 (stream source)) and ((resiz\$3) with (image picture frame video)) and (((crop\$4 cutout) with (image picture frame video)) (extract\$3 with foreground))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 13:28
S34	7475	((multiple with video adj\$3 (stream source)) and ((scal\$3 resizing\$3 bigger enlarg\$3 smaller reduc\$3 adjust\$3 reposition\$3 position\$3 mov\$3) with (image picture frame video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 17:44
S35	7622	((348/ 14.07,14.08,14.09,14.1,14.13,14.14,14.15,452,552,575,576,578,581,584,586.ccls.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 17:45
S36	5344	((345/ 629,630,660,668,670,671.ccls.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 17:45
S37	12730	((S35 S36)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 17:45
S38	517	S34 and S37	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 17:45
S39	2299	((multiple with video adj\$3 (stream source)) and ((scal\$3 resizing\$3 bigger enlarg\$3 smaller reduc\$3 adjust\$3 reposition\$3 position\$3 mov\$3) with (image picture frame video)) and (superimpos\$3 overlay\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 17:51
S40	169	S39 and S37	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2013/06/27 17:52

EAST Search History (Interference)

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6/ 29/ 2013 9:39:19 PM
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Search Notes 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2645

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
348	14.01,14.02,14.05,14.07,14.09,14.1,14.14,14.15,14.16	8/6/2012	HD
348	14.07,14.08,14.09,14.1,14.13,14.14,14.15,452,552,575,576,578,581,584,586	6/26/2013	HD
345	629,630,660,668,670,671	6/26/2013	HD

SEARCH NOTES			
Search Notes	Date	Examiner	
Inventor search in EAST	8/6/2012	HD	
Google Patent search	8/6/2012	HD	
Consult with George Eng on objecting claims 2, 4, 6	6/26/2013	HD	
Consult with George Eng, Wesley Kim, Kenneth Weider on 112 fourth and doing second non-final	6/28/2013	HD	

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 12/471,567
Applicant : J. William Mauchly
Confirmation No. : 6112
Filed : May 26, 2009
TC/A.U. : 2617
Examiner : Du, Hung K
Customer No. : 99499
Docket No. : 0370.0224C (959999)
Title : Video Superposition for Continuous Presence

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

AMENDMENT

Sir:

In response to the Office Action mailed August 13, 2012, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks begin on page 10 of this paper.

Amendments to the Claims:

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

Listing of Claims:

1. (Original) A method comprising:
receiving at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;
combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame; and
supplying the combined video stream to a video display for displaying the combined video stream.
2. (Original) The method of claim 1, wherein combining comprises:
scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and
superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

3. (Original) The method of claim 2, wherein the subject image of video frames of the first video stream comprises images of multiple videoconference participants and the subject image of video frames of the second video stream comprises images of multiple videoconference participants.

4. (Original) The method of claim 1, wherein combining comprises:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scaling the video frames of the second video stream and repositioning in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

5. (Original) The method of claim 4, wherein the second direction is opposite to the first direction.

6. (Original) The method of claim 1, wherein combining further comprises:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the video frames of the first and second video streams to produce first and second background separated video frames;

generating supplemental background image video frames that comprise a supplemental background image; and

superimposing corresponding ones of the first background separated video frames and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream.

7. (Original) The method of claim 1, wherein the first and second video streams are produced at a same video conferencing site.

8. (Original) The method of claim 1, wherein the first and second video streams are produced at different video conferencing sites.

9. (Original) The method of claim 1, wherein combining is performed at a site other than where the first and second video streams are produced.

10. (Original) The method of claim 1, wherein the subject images of video frames of the first and second video streams are images of video conference participants.

11. (Original) An apparatus comprising:

a first memory configured to store data for at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image; and

at least one data processor configured to combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a first combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame.

12. (Original) The apparatus of claim 11, wherein the at least one data processor is configured to combine the subject images of video frames by:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

13. (Original) The apparatus of claim 11, wherein the at least one data processor is configured to combine the subject images of video frames by:

scaling the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scaling the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

14. (Original) A system comprising the apparatus of claim 11, and further comprising:

a first video conferencing endpoint configured to communicate with the apparatus, the first endpoint including:

a first video camera configured to generate the first real-time video stream, wherein the subject image of the first real-time video stream comprises an image of a first video conferencing participant at the first endpoint;

a second video camera configured to generate the second real-time video stream, wherein the subject image of the second real-time video stream comprises an image of a second video conferencing participant at the first endpoint; and

a first control unit configured to forward the first and second real-time video streams to the apparatus; and

a second video conferencing endpoint configured to communicate with the apparatus, the second endpoint including:

a second control unit configured to receive the combined video stream of the apparatus; and

a display configured to receive and render the combined video stream from the control unit.

15. (Currently Amended) Logic encoded in one or more tangible non-transitory storage media for execution and when executed operable to:

receive at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;

combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the

first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame; and
supply the combined video stream to a video display for displaying the combined video stream.

16. (Original) The logic of claim 15, wherein the logic that combines is configured to:
scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
remove the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and
superimpose the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

17. (Original) The logic of claim 16, wherein the logic that receives is configured to receive video frames of the first video stream comprising images of multiple videoconference participants in the subject image and video frames of the second video stream comprising images of multiple videoconference participants in the subject image.

18. (Original) The logic of claim 15, wherein the logic that combines is configured to:
scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
remove the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scale the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extend the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimpose the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

19. (Original) The logic of claim 18, wherein the second direction is opposite to the first direction.

20. (Original) The logic of claim 15, wherein the logic that combines is configured to:

scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

remove the background image in the video frames of the first and second video streams to produce first and second background separated video frames;

generate supplemental background image video frames that comprise a supplemental background image; and

superimpose corresponding ones of the first background separated video frames, and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream.

REMARKS

Claims 1-20 have been examined, all of which stand rejected. By the above amendments, claim 15 has been amended. Accordingly claims 1-20 are now pending in the subject application. Favorable reconsideration of the application and allowance of all of the pending claims are respectfully requested in view of the above amendments and the following remarks.

Claim rejections under 35 U.S.C. § 101

In the present Office Action dated August 13, 2012 (hereinafter “Office Action”), claims 15-20 stand rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Without conceding to this characterization, Applicant has amended independent claim 15 to recite a “tangible non-transitory storage media.” Claims 16-20 depend from claim 15, directly or indirectly. Accordingly, Applicant respectfully requests that the 35 U.S.C. § 101 rejection of claims 15-20 be withdrawn.

Claim rejections under 35 U.S.C. § 112, fourth paragraph

Claim 14 stands rejected in the Office Action as allegedly being of improper dependent form for failing to further limit the subject matter of the claim upon which it depends. Applicant traverses this rejection. Claim 14 recites a system that includes the apparatus recited in claim 11, as well as features that recite additional video conferencing endpoints. Since claim 14 depends from claim 11, claim 14 incorporates the limitations of claim 11 into the features of claim 14. Applicant respectfully disagrees with the Examiner’s assertion that claim 14 “fails to limit the subject matter” of claim 11 since claim 14 recites additional video conferencing endpoint features. Applicant also disagrees with any attempted assertion that claim 14 “fails to include all of the limitations” of claim 11 since, by definition of being dependent from claim 11, claim 14 incorporates the limitations of claim 11.

Claim rejections under 35 U.S.C. § 103

Claims 1-3, 6-12, 15-17 and 20 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over United States Patent No. 5,572,248 to Allen et al. (hereinafter “Allen”) in view of United States Pre-Grant Publication No. 2009/0033737 to Goose et al. (hereinafter “Goose”).

Claims 4, 5, 13, 18 and 19 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Allen in view of Goose and further in view of United States Pre-Grant Publication No. 2008/0095470 to Chao et al. (hereinafter “Chao”).

Applicant traverses these rejections.

The subject matter of the present application, in general, involves combining real-time video streams onto displays to users participating in a video conference. A non-limiting example of the display techniques is shown in FIG. 1 and FIG. 5G of the present application. In FIG. 1, a first endpoint 100 and a second endpoint 200 are shown. The first endpoint has video cameras 110 and 120, and the second endpoint has video cameras 210 and 220. The video cameras are configured to record audio and video of participants of a video conference (not shown in FIG. 1). For example, video camera 110 may record audio and video of a first participant (or group of participants), and video camera 120 may record audio and video of a second participant.

Each video stream recording of the participants have two components: a subject image that comprises the body of the participant and a background image that comprises background portions (e.g., a background wall or display) that is located behind the participant. The video recordings of the participants are captured by the video cameras and are sent to a control unit (e.g., a control unit shown at reference numeral 170/270 in FIG. 1). The control unit extracts the subject image from the video recordings for each participant and combines the subject recordings together to be displayed. In other words, the control unit combines only the subject images (e.g., participants’ face and body) of the captured video records and combines these images such that only the subject images of the participants are displayed together on a screen. Thus, when the control unit at the first endpoint combines these subject images together and sends this combined image to the second endpoint, participants at the second endpoint view the combined image (on display 250) that shows only the subject image of each participant together on one display, as shown in FIG. 5G. This is in contrast to the conventional “Hollywood squares” technique

described in Applicant's specification, where video images (subject images and background images) are shown on separate display tiles on a display. When the video images are combined, one of the video images may be displayed in front of the other video image, also as shown in FIG. 5G. Thus, upon receiving the combined video images, participants in the video conference see only the subject images of the participants, where one of the subject images is positioned in front of the other subject image.

Independent claims 1, 11 and 15 recite novel features of the subject application. In particular, the independent claims recite receiving real-time video streams that comprise a subject image and a background image. The subject images of the streams are combined into a video stream such that the subject image of one video stream is positioned in an anterior portion of a combined frame and the subject image of another video stream is positioned in a posterior portion of the combined frame. The video stream is supplied to a video display for displaying the combined video stream. Independent claim 1 is recited as a method claim, while independent claim 11 is an apparatus claim and independent claim 15 recites logic encoded in tangible media.

The Examiner asserts that the combination of Allen and Goose renders obvious the features of independent claims 1, 11 and 15. Applicant respectfully disagrees. In general, Allen involves techniques for utilizing a video mirror for providing face-to-face video conferencing. In Allen, video streams are enhanced and are combined by a multiplexer to allow two video streams to be displayed on one screen. The cited portions of Allen describe a first video stream being multiplexed and combined with a second video stream such that the first video stream and the second video stream are displayed together (see Col. 15, lines 12-28 in Allen). Allen, however, does not describe combining only the *subject images* of video streams into combined video stream. That is, in Allen, the entire video images are combined, including background images, whereas the independent claims recite combining only subject images of video frames of multiple video streams. Thus, in Allen, the ultimate combined video stream is displayed with both subject and background images for each video stream, while the independent claims recite displaying only subject video images for each video stream in the combined display.

Goose also does not teach this feature of the independent claims. In general, Goose describes displaying images from multiple video streams for participants in a video conference.

In Goose, a first video signal and a second video signal are recorded by respective video conference endpoint devices. The video signals are combined with preconfigured background signals that, when combined with respective video signals, produce a virtual appearance of participants being located in a common conference room. In Goose, only one video conference participant is displayed on a screen location at a time. In other words, in Goose, when two video signals are combined, the combined display to the video conference participants shows only one participant who is deemed to be a “current speaker.” The remaining participants are not displayed unless and until their status changes to the “current speaker” status. The cited portions of Goose do not teach positioning *both* a first video stream *and* a second video stream, where one is located in an anterior portion of the display and where another is located in a posterior portion of the display, as recited in the independent claims.

Thus, the combination of Allen and Goose does not teach or render obvious the independent claims. Applicant respectfully requests that the 35 U.S.C. § 103 rejection for independent claims 1, 11 and 15 be withdrawn and that these claims be allowed.

Claims 2-10 depend from claim 1, directly or indirectly. Claims 12-14 depend from claim 11, directly or indirectly. Claims 16-20 depend from claim 15, directly or indirectly. Thus, claims 2-10, 12-14 and 16-20 should be allowed since they depend from what is now believed to be allowable claims 1, 11 and 15. Additionally, Chao is merely relied upon for allegedly teaching the subject matter in dependent claims. Chao does not compensate for the deficiencies of Allen and Goose, and thus, no combination of Allen, Goose and Chao would render obvious independent claims 1, 11 and 15 and their respective dependent claims.

Claim rejection under 35 U.S.C. § 102

Claim 14 stands rejected under 35 U.S.C. § 102 as allegedly being anticipated by Allen. Applicant traverses this rejection.

As stated above, claim 14 depends from independent claim 11, and as a result, claim 14 includes the limitations of claim 11. Since Allen does not teach each and every feature of independent claim 11, Allen also does not teach each and every feature of claim 14, since claim

14 contains includes limitations in addition to those recited in claim 11. Accordingly, Applicant respectfully requests that the 35 U.S.C. § 102 rejection of claim 14 be withdrawn.

In view of the foregoing, Applicant respectfully requests the Examiner to find the application to be in condition for allowance with claims 1-20. However, if for any reason the Examiner feels that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned attorney to discuss any unresolved issues and to expedite the disposition of the application.

Applicant hereby petitions for any extension of time that may be necessary to maintain the pendency of this application. The Commissioner is hereby authorized to charge payment of any additional fees required for the above-identified application or credit any overpayment to Deposit Account No. 05-0460.

Dated: November 13, 2012

Respectfully submitted by:

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Electronic Acknowledgement Receipt

EFS ID:	14210860
Application Number:	12471567
International Application Number:	
Confirmation Number:	6112
Title of Invention:	Video Superposition for Continuous Presence
First Named Inventor/Applicant Name:	J. William Mauchly
Customer Number:	99499
Filer:	Amol Purohit/Amanda Johnson
Filer Authorized By:	Amol Purohit
Attorney Docket Number:	0370.0224C (959999)
Receipt Date:	13-NOV-2012
Filing Date:	26-MAY-2009
Time Stamp:	14:05:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AmdReOA08-13-12.pdf	88476 55fd9896bcc65998ab97c9d7219559b08f405eb2	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	13
Warnings:			
Information:			
Total Files Size (in bytes):		88476	
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.			

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 12/471,567		Filing Date 05/26/2009		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☐ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	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), (l), 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(j))	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))										
			TOTAL			TOTAL				
* If the difference in column 1 is less than zero, enter "0" in column 2.										
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	11/13/2012	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	=	0	OR	X \$62=	0	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	=	0	OR	X \$250=	0	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0	
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=		OR	X \$	=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		OR	X \$	=	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
/FELICIA R. FARMER/

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/471,567	05/26/2009	J. William Mauchly	0370.0224C	6112
99499	7590	08/13/2012	EXAMINER	
Edell, Shapiro, & Finnan, LLC			DU, HUNG K	
1901 Research Blvd, Suite 400				
Rockville, MD 20850			ART UNIT	PAPER NUMBER
			2617	
			NOTIFICATION DATE	DELIVERY MODE
			08/13/2012	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):

epatent@usiplaw.com

Office Action Summary	Application No. 12/471,567	Applicant(s) MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2617	

-- 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 26 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

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

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on 26 May 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) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) ☐ Other: ____. |

DETAILED ACTION

1. This action is responsive to the application filed on 05/26/2009. Claims 1-20 are presented for examination. Claims 1, 11, 14, 15 are independent claims.

Oath/Declaration

2. The Office acknowledges receipt of a properly signed Oath/Declaration submitted on 05/26/2009.

Priority

3. The Applicant does not claim domestic benefit or foreign priority.

Information Disclosure Statement

4. The Applicant's Information Disclosure Statement, filed 05/26/2009, has been received, entered into record, and considered.

Drawings

5. The Examiner accepts the drawings filed on 05/26/2009.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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7. Claims 15-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 15 directs to a "*logic encoded in one or more tangible media for execution*", and the specification fails to explicitly exclude from transitory medium, which is non-statutory (see specification [0030]). Dependent claims 16-20 are similarly rejected.

Claim Rejections - 35 USC § 112

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

Subject to the [fifth paragraph of 35 U.S.C. 112], a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

9. Claim 14 is rejected under 35 U.S.C. 112, 4th paragraph, as being of improper dependent form for failing to further limit the subject matter of the claim upon which it depends, or for failing to include all the limitations of the claim upon which it depends. "*a system comprising the apparatus of claim 11*" is an improper dependent claim as it does not contain the further limitation of claim 1. Applicant may cancel the claim, amend the claim to place the claim in proper dependent form, rewrite the claim in independent form, or present a sufficient showing that the dependent claim complies with the statutory requirements. See *Pfizer, Inc. v Ranbaxy Labs, Ltd.*, 457 F.3d 1284, 1291-92 (Fed. Cir. 2006)(holding a dependent claim in a patent invalid for failure to comply with 35 U.S.C. 112 4th paragraph).

However, in order to expedite a complete examination of the instant application, claim(s) 14 which are rejected under the fourth paragraph of 35 U.S.C. 112 are further analyzed as set forth below in anticipation of applicant amending the claims.

Claim Rejections - 35 USC § 102

10. 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.

11. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by **Allen et al (US 5,572,248)**.

Consider claim 14

Allen teaches a system (**see col 4 lines 49-51**) comprising the apparatus of claim 11, and further comprising: a first video conferencing endpoint (**see figure 1A**) configured to communicate with the apparatus, the first endpoint including: a first video camera (**see fig 1A-62, col 7 lines 9-12**) configured to generate the first real-time video stream, wherein the subject image of the first real-time video stream comprises an image of a first video conferencing participant at the first endpoint (**see fig 5A, col 7 line 56 - col 8 line 19 where Allen discusses the received video signals I-64, I-62 comprising a subject and background**); a second video camera (**see fig 1A-62, col 7 lines 9-12**)

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configured to generate the second real-time video stream, wherein the subject image of the second real-time video stream comprises an image of a second video conferencing participant at the first endpoint (**see fig 5A, col 7 line 56 - col 8 line 19 where Allen discusses the received video signals I-64, I-62 comprising a subject and background**); and a first control unit configured to forward the first and second real-time video streams (**col 9 lines 8-13**) to the apparatus (**see fig 1B.92**); and a second video conferencing endpoint (**see figure 1B**) configured to communicate with the apparatus (**see fig 1B.92**), the second endpoint including: a second control unit configured to receive the combined video stream of the apparatus and a display configured to receive and render the combined video stream from the control unit (**see col 13 lines 56-62 where Allen discusses the projector receiving signal from the compositor for display on the screen**).

Claim Rejections - 35 USC § 103

12. 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.

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13. Claims 1-3, 6-12, 15-17, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Allen et al (US 5,572,248)** in view of **Goose et al (2009/0033737 A1)**.

Consider claims 1, 11, 15

Allen teaches a method, logic, and apparatus comprising: the apparatus comprising: a first memory (**see col 13 lines 1-7 where Allen discusses capturing live images; hence memory to store the captured images**) and at least one data processor (**see col 15 lines 14-20 where Allen discusses the multiplexer**); receiving at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image (**see fig 5A, col 7 line 56 - col 8 line19 where Allen discusses the received digital signals I-64, I-62**); combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream (**see fig 5B col 15 lines 8-19 where Allen discusses combining the signals (118, 116, 122) to produce the combined stream (124)**); and supplying the combined video stream to a video display for displaying the combined video stream (**see col 15 lines 46**).

Allen discloses a face-to-face video conferencing system. However, Allen does not specifically disclose positioning a participant in the anterior position in the combine video image frame. Goose teaches the subject image of the first video stream is positioned in an anterior portion of the combined frame and the

subject image of the second video stream is positioned in a posterior portion of the combined frame (**see fig 14-15, par 0065 where Goose discusses displaying the subject image of the selected participant in the anterior position and the none selected in the posterior**).

At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Allen with Goose. One would be motivated to modify Allen by adding the capability to position the video image frame of a selected participant in the front center as taught by Goose. The motivation to combine Allen and Goose is to provide the video conferencing system the capability to provide visual cues to all the participants who the current speaker is, thus delivering better user experience. The combination of Allen and Goose as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Allen with Goose to obtain the invention as specified in the claim.

Consider claims 2, 12, 16

Allen in view of Goose teaches the limitations of claims 1, 11, 15, wherein combining comprises: scaling the video frames of the first video stream (**see fig 5A – 162, 164, col 7 lines 41-35, col 7 line 56- col 8 line 10 where Allen discusses the cameras generate images with aspect ratio of 4:3**) and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames (**see fig 5A**

where the video image frames are positioned to the left and to the right); removing the background image in the first sequence of scaled video frames to produce first background separated video frames **(see fig 5A – 104, 106, 114, 112, col 7 line 62 – col 8 line 10)** to be displayed in the anterior portion of the combined frames of the combined video stream **(see Goose cited above);** and combining the first background separated video frames onto corresponding ones of the video frames of the second video stream **(see fig 5B-116-120, col 15 lines 8-18 where Allen discusses combining the 4:3 aspect ratio of the first subject image with the second subject image)** to produce combined video frames of the combined video stream **(see fig 5B-124).**

Allen discloses a method of combining the video subject image frames of the first video source and second video source to produce combine video frames of the combined video stream. However, Allen does not specifically disclose superimposing the video subject frames of the first video source on the video second video stream. Goose teaches a method to superimpose the video subject frames of the first video source on the video second video stream **(see fig 14, 15 par 0062-0063).**

At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Allen with Goose. One would be motivated to modify Allen by replace the method of combining with the method of superimposing of a image or video image frames on a video stream as taught by Goose. The motivation to combine Allen and Goose is to provide the video

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conferencing system the capability to provide visual cues to all the participants the current speaker or to display the important item, thus delivering better user experience. The combination of Allen and Goose as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Allen with Goose to obtain the invention as specified in the claim.

Consider claims 3, 17

Allen in view of Goose teaches the limitations of claims 2, 16 wherein the subject image of video frames of the first video stream comprises images of multiple videoconference participants and the subject image of video frames of the second video stream comprises images of multiple videoconference participants **(see fig Allen 5A - 106, 104)**.

Consider claims 6, 20

Allen in view of Goose teaches the limitations of claims 1, 15, wherein combining further comprises: scaling the video frames of the first video stream **(see fig 5A – 162, 164, col 7 lines 41-35, col 7 line 56- col 8 line 10 where Allen discusses the cameras generate images with aspect ratio of 4:3)** and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames **(see fig 5A where the video image frames are positioned to the left and to the right)**; removing the background image in the video frames of the first and second video

streams to produce first and second background separated video frames (**see fig 5A – 112, 114, col 8 lines 1-10 where Allen discusses removing the background image**); generating supplemental background image video frames that comprise a supplemental background image (**see fig 5B-122, col 13 lines 44-49**); and superimposing corresponding ones of the first background separated video frames and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream (**see fig 5B-124, col 15 lines 14-19**).

Consider claim 7

Allen in view of Goose teaches the method of claim 1, wherein the first and second video streams are produced at a same video conferencing site (**see fig 2 – items 62, 64, col 7 lines 20-31**).

Consider claim 8

Allen in view of Goose teaches the method of claim 1, wherein the first and second video streams are produced at different video conferencing sites (**see par 0055**).

Consider claim 9

Allen in view of Goose teaches the method of claim 1, wherein combining is performed at a site other than where the first and second video streams are produced (**see par 0055**).

Consider claim 10

Allen in view of Goose teaches the method of claim 1, wherein the subject images of video frames of the first and second video streams are images of video conference participants (**see fig 5A - 112, 114**).

14. Claims 4, 5, 13, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Allen et al (US 5,572,248)** in view of Goose et al (**2009/0033737 A1**) further in view of **Chao et al (US 2008/0095470 A1)**.

Consider claims 4, 13, 18

Allen in view of Goose teaches the limitations of claims 1, 11, 15, wherein combining comprises: scaling the video frames of the first video stream (**see fig 5A – 162, 164, col 7 lines 41-35, col 7 line 56- col 8 line 10 where Allen discusses the cameras generate images with aspect ratio of 4:3**) and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames (**see fig 5A where the video image frames are positioned to the left and to the right**); removing the background image in the first sequence of scaled video frames to produce first background separated video frames (**see fig 5A – 112, 114, col 8 lines 1-10 where Allen discusses removing the background image**) to be displayed in the anterior portion of the combined frames of the combined video stream (**see Goose cited above**); scaling the video frames of the second video stream **see fig 5A – 162, 164, col 7 lines 41-35, col 7 line 56- col 8 line 10**

where Allen discusses the cameras generate images with aspect ratio of 4:3) and repositioning in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames **(see fig 5A where the video image frames are positioned to the left and to the right)**; displaying the second sequence of scaled video frames in the posterior portion **(see Goose cited above)** of the combined frames of the combined video stream **(see fig 5B-124)**; and combining the first background separated video frames onto corresponding ones of background extended video frames **(see fig 5B-116-120, col 15 lines 8-18 where Allen discusses combining the 4:3 aspect ratio of the first subject image with the second subject image to produce an 8:3 aspect ratio frame)** to produce combined video frames of the combined video stream **(see fig 5B-124)**.

Allen discloses a method of combining the video subject image frames of the first video source and second video source to produce combine video frames of the combined video stream. However, Allen does not specifically disclose superimposing the video subject frames of the first video source on the video second video stream. Goose teaches a method to superimpose the video subject frames of the first video source on the video second video stream **(see fig 14, 15, par 0062-0063)**. At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Allen with Goose. One would be motivated to modify Allen by replace the method of combining with the method of superimposing of a image or video image frames

on a video stream as taught by Goose. The motivation to combine Allen and Goose is to provide the video conferencing system the capability to provide visual cues to all the participants the current speaker or to display the important item, thus delivering better user experience. The combination of Allen and Goose as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Allen with Goose to obtain the invention as specified in the claim.

Allen in view of Goose discloses a method to superimpose the video subject image frames of the first video source and second video source to produce larger combine video frames of the combined video stream. However, Allen in view of Goose does not specifically disclose the method of enlarging the video background image. Chao teaches extending the background image (**see fig 2 par 0023-0025 where Chao discusses stretching the background image to fit a dimension**) to fit a resized dimension. At the time of the invention, it would have been obvious for one ordinarily skilled in the art to modify the invention of Allen in view of Goose with Chao. One would be motivated to modify Allen in view of Goose by adding the method to separate the foreground and background of the image and stretch the background to a specified dimension as taught by Chao so that the foreground images of Allen in view of Goose can be superimposed on the stretched image. The motivation to combine Allen in view of Goose and Chao is to retain a background image of a video

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conferencing setting in the combined video frames, thus eliminating the need for a supplemental background image. The combination of Allen in view of Goose and Chao as described is a combination of known elements by known methods with no change in respective function, and the combination would yield predictable results. Therefore, it would have been obvious to combine Allen in view of Goose with Chao to obtain the invention as specified in the claim.

Consider claims 5, 19

Allen in view of Goose further in view of Chao teaches the limitations of claims 4, 18, wherein the second direction is opposite to the first direction (**see Allen fig 5A where the video image frames are positioned to the left and to the right**).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG DU whose telephone number is (571)270-1810. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on (571)272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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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.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/HUNG DU/
Examiner, Art Unit 2617

Notice of References Cited	Application/Control No. 12/471,567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.	
	Examiner HUNG DU	Art Unit 2617	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,572,248 A	11-1996	Allen et al.	348/14.1
*	B	US-2008/0095470 A1	04-2008	Chao et al.	382/298
*	C	US-2009/0033737 A1	02-2009	Goose et al.	348/14.07
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

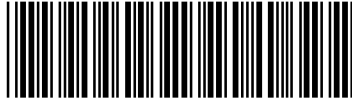
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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
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	R					
	S					
	T					

NON-PATENT DOCUMENTS

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

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

<i>Index of Claims</i> 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2617

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

☐ Claims renumbered in the same order as presented by applicant		☐ CPA		☐ T.D.		☐ R.1.47			
CLAIM		DATE							
Final	Original	08/06/2012							
	1	✓							
	2	✓							
	3	✓							
	4	✓							
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	18	✓							
	19	✓							
	20	✓							

Search Notes 	Application/Control No. 12471567	Applicant(s)/Patent Under Reexamination MAUCHLY ET AL.
	Examiner HUNG DU	Art Unit 2617

SEARCHED			
Class	Subclass	Date	Examiner
348	14.01,14.02,14.05,14.07,14.09,14.1,14.14,14.15,14.16	8/6/2012	HD

SEARCH NOTES		
Search Notes	Date	Examiner
Inventor search in EAST	8/6/2012	HD
Google Patent search	8/6/2012	HD

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	("5572248").pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/08/07 11:39
L2	2	("20080095470").pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2012/08/07 11:40
S1	38	((J) near2 (MAUCHLY)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 10:15
S2	45	((RICHARD) near2 (WALES)).INV.	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 10:29
S3	1	(12/471567).app.	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 10:31
S4	519	(superposition) and (video near stream)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 12:01
S5	692	(superposition) and (video near3 stream)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 12:01
S6	23233	(superimpos\$3) and (video near3 image)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:18
S7	1700946	(background) and (subject)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:19
S8	25793	(first and second) same (video near3 image)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:19
S9	571657	(superimpos\$3) or (telepresence) or (superposition) or (overlay\$3)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:20
S10	6764	S8 and S9	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:20
S11	0	"348"/\$.ccls and S10	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:20
S12	3033	"348"/\$.ccls. and S10	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:20
S13	4114	(superimpos\$3) and S8	US-PGPUB; USPAT;	OR	ON	2012/08/06 13:21

			USOCR			
S14	1902	"348"/\$.ccls. and (superimpos\$3) and S8	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 13:21
S15	9108	(overlay\$3 superimpos\$3) same (video near3 image)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 14:43
S16	3485	"348"/\$.ccls. and S15	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 14:43
S17	19	"348"/\$.ccls. and S15 and (anterior) and background	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 14:44
S18	1379	"348"/\$.ccls. and S15 and (anterior front) and (background posterior)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 14:44
S19	8	"348"/\$.ccls. and S15 and (anterior) and (posterior)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 14:46
S20	9108	(overlay\$3 superimpos\$3) same (video near3 image)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 16:09
S21	69	"348"/14.01,14.02,14.05,14.07,14.09,14.1,14.14,14.15,14.16.ccls. and S20 and (anterior front) and (background posterior)	US-PGPUB; USPAT; USOCR	OR	ON	2012/08/06 16:09

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CONFIRMATION NO. 6112

SERIAL NUMBER 12/471,567	FILING or 371(c) DATE 05/26/2009 RULE	CLASS 348	GROUP ART UNIT 2617	ATTORNEY DOCKET NO. 0370.0224C		
APPLICANTS J. William Mauchly, Berwyn, PA; Richard Thayer Wales, Sunnyvale, CA; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 06/02/2009						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/HUNG K DU/</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY PA	SHEETS DRAWINGS 9	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS Edell, Shapiro, & Finnan, LLC 1901 Research Blvd, Suite 400 Rockville, MD 20850 UNITED STATES						
TITLE Video Superposition for Continuous Presence						
FILING FEE RECEIVED 1090	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			

Receipt date: 05/26/2009

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

12471567 - GAI: 2617

Approved for use through 03/31/2009. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12471567	
	Filing Date		05/26/2009	
	First Named Inventor	J. William Mauchly		
	Art Unit	2617		
	Examiner Name	Hung Du		
	Attorney Docket Number	0370.0224C		

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	1	0137559	WO	A1	2001-05-25	Telia AB		☐

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Receipt date: 05/26/2009 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12471567 12471567 - GAU: 2617
	Filing Date		05/26/2009
	First Named Inventor	J. William Mauchly	
	Art Unit	2617	
	Examiner Name	Hung Du	
	Attorney Docket Number	0370.0224C	

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Examiner Signature	/Hung Du/	Date Considered	08/06/2012
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¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.



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APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
12/471,567		2614	2614



Correspondence Address/Fee Address Change

The following fields have been set to Customer Number 99499 on 10/08/2010

- Correspondence Address
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The address of record for Customer Number 99499 is:

99499
Edell, Shapiro, & Finnan, LLC
1901 Research Blvd, Suite 400
Rockville, MD 20850



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/471,567	05/26/2009	J. William Mauchly	0370.0224C

CONFIRMATION NO. 6112

PUBLICATION NOTICE



OC000000044764025

99499
Edell, Shapiro, & Finnan, LLC
1901 Research Blvd, Suite 400
Rockville, MD 20850

Title:Video Superposition for Continuous Presence

Publication No.US-2010-0302446-A1

Publication Date:12/02/2010

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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
12/471,567	05/26/2009	2622	1090	0370.0224C	20	3

CONFIRMATION NO. 6112

27896
EDELL, SHAPIRO & FINNAN, LLC
1901 RESEARCH BOULEVARD
SUITE 400
ROCKVILLE, MD 20850

FILING RECEIPT



Date Mailed: 06/08/2009

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Applicant(s)

J. William Mauchly, Berwyn, PA;
Richard Thayer Wales, Sunnyvale, CA;

Assignment For Published Patent Application

CISCO TECHNOLOGY, INC., San Jose, CA

Power of Attorney: The patent practitioners associated with Customer Number 27896

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 06/02/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/471,567**

Projected Publication Date: 12/02/2010

Non-Publication Request: No

Early Publication Request: No

Title

Video Superposition for Continuous Presence

Preliminary Class

348

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NEW UTILITY PATENT APPLICATION TRANSMITTAL (NONPROVISIONAL)

APPLICATION TITLE:

VIDEO SUPERPOSITION FOR CONTINUOUS PRESENCE

FIRST NAMED INVENTOR:

J. William Mauchly

ATTORNEY DOCKET NO.:

0370.0224C

ENCLOSED ARE THE FOLLOWING APPLICATION PARTS:

- ☒ Specification (pages 1 to 14);
- ☒ Claims (pages 15 to 21)
20 total claims; 3 independent claim(s)
- ☒ Abstract (page 22);
- ☒ 9 Sheets of Drawings including Figures 1-4, 5A, 5B, 5C, 5D, 5E, 5F, 5G, 6, 7A, 7B, 7C, 7D, 7E, 7F, 7G and 7H (pages 23 to 31)
- ☒ Application Data Sheet (Form PTO/SB14)
- ☒ Executed Declaration and Power of Attorney

ALSO ENCLOSED ARE THE FOLLOWING APPLICATION PAPERS:

- ☒ Information Disclosure Statement (Form PTO/SB08a) and IDS Transmittal Letter
- ☒ 1 Foreign Patent Documents or Abstract
- ☐ Non-Patent Literature (NPL) Documents
- ☐ Non-Published Application No.
- ☐ Preliminary Amendment
- ☐ Nonpublication Request and Certification under 35 U.S.C. 122(b)(2)(B)(i)
- ☐ Other:

INFORMATION RELATING TO DOMESTIC & FOREIGN PRIORITY

- ☐ Domestic and/or Foreign Priority are provided on the Application Data Sheet or in the Specification.
- ☐ Form PTO/SB/38 requesting the electronic retrieval of the EP priority document is being filed concurrently herewith.

THE **FEES** HAVE BEEN CALCULATED AS FOLLOWS:

Basic Utility Application Fees:					
Filing Fee (\$330 or \$165 or <u>\$82</u> if small entity filing electronically)					330.00
Examination Fee (\$220/\$110)					220.00
Search Fee (\$540/\$270)					540.00
Subtotal					1090.00
Number of Total Claims Over 20	0	Enter <u>\$52</u> for a large entity OR <u>\$26</u> for a small entity	x \$ 52		0.00
Number of Independent Claims over 3	0	Enter <u>\$220</u> for a large entity OR Enter <u>\$110</u> for a small entity	x \$ 220		0.00
Surcharge for late filing of Declaration (\$130/\$65)					0.00
Other fees (e.g., late filing of English translation; # of pages >100, etc.): \$					0.00
TOTAL FEE DUE					1090.00

- ☐ **Applicant is entitled to Small Entity Status**
- ☐ This application is being filed **without** a filing fee. Issuance of a Notice to File Missing Parts of Application is respectfully requested.
- ☒ Credit card payment has been submitted concurrently with the filing of this transmittal. The Director is hereby authorized to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. In addition, the Director is hereby authorized to charge any additional appropriate fees that may be required during the pendency of the above-identified application (e.g., in the concurrent or in any future reply), as well as to credit any overpayment, to Deposit Account No. **05-0460**.

Please direct all correspondence concerning this application to:

EDEL, SHAPIRO & FINNAN, LLC
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ROCKVILLE, MD 20850
(301) 424-3640
CUSTOMER NUMBER 27896

Dated: May 26, 2009

Respectfully submitted by:

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/D. Andrew Floam/
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Reg. No. 34597

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	0370.0224C
		Application Number	
Title of Invention	Video Superposition for Continuous Presence		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Applicant Information:

Applicant 1						Remove	
Applicant Authority		☒ Inventor		☐ Legal Representative under 35 U.S.C. 117		☐ Party of Interest under 35 U.S.C. 118	
Prefix	Given Name	Middle Name		Family Name		Suffix	
	J.	William		Mauchly			
Residence Information (Select One)		☒ US Residency		☐ Non US Residency		☐ Active US Military Service	
City	Berwyn	State/Province	PA	Country of Residence i	US		
Citizenship under 37 CFR 1.41(b) i		US					
Mailing Address of Applicant:							
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Address 2							
City	Berwyn	State/Province		PA			
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Prefix	Given Name	Middle Name		Family Name		Suffix	
	Richard	Thayer		Wales			
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Mailing Address of Applicant:							
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	0370.0224C
		Application Number	
Title of Invention	Video Superposition for Continuous Presence		

☐ An Address is being provided for the correspondence information of this application.

Customer Number	27896		
Email Address	epatent@usiplaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	Video Superposition for Continuous Presence		
Attorney Docket Number	0370.0224C	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	9	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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Customer Number	27896		

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Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	0370.0224C
		Application Number	
Title of Invention	Video Superposition for Continuous Presence		

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Application Number	Country ⁱ	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
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Assignee ¹			Remove
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Mailing Address Information:			
Address 1	170 West Tasman Drive		
Address 2			
City	San Jose	State/Province	CA
Country ⁱ	US	Postal Code	95134-1706
Phone Number		Fax Number	
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Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.					
Signature	/D. Andrew Floam/			Date (YYYY-MM-DD)	2009-05-26
First Name	D. Andrew	Last Name	Floam	Registration Number	34597

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VIDEO SUPERPOSITION FOR CONTINUOUS PRESENCE

TECHNICAL FIELD

[001] The present disclosure relates to video teleconferencing systems and particularly to multiple video source and continuous presence teleconference systems.

BACKGROUND

[002] Videoconferencing allows two or more locations to interact via simultaneous two-way video and audio transmissions. In videoconferencing systems, it is desirable to see the other party in near life-size on a display screen. However for videoconferences with many participants, the size of the display screen becomes a limiting factor as to the image area allocated to each participant. Several known systems offer solutions to this limiting factor of the display screen, however, with compromised features. For example, some solutions allow only a limited number of meeting participants to be viewed on the screen at a time. Other solutions display all the meeting participants on the screen using the “Hollywood Squares” feature to provide continuous presence, however, this feature merely provides an arrangement where rectangular video areas of individual people are reduced in size according to the number of participants and stacked both vertically and horizontally to fit the screen.

BRIEF DESCRIPTION OF THE DRAWINGS

[003] FIG. 1 is a block diagram depicting an example of a video distribution system configured to combine video streams for continuous presence.

[004] FIG. 2 is a block diagram depicting an example of a multipoint control apparatus configured to combine video streams for continuous presence.

[005] FIG. 3 is an example flow chart for a real-time video superposition process that combines real-time video streams for continuous presence.

[006] FIG. 4 is an example flow chart that depicts operations associated with a first method for combining subject images of corresponding video frames of first and second real-time video streams as part of the real-time video superposition process of FIG. 3.

[007] FIGS. 5A-5G are illustrations depicting examples of corresponding video frames of first and second real-time video streams being combined into a combined video frame of a combined real-time video stream according to the method of FIG. 4.

[008] FIG. 6 is an example flow chart that depicts operations associated with a second method for combining subject images of corresponding video frames of first and second real-time video streams as part of the real-time video superposition process of FIG. 3.

[009] FIGS. 7A-7H are illustrations depicting examples of corresponding video frames of first and second real-time video streams being combined into a combined video frame of a combined real-time video stream according to the method of FIG. 6.

DETAILED DESCRIPTION

[0010] Overview

[0011] An apparatus, system, methods, and logic are described herein that are configured to combine corresponding video frames of two or more real-time video streams into combined video frames of a combined video stream for continuous presence functionality useful in, for example, video conference systems. The underlying technique involves receiving at least first and second real-time video streams, combining the subject images of video frames of the first and second video streams into combined video frames of a combined video stream, and supplying the combined video stream to a video display for displaying the combined video stream. The first and second real-time video streams are derived from respective first and second video cameras. Each of the first and second real-time video streams comprises video frames containing a picture comprising a subject image and a background image. The method further comprises combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame. The combined video stream is also a real-time video stream that represents a combination of the first and second real-time video streams, and the combined real-time video stream is supplied to a display. When the subject images of the first and second real-time video

streams each comprises images of multiple persons involved in video conference session, the combined video stream presents the images of these persons during real-time display in a more life-like manner that is more natural and pleasing to view during a video conference session.

[0012] Example Embodiments

[0013] Teleconference is a term used to relate to the live exchange and mass articulation of information among persons and machines remote from one another but linked by a telecommunications system (e.g., phone line, internet, ISDN, etc.). Teleconferences involving video exchange, also referred to as videoconferences or videoteleconferences, allow two or more locations to interact via simultaneous two-way video and audio transmissions. Although teleconferencing is typically employed to serve groups of individuals, teleconferencing may likewise be employed to serve individual users at the remote locations.

[0014] Referring first to FIG. 1, a video distribution system 10 is shown that is configured to combine video streams according to the techniques described herein. The system 10 may be used to conduct video conferences between multiple endpoints, where the video streams transmitted between the endpoints are high-fidelity or high-quality video, thereby simulating an in-person meeting, known as a “telepresence” meeting.

[0015] The video distribution system 10 comprises a first endpoint 100, a second endpoint 200, and a multipoint control apparatus 300 (e.g., multipoint control unit (MCU)). Each of the endpoints 100, 200 can simultaneously serve as both a source and a destination of a video stream. It is to be understood that audio also can be captured by one or more microphones (not shown) and encoded into the video streams passed between endpoint devices. Endpoint 100 includes a plurality of video cameras including video cameras 110, 120, a control unit 170, and a display 150. Endpoint 200 includes a plurality of video cameras including video cameras 210, 220, a control unit 270, and a display 250. The video cameras 110, 120 capture video and supply first and second video signals to control unit 170.

[0016] The control unit 170 is configured to encode the video signals into first and second video streams of the first endpoint 100, and to forward the first and second video streams of the first endpoint 100 to the multipoint control apparatus 300. The multipoint

control apparatus 300 is configured to combine at least portions of corresponding video frames of the first and second video streams of the first endpoint into combined video frames of a combined video stream according to the techniques described herein. Video frames of the first and second video streams may correspond, for example, in a temporal manner such that the video frames of the first video stream are captured at substantially the same time as the video frames of the second video stream. The control unit 270 is configured to receive and decode the combined video stream of the first endpoint and forward the combined video stream to the display 250 that is configured to receive and render the combined video stream of the first endpoint for viewing.

[0017] Conversely, the control unit 270 is further configured to receive and encode video signals of the video cameras 210, 220 of the second endpoint 200 into first and second video streams of the second endpoint 200 and forward these video streams of the second endpoint 200 to the multipoint control apparatus 300. The multipoint control apparatus 300 is further configured to combine at least portions of corresponding video frames of the first and second video streams of the second endpoint 200 into combined video frames of a combined video stream of the second endpoint 200 to be forwarded to the control unit 170 of the first endpoint 100. The control unit 170 is further configured to receive and decode the combined video stream of the second endpoint 200 and forward the combined video stream to the display 150 that is configured to receive and render the combined video stream of the second endpoint 200 for viewing.

[0018] It is to be understood that the components of the video distribution system 10 may be distributed over a wide area network (e.g., WAN, internet, etc.) or may be distributed over a local area network (LAN) within a same facility (e.g., building, campus, etc.). Furthermore, the video distribution network 10 may be operable with any network protocol (e.g., internet protocol (IP) based, integrated services data network (ISDN) based, etc.). It is to be further understood that the components of the video distribution system 10 (e.g., first and second control units, multipoint control apparatus, video cameras, video displays, etc.) providing video frames and combining of real-time video streams as described herein may include any quantity of any conventional or other components and may process and distribute the video stream employing any suitable

protocol and over any suitable energy form (e.g., optical signals, microwave, radio signals, etc.).

[0019] Each of the real-time video streams, as described above, comprises video frames including a subject image and a background image. The subject image may include one or more images in a foreground portion of a video frame (e.g., video conference participants sitting at a conference table). The background image may include any image in a background portion of the video frame (e.g., a backdrop, a wall, a scene, etc.) and may further include all remaining portions of the video frame not included in the subject image. The multipoint control apparatus 300 is configured to combine the subject images of corresponding video frames of the first and second video streams into combined video frames of a combined video stream, such that a subject image of the video frame of one of the first and second video streams is positioned in an anterior portion of the combined video frame and the subject image of the video frame of the other one of the video streams is positioned in a posterior portion of the combined video frame. Video frames of the first and second video streams may correspond, for example, in a temporal manner such that the video frames of the first video stream are captured at substantially the same time as the video frames of the second video stream. In other forms, the control units at the respective endpoints 100, 200 are configured to combine the subject images of the respective video streams in this manner.

[0020] Next, referring to FIG. 2, the multipoint control apparatus 300 is described in more detail. The multipoint control apparatus 300 comprises a memory 310 and a data processor 320. The memory 310 contains real-time video superposition process logic 700. The data processor 320 executes the logic 700 to perform the real-time video superposition functions described herein, to thereby combine corresponding video frames of at least first and second video streams into video frames of a combined video stream. By executing logic 700, the multipoint control apparatus 300 is operable to combine corresponding video frames of video streams of two or more remote endpoints such that multiple subject images (e.g., multiple videoconference participants) can be seen on screen at once (i.e., continuous presence) without substantially reducing the size of each subject image. In another form, rather than the multipoint control apparatus 300 combining the subject images, the control units 170, 270 of the respective endpoints 100,

200 may be configured with the logic 700 and the subject images of corresponding video frames may be combined via the logic 700 of the respective endpoints 100, 200.

[0021] It is to be understood that the video distribution components (e.g., first and second control units, multipoint control apparatus, data processor, etc.) of the present invention may be implemented by any quantity of any conventional or other components performing the functions described herein. These components may be implemented in hardware and/or software by any processors and/or circuitry. Alternatively, the multipoint control apparatus and first and second control units may include software and/or hardware modules to implement any individual function or any combinations of these functions. The multipoint control apparatus may reside as an external module disposed at any suitable location in the video distribution system and coupled to components thereof or may be integrated with any desired components of the video distribution system.

[0022] It will also be appreciated that the multipoint control apparatus 300 may be implemented by any conventional or other microprocessor, controller or circuitry to perform the functions described herein, while any quantity of processors or processing devices or circuitry may be employed within one or more of the video distribution processing devices, where the multipoint control apparatus functions may be distributed in any fashion among any quantity of hardware or software modules, processors or other processing devices or circuits. Accordingly, the multipoint control apparatus 300 may, for example, be embedded in a multipoint control unit (MCU), a dedicated video teleconference (VTC) unit or may be a stand alone hardware device.

[0023] Furthermore, the video distribution system 10 may be implemented over a network, for example, via a “decentralized multipoint” (e.g., H.323 technique), where each endpoint in a multipoint call exchanges video and audio directly with the other endpoints with no central “manager” and the multipoint control apparatus 300 can combine corresponding video frames of two or more video streams into a combined video frame of a combined video stream.

[0024] FIG. 3 is a flowchart for the real-time video superposition process logic 700. At 710, first and second real-time video streams are received, for example, from two separate video cameras at an endpoint. At 720, the subject images of video frames of the

first and second video streams are combined into combined corresponding video frames of a real-time combined video stream. At 730, the combined video stream is supplied to a video display.

[0025] For example, at 720 two video frames (e.g., rectangular in shape) of a same original size of two separate video streams are combined into a combined video frame of a combined video stream, the combined video frame having a frame size equal to the original frame size. The video frames of the two separate video streams may be slightly scaled, e.g., greater than half scale or near life-size, in other words, substantially close to full scale. Consequently, the subject images and background images of the scaled video frames are likewise slightly scaled. The scaled video frames of the separate video streams are combined into a combined video frame of a combined video stream such that one of the video frames of the two video streams is superimposed over the other one of the video frames. Moreover, the subject images of the scaled video frames are superimposed such that the subject images of one of the scaled video frames is positioned in an anterior portion of the combined video frame and the subject image of the other one of the scaled video frames is positioned in a posterior portion of the combined video frame.

[0026] For example, the superimposed subject images of the combined video frame may be scaled to near life-size and arranged such that the subject images appear to be sitting in the same room one in front of another (e.g., individuals seated in stadium seating). This arrangement of subject images of combined video frames of a combined video stream may be rendered on a display with a same frame size as the original video frames of the two video streams. The rendered combined video stream shown on the display provides a viewer an illusion that the subject images (e.g., images of teleconference participants) are situated one in front of another of the same room (e.g., stadium seating) and allows for continuous presence. It is to be understood, however, that the subject images of the combined video frames may be derived from video streams generated at a same endpoint or generated at different endpoints.

[0027] By contrast, some conventional systems employ techniques such as “switching” between multiple video sources, while maintaining the size (e.g., “life-size” or close to “life-size”) of the subject images (e.g., videoconference participants) of the

real-time video on the display screen. However, this conventional technique does not allow for continuous presence since the subject images on display screen change as the video sources are switched. By further contrast, other conventional videoconferencing systems offer continuous presence solutions where subject images of all the participants are visible at the same time on the display screen but the subject images (e.g., images of the videoconference participants) are proportionately reduced in size according to the number of participants. Conventional continuous presence techniques typically employ the feature called "Hollywood Squares" referring to an arrangement where rectangular video areas of individual people are reduced in size and stacked both vertically and horizontally. In addition to the problem of the smaller sized images, the vertical arrangement has no analog in daily life and breaks any illusion that the participants are in the same room together. Still other conventional techniques rely on the physical arrangement of the seating of the video participants (e.g., stadium or theater seating) in order to fit more video participants into a single video "shot" of a video camera. However, even these techniques come with compromises, for example, the cost and space limitations associated with providing stadium seating and the fact that those participants sitting in different rows of the stadium seating can not face one another.

[0028] Combining the video frames, as described herein, takes advantage of the unused space between subject images (e.g., the background behind and between images of teleconferencing participants) of a single video frame of a single video stream and allows for more subject images to appear in one combined video frame. In addition, the combined frame of the combined video streams may further include subject images of the remaining video streams of the at least first and second video streams arranged, for example, in a cascaded manner between the subject images of the first and second video streams. Furthermore, the arrangement and order of subject images of the different video streams in the combined video frame may be designated. For example, a designated subject image of a video stream may be positioned in the anterior portion of the combined video frame. Further still, this designation may be automated based on predetermined criteria, or may be actuated via user input (e.g., key entry, voice activation, voice recognition, facial recognition, hand geometry recognition, etc.).

[0029] Furthermore, combining the video frames of two video streams may further comprise modifying the subject image of video frames of one of the first and second real-time video streams. For example, modifying the subject image of the video frame may include identifying at least two portions of the subject image of the video frames to be modified, separating the at least two identified portions, and arranging the separated portions with adjusted relative positions (e.g., move the separate portions of the subject image closer together or move the separate portions farther apart) to form a video frame with a modified subject image.

[0030] It is to be understood that the functions of logic 700 described herein may be performed by digital logic in a hardware/firmware form, such as with fixed digital logic gates in one or more application specific integrated circuits (ASICs), or programmable digital logic gates, such as in a field programming gate array (FPGA), or any combination thereof. Furthermore, the real-time video superposition process logic 700 described herein may be encoded on tangible media (e.g., magnetic or optical mediums, magneto-optic mediums, floppy diskettes, CD-ROM, DVD, memory devices, etc.), and/or may be downloaded (e.g., in the form of carrier waves, packets, etc.) to systems via a network or other communications medium.

[0031] It will also be appreciated that the techniques described herein may employ combining video frames into a combined video stream of any desired video stream in any video distribution system and may utilize any desired protocol (e.g., OpenCU, H.320, H.323, 3G-324M, Farsight, RTP, etc.). Further, the techniques described herein may combine any number of video streams in any order according to any predetermined criteria (e.g., first to join the conference call, location, priority code, etc.) or may be manually selected by the viewer. Further, the combined video stream may be a combination of any number of video streams and may be combined and rendered in any order of video streams.

[0032] FIG. 4 is a flowchart depicting a first method 720 of combining the subject images of corresponding video frames into a combined video frame. As explained above, video frames of the first and second video streams may correspond, for example, in a temporal manner such that the video frames of the first video stream are captured at substantially the same time as the video frames of the second video stream. At 722, the

video frames of first and second video streams are scaled. At 724, the background image of the video frame of the first video stream is extended. At 726, the background image is separated from the video frame of the second video stream. At 728, the background separated video frame of the second video stream and the background extended video frame of the first video stream are combined into a combined video frame of a real-time combined video stream.

[0033] FIGS. 5A-5G illustrate corresponding video frames of real-time video streams with subject images being combined into a combined video frame according to the method depicted by the flowchart of FIG. 4.

[0034] FIG. 5A depicts a video frame 400 of a first real-time video stream. Video frame 400 includes subject image 410 comprising, for example, images of two videoconference participants, and background image 420. Similarly, FIG. 5B depicts a video frame 500 of a second real-time video stream. Video frame 500 includes subject image 510 comprising, for example, images of two videoconference participants different from those in video frame 400, and background image 520. FIG. 5C illustrates the scaling function 722 applied to video frame 400 of the first real-time video stream. Scaled video frame 400' includes a scaled subject image 410' and scaled background image 420'. FIG. 5D illustrates the scaling function 722 applied to video frame 500 of the second real-time video stream. The scaled video frame 500' includes scaled subject image 510' and scaled background image 520'.

[0035] FIG. 5E illustrates the background extension function 724 applied to the scaled background image 420' of the scaled video frame 400' of the first real-time video stream. In other words, at 724, the background image of the scaled video frame 400' is extended, for example, to the original frame size to fill the portions of the frame that were lost due to scaling of the video frame 400 at 722, resulting in the background extended video frame 400''. Extending of the background image of the scaled video frame 400' may be performed via a video enhancing technique (e.g., inpainting).

[0036] Inpainting may be accomplished, for example, by creating a static filler image that will occupy the border surrounding the scaled video image. It is desirable that the extended portion of the background image appears as an extension of the physical background of the video shot. In the event that the physical background of the video shot

is a still object (e.g., a wall), the static filler image can be generated, for example, via a still video frame of the physical background without subject images having been arranged in the foreground of the video shot. Inpainting may also be accomplished, for example, by selecting and copying a portion of the video frame and flipping (i.e., reversing) the copied portion about an axis of reflection (e.g., a horizontal axis, vertical axis, etc.) to arrange the copied portion in an area of the video frame to be extended. Consequently, the pixels of the copied portion which were flipped about the axis of reflection will match those of the selected portion in a mirrored image fashion, thereby providing a smooth transition of the background image. Accordingly, this process may be carried out more than once and may be reflected about different axis of reflection (e.g., a horizontal axis, vertical axis, etc.) until the background is extended to the desired extent (e.g., the original frame size).

[0037] FIG. 5F illustrates a background separated video frame 500'' of the second real-time video stream that results from the background separation function 726. In other words, the background image 520 is separated from the scaled subject image 510' of the scaled video frame 500' of the second video stream resulting in a background separated video frame 500'' of the second real-time video stream.

[0038] FIG. 5G illustrates a combined video frame that results from the combining function 728, where the background extended video frame 400'' of the first video stream shown in FIG. 5E is combined with the background separated video frame 500'' of the second video stream shown in FIG. 5F into a combined video frame 600 of the combined video stream. The combined video frame 600 includes the scaled subject image 510' of the second video stream in an anterior portion and the scaled subject image 410' and the extended background image 420'' of the video frame of the first video stream in a posterior portion. In other words, FIG. 5G shows the combined video frame 600 with the scaled subject image 510' of the second video stream superimposed over the scaled subject image 410' and extended background image 420'' of the first video stream.

[0039] There are numerous techniques that may be used for background separation. Background separation of a video frame, as described herein, may be accomplished, for example, via video segmentation techniques, such as blue screen segmentation, pixel comparison, etc.

[0040] Blue screen background segmentation is performed, for example, by video capturing the subject images in front of a blue screen (e.g., a large flexible curtain of a predetermined solid color). The image processing used in separating the background image is sensitive to a particular shade and intensity of the predetermined color (e.g., bright blue, bright green, etc.). During the image processing of the background separation of the video frames, any pixels that match the designated screen color are labeled as background pixels while all other pixels are labeled as foreground. The background separated video frames can be achieved, for example, by removing the background labeled pixels from the video frame.

[0041] Pixel comparison background segmentation can be performed, for example, by video capturing and storing a picture of the background without any objects in the foreground. The image processing used in separating the background image includes comparing the color and intensity of each pixel of the video frame of a video stream to the corresponding pixel of the stored background image. In the event that the colors of the compared pixels match, the corresponding pixel of the video frame of the video stream is labeled as a background pixel. All the corresponding pixels of the video frame of the video stream that do not match the pixels of the stored background image are labeled as a foreground pixel.

[0042] In background segmentation, pixels adjacent the edges of the foreground object can be ambiguous and consequently cause artifacts to appear. A technique called alpha matting allows pixels to have some amount of transparency, a property called an "alpha value". A pixel at the edge of a foreground object may have, for example, a 50% alpha value, which means that pixel color will be a mixture of half of the foreground color and half of the background color. Alpha matting provides a way to provide smooth transitions at the edges of foreground objects, making them appear more natural. Other background separating techniques include, but are not limited to, motion sensitive background segmentation, alpha blending, and Bayesian matting. It is to be understood that background segmentation of a video frame of a real-time video stream may be performed using any number of these described or other techniques now known or herein developed and in any combination.

[0043] FIG. 6 is a flowchart for a second method 720' of combining subject images of corresponding video frames into a combined video frame. At 722, the video frames of first and second video streams are scaled. At 725, the background images of the video frames of both the first and second real-time video streams are separated. At 727, a supplemental background image is generated. At 729, the background separated video frames of the first and second real-time video streams are combined with the supplemental background image into a combined video frame of a combined real-time video stream.

[0044] FIGS. 7A-7H illustrate corresponding video frames of real-time video streams with subject images being combined into a combined video frame according to the method described in the flowchart of FIG. 6. FIG. 7A illustrates a video frame 400 of a first real-time video stream. Video frame 400 includes subject image 410 and background image 420. FIG. 7B illustrates a video frame 500 of a second real-time video stream. Video frame 500 includes subject image 510 and background image 520. FIG. 7C illustrates a scaled video frame 400' of the first real-time video stream resulting from the scaling function of 722. Scaled video frame 400' includes a scaled subject image 410' and a scaled background image 420'. FIG. 7D illustrates a scaled video frame 500' of the second real-time video stream resulting from the scaling function of 722. Scaled video frame 500' includes a scaled subject image 510' and a scaled background image 520'.

[0045] FIG. 7E illustrates a background separated video frame 401 of the first real-time video stream resulting from the background separation function 725. The background separated video frame 401 includes the scaled subject image 410'. FIG. 7F illustrates a background separated video frame 500'' of the second real-time video stream resulting from the background separation function 725. The background separated video frame 500'' of the second video stream comprises the scaled subject image 510'.

[0046] FIG. 7G illustrates an example of a supplemental background image 550 generated at function 727. The supplemental background image 550 is generated to be at least the size required to fill the backgrounds of combined video frames of the background separated video frames 401, 500'' of the first and second video streams (e.g., the original size of the full scale video frames of the video streams).

[0047] FIG. 7H illustrates an example of a combined video frame resulting from the combining function 729. The combined video frame 600 comprises the combined background separated subject images 410'', 510'' of FIGS. 7E and 7F onto the supplemental background image 550 shown in FIG. 7G. For example, the combined video frame 600 includes the background separated subject image 510'' of the second video stream being arranged in an anterior portion, the supplemental background image 550 in a posterior portion, and the background separated subject image 410'' of the first video stream in an intermediate portion.

[0048] It will be appreciated that the examples described above and illustrated in the drawings represent only a few of the many ways of implementing combining video frames of real-time video streams. Furthermore, the techniques described above and illustrated in the flow charts may be modified in any manner that accomplishes the functions described herein.

[0049] It is to be understood that the methods, apparatus, and logic described herein are not limited to the applications described herein, but may be utilized for various applications (e.g., on demand or live streaming video). Further, the methods, apparatus, and logic described herein may be used in any data communication system in which combining of video frames of video streams is desired. In addition, it is to be understood that the functions or methods described herein may be performed in any desired order. Similarly, it is to be understood that the functions or methods recited in the claims may be performed in any desired order.

[0050] Although the apparatus, system, and method are illustrated and described herein as embodied in one or more specific examples, it is nevertheless not intended to be limited to the details shown, since various modifications and structural changes may be made therein without departing from the scope of the apparatus, system, and method and within the scope and range of equivalents of the claims. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the apparatus, system, and method, as set forth in the following claims.

What is claimed is:

1. A method comprising:
 - receiving at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;
 - combining the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame; and
 - supplying the combined video stream to a video display for displaying the combined video stream.
2. The method of claim 1, wherein combining comprises:
 - scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
 - removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and
 - superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.
3. The method of claim 2, wherein the subject image of video frames of the first video stream comprises images of multiple videoconference participants and the subject image of video frames of the second video stream comprises images of multiple videoconference participants.
4. The method of claim 1, wherein combining comprises:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scaling the video frames of the second video stream and repositioning in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

5. The method of claim 4, wherein the second direction is opposite to the first direction.

6. The method of claim 1, wherein combining further comprises:

scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the video frames of the first and second video streams to produce first and second background separated video frames;

generating supplemental background image video frames that comprise a supplemental background image; and

superimposing corresponding ones of the first background separated video frames and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream.

7. The method of claim 1, wherein the first and second video streams are produced at a same video conferencing site.
8. The method of claim 1, wherein the first and second video streams are produced at different video conferencing sites.
9. The method of claim 1, wherein combining is performed at a site other than where the first and second video streams are produced.
10. The method of claim 1, wherein the subject images of video frames of the first and second video streams are images of video conference participants.
11. An apparatus comprising:
 - a first memory configured to store data for at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image; and
 - at least one data processor configured to combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a first combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame.
12. The apparatus of claim 11, wherein the at least one data processor is configured to combine the subject images of video frames by:
 - scaling the video frames of the first video stream and repositioning in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
 - removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

13. The apparatus of claim 11, wherein the at least one data processor is configured to combine the subject images of video frames by:

scaling the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

removing the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;

scaling the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;

extending the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and

superimposing the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

14. A system comprising the apparatus of claim 11, and further comprising:

a first video conferencing endpoint configured to communicate with the apparatus, the first endpoint including:

a first video camera configured to generate the first real-time video stream, wherein the subject image of the first real-time video stream comprises an image of a first video conferencing participant at the first endpoint;

a second video camera configured to generate the second real-time video stream, wherein the subject image of the second real-time video stream comprises an image of a second video conferencing participant at the first endpoint; and

a first control unit configured to forward the first and second real-time video streams to the apparatus; and

a second video conferencing endpoint configured to communicate with the apparatus, the second endpoint including:

a second control unit configured to receive the combined video stream of the apparatus; and

a display configured to receive and render the combined video stream from the control unit.

15. Logic encoded in one or more tangible media for execution and when executed operable to:

receive at least first and second real-time video streams, each of the first and second real-time video streams comprising video frames containing a picture comprising a subject image and a background image;

combine the subject images of corresponding video frames of the first and second video streams into a combined frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame; and

supply the combined video stream to a video display for displaying the combined video stream.

16. The logic of claim 15, wherein the logic that combines is configured to:

scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

remove the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream; and

superimpose the first background separated video frames onto corresponding ones of the video frames of the second video stream to produce combined video frames of the combined video stream.

17. The logic of claim 16, wherein the logic that receives is configured to receive video frames of the first video stream comprising images of multiple videoconference participants in the subject image and video frames of the second video stream comprising images of multiple videoconference participants in the subject image.

18. The logic of claim 15, wherein the logic that combines is configured to:

- scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;
- remove the background image in the first sequence of scaled video frames to produce first background separated video frames to be displayed in the anterior portion of the combined frames of the combined video stream;
- scale the video frames of the second video stream and reposition in a second direction the resulting pictures in the video frames of the second video stream to produce a second sequence of scaled video frames;
- extend the background image in the second sequence of scaled video frames to produce background extended video frames to be displayed in the posterior portion of the combined frames of the combined video stream; and
- superimpose the first background separated video frames onto corresponding ones of background extended video frames to produce combined video frames of the combined video stream.

19. The logic of claim 18, wherein the second direction is opposite to the first direction.

20. The logic of claim 15, wherein the logic that combines is configured to:

scale the video frames of the first video stream and reposition in a first direction the resulting pictures in the video frames of the first video stream to produce a first sequence of scaled video frames;

remove the background image in the video frames of the first and second video streams to produce first and second background separated video frames;

generate supplemental background image video frames that comprise a supplemental background image; and

superimpose corresponding ones of the first background separated video frames, and the second background separated video frames onto corresponding ones of the supplemental background video frames to produce the combined video frames of the combined video stream.

ABSTRACT

Techniques are described herein for combining video frames of two or more real-time video streams into combined video frames of a combined real-time video stream for continuous presence. Video frames of at least two real-time video streams are combined into combined video frames of a combined video stream. The combined video stream is supplied to a video display for displaying the combined video stream. Each video stream includes video frames with subject and background images. The subject images of corresponding video frames of the first and second video streams are combined into a combined video frame of a combined video stream such that the subject image of the first video stream is positioned in an anterior portion of the combined frame and the subject image of the second video stream is positioned in a posterior portion of the combined frame.

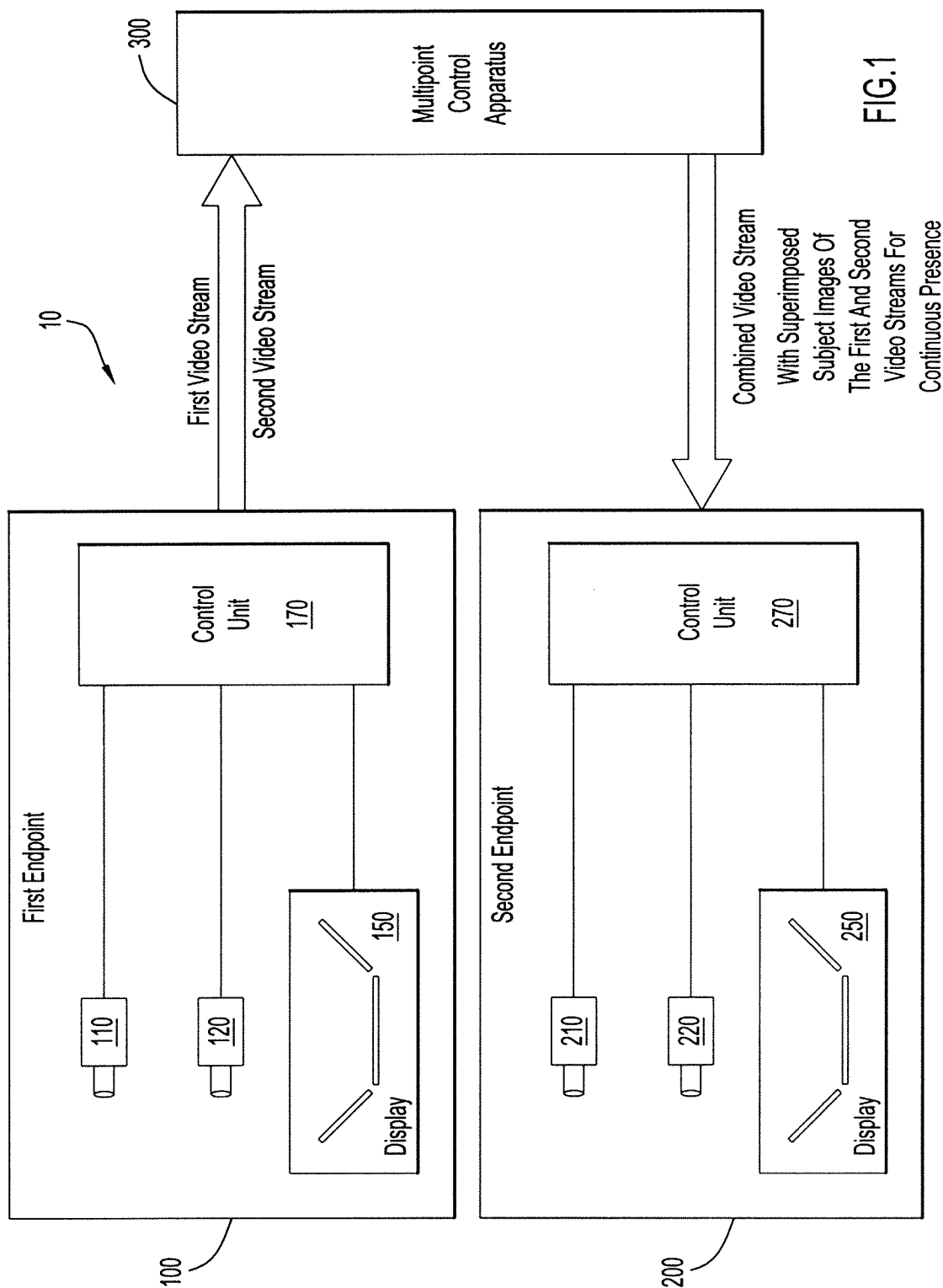


FIG.1

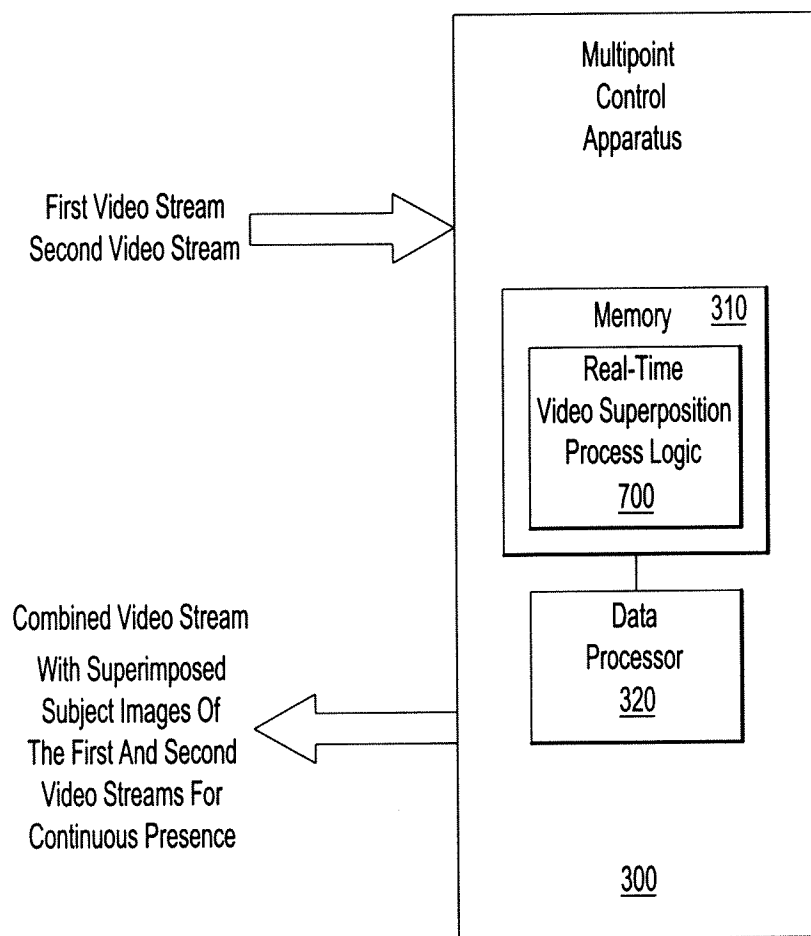


FIG.2

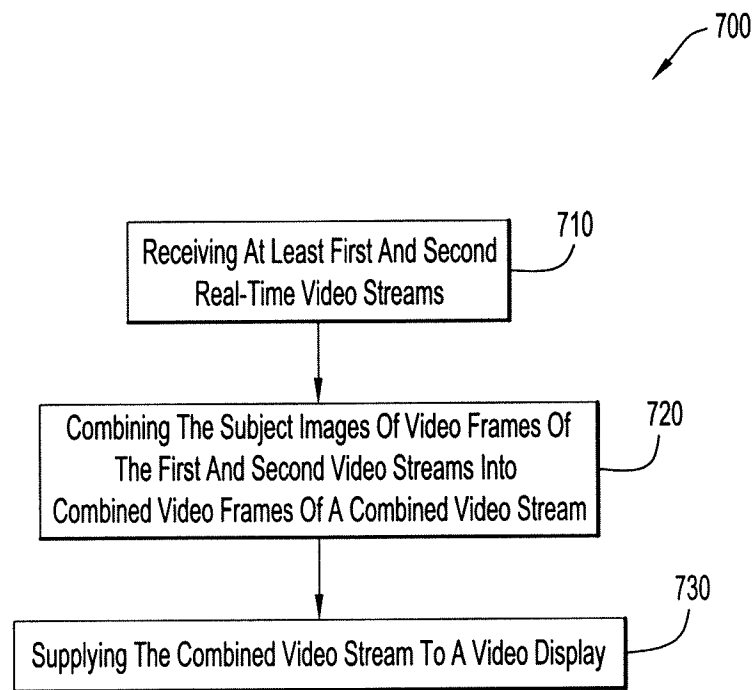


FIG.3

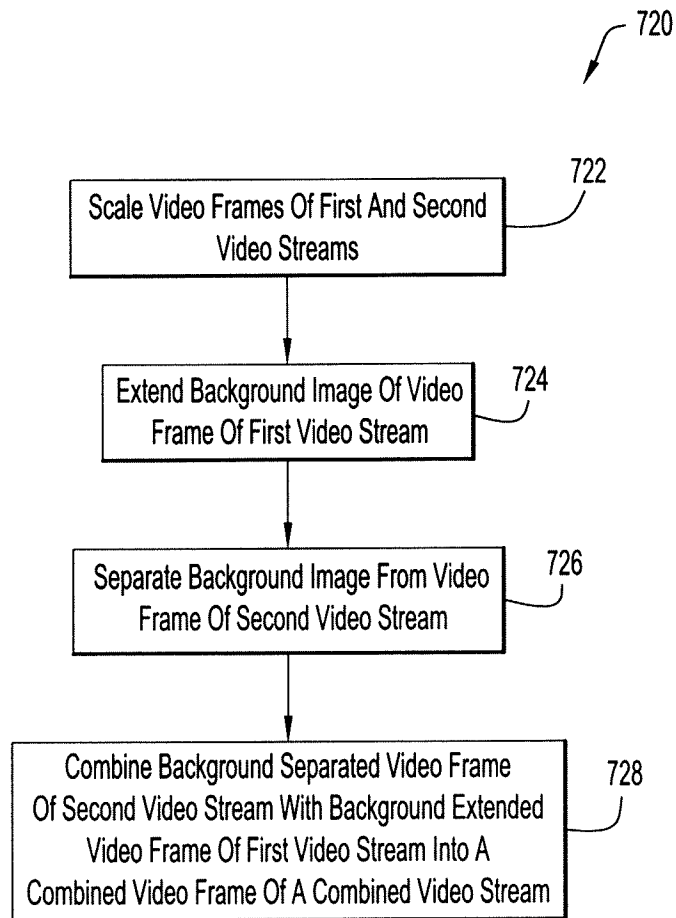


FIG.4

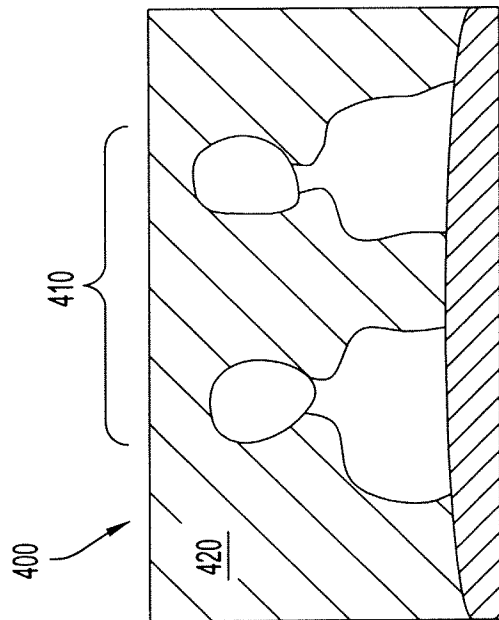


FIG. 5A

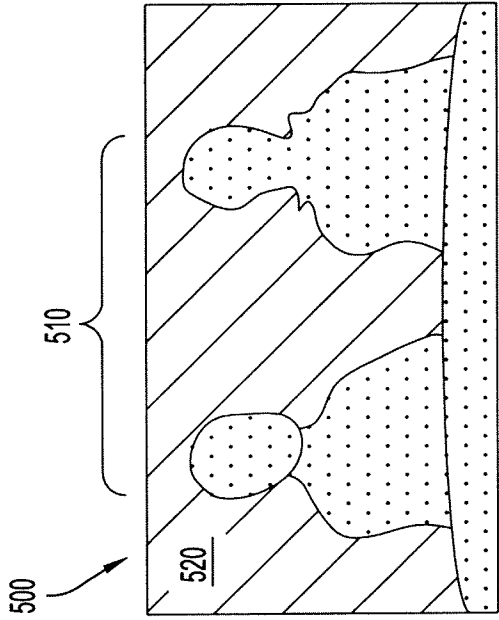


FIG. 5B

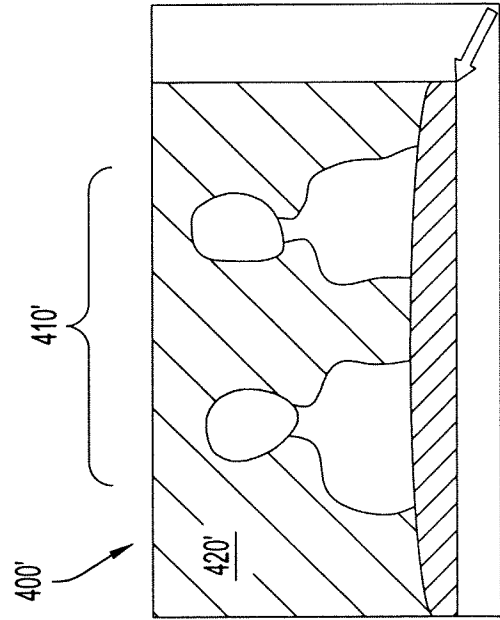


FIG. 5C

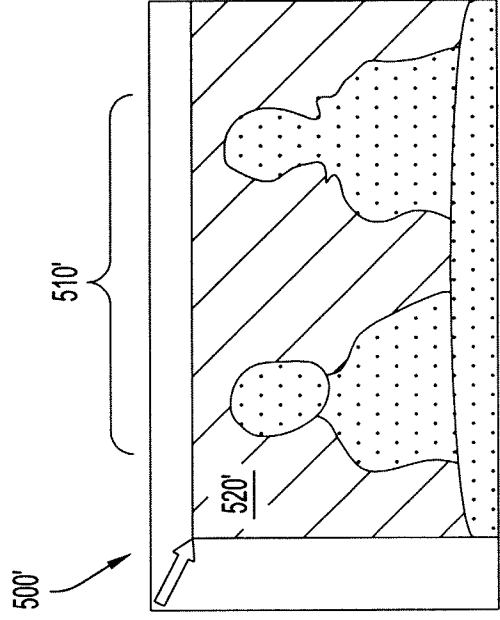
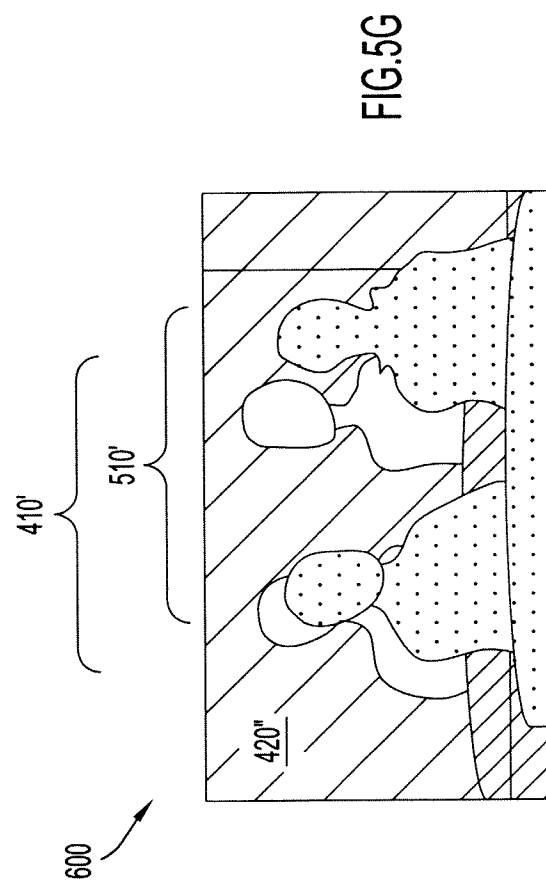
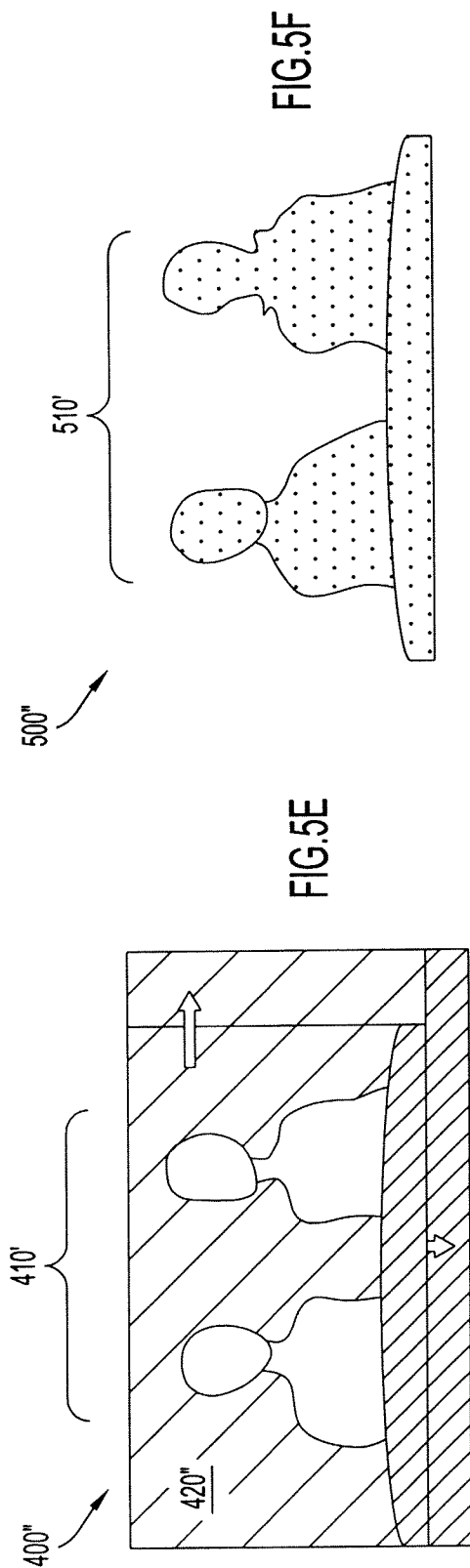


FIG. 5D



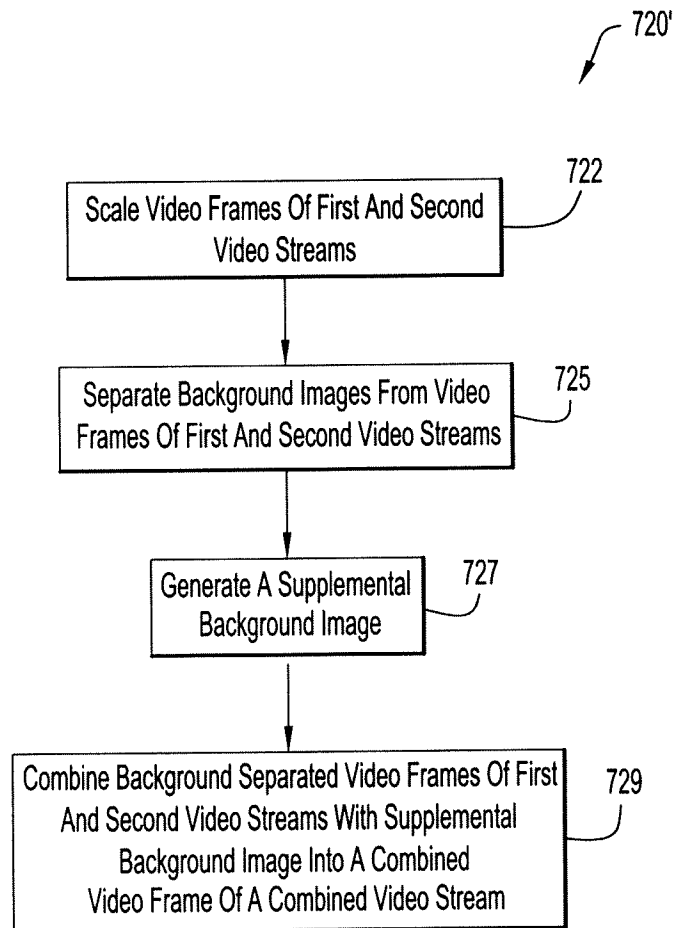


FIG.6

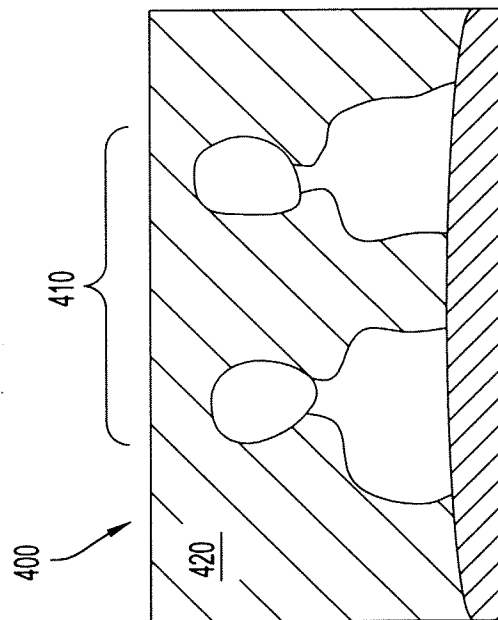


FIG. 7A

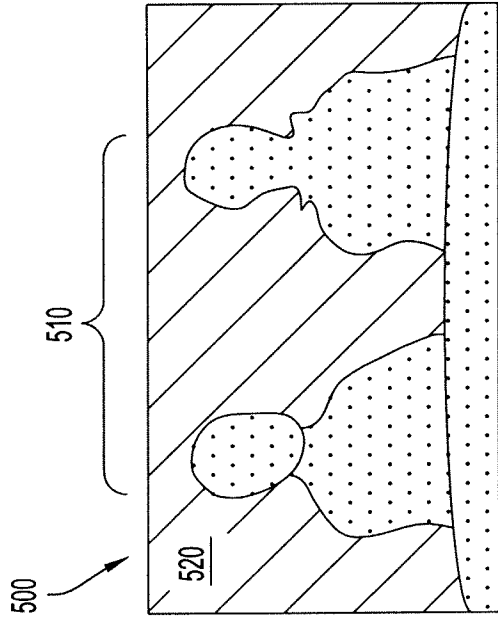


FIG. 7B

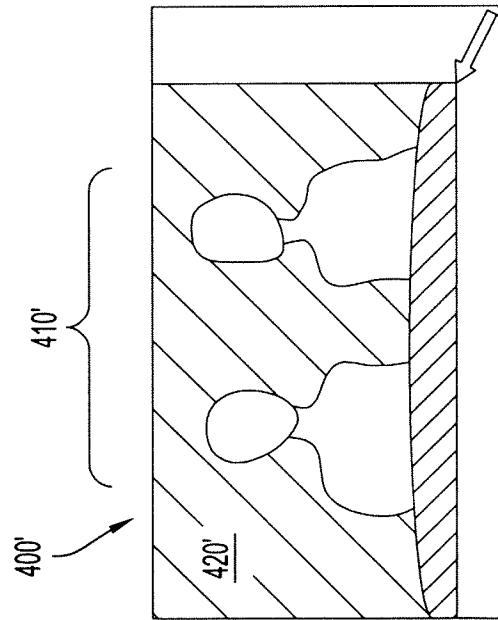


FIG. 7C

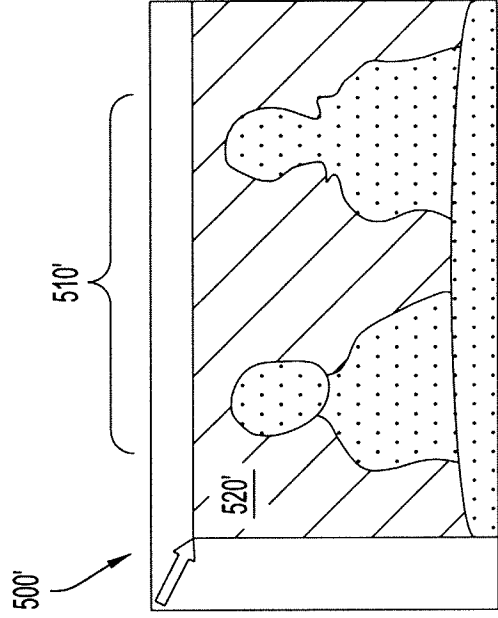


FIG. 7D

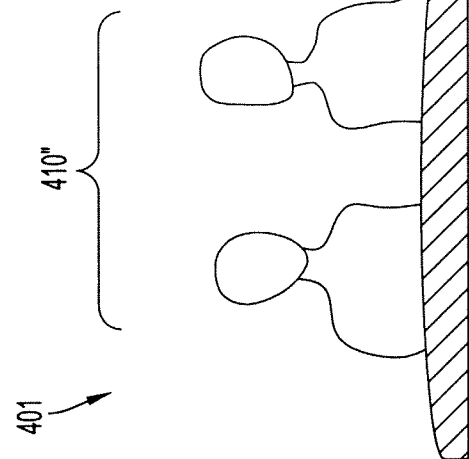


FIG. 7E

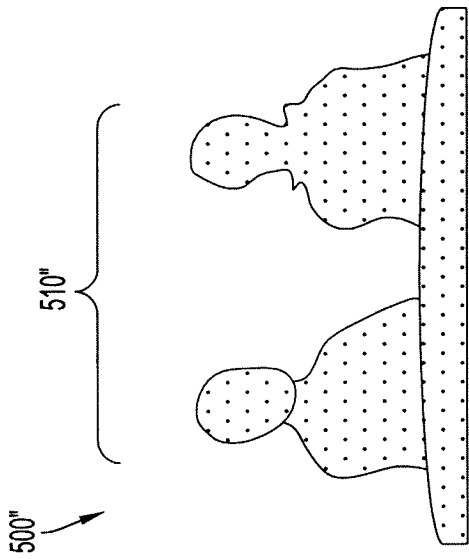


FIG. 7F

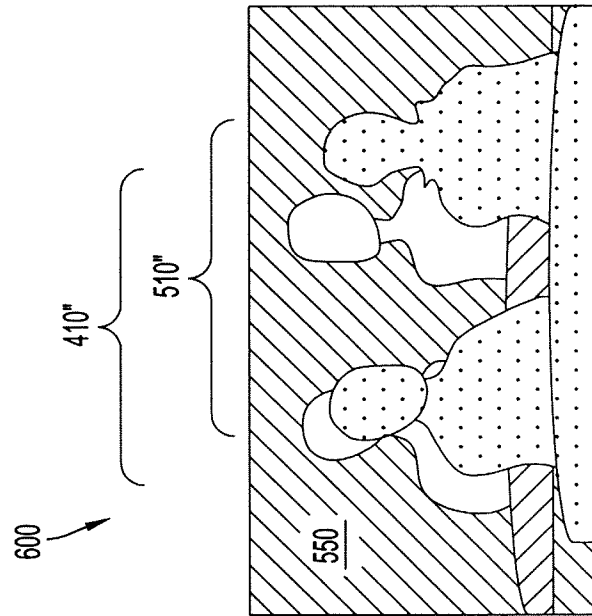


FIG. 7H

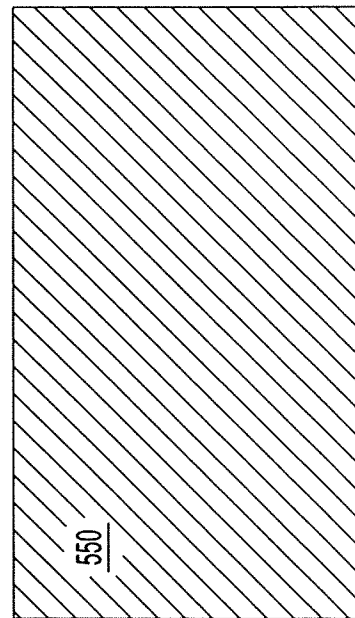


FIG. 7G

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	J. William Mauchly
Art Unit	
Examiner Name	
Attorney Docket Number	0370.0224C

CERTIFICATION STATEMENT

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

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

OR

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

☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

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

Signature	/D. Andrew Floam/	Date (YYYY-MM-DD)	2009-03-26
Name/Print	D. Andrew Floam	Registration Number	34597

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	J. William Mauchly	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	0370.0224C	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	J. William Mauchly
Art Unit	
Examiner Name	
Attorney Docket Number	0370.0224C

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	Not Yet Assigned
Applicant	:	J. William Mauchly
Confirmation No.	:	Unknown
Filed	:	Herewith
TC/A.U.	:	Unknown
Examiner	:	Unknown
Customer No.	:	27896
Docket No.	:	0370.0224C
Title	:	Video Superposition for Continuous Presence

INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §§ 1.97 & 1.98

Pursuant to the duty imposed by 37 C.F.R. §1.56 to disclose information which may be material to the patentability of the above-identified patent application, the Applicant would like to direct the Examiner's attention to the documents listed on the enclosed Information Disclosure Citation Form (PTO/SB/08A).

Applicant hereby submits the attached IDS under:

- ☒ 37 C.F.R. 1.97(b) (i.e., within three months of the filing date of the application; within three months of the date of entry of the national stage application; before the mailing of a first Office action; or before the mailing of a first Office action after the filing of a request for continued examination).
- ☐ 37 C.F.R. 1.97(c) (i.e., after the mailing of a first Office action, but before the close of prosecution). The IDS is accompanied by *one* of: The appropriate statement (indicated on Form PTO/SB08a) or (2) the fee set forth in § 1.17(p).
- ☐ 37 C.F.R. 1.97 (d) (i.e., after the close of prosecution, but on or before payment of the issue fee). The IDS is accompanied by *both* of (1) the appropriate statement (indicated on Form PTO/SB08a) and the fee set forth in § 1.17(p).

- ☐ The IDS cites foreign documents not in English. Pursuant to 37 C.F.R. 1.98(a)(3), a concise explanation of the relevance is provided as indicated below:
- ☐ Enclosed is a copy of a non-English publication(s) _____. Applicant submits an English-language version of the search report or action, which cites such non-English language publication(s) and indicates the degree of relevance found by the foreign office.
- ☐ Enclosed is a copy of a non-English publication(s) _____. Applicant submits an English language abstract of the non-English publication(s).
- ☐ Other:
- ☒ The IDS cites foreign patent documents in English and/or Non-Patent Literature (NPL) Documents. Applicant submits a copy of the Abstract or of the complete publication.
- ☐ Pursuant to 37 C.F.R. 1.98(a)(2)(iii), enclosed is a copy of pending patent Application Serial No. _____.
- ☐ No copies of the non-English or non-patent publications listed on the attached Form PTO/SB/08A are being provided pursuant to 37 C.F.R. §1.98(d) because the publications were previously cited by or submitted to the Office in prior Application Serial No. _____, to which the above-identified application claims priority under 35 U.S.C. §120.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicant does not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the present application.

The Director is hereby authorized to charge any additional appropriate fees that may be required for the above-identified application, and to credit any overpayment, to Deposit Account No. **05-0460**.

Dated: March 26, 2009

Respectfully submitted by:

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- (21) International Application Number: PCT/SE00/02278 (81) Designated States (*national*): EE, LT, LV, NO, US.
- (22) International Filing Date: 17 November 2000 (17.11.2000) (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- (25) Filing Language: English
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- (71) Applicant (*for all designated States except US*): TELIA AB [SE/SE]; Mårbackagatan 11, S-123 86 Farsta (SE).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): NYSTEDT, Per [SE/SE]; Folkungagatan 132 C, S-116 30 Stockholm (SE).

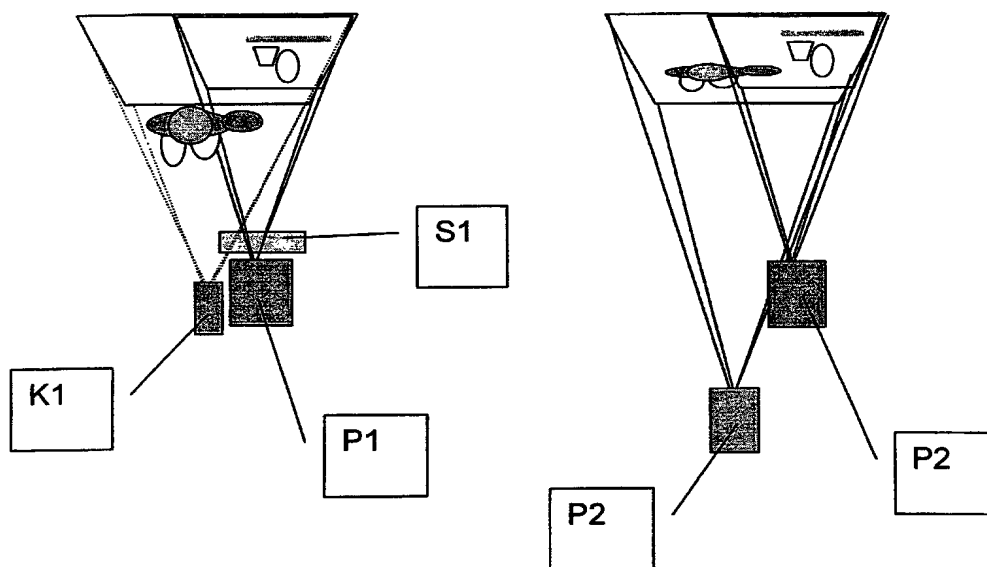
Published:

- With international search report.
- Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

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

(54) Title: PROCEDURE AND ARRANGEMENT AT VIDEO CONFERENCE SYSTEM

Example 1



(57) Abstract: Procedure and arrangement to transmit still pictures and/or moving pictures in a video conference system to a first presentation surface area at which one or more objects (persons) and a second presentation surface area is filmed by a camera, at which said objects wholly or partially during the filming cover said second presentation surface area. The filming of said objects and said second presentation surface area is made when no picture is shown on said second presentation surface area.

TITLE OF THE INVENTION

Procedure and arrangement at video conference system

TECHNICAL FIELD

5 Procedure and arrangement to transmit stills and/or moving pictures in a video conference system to a first presentation surface area at which one or more subjects (persons) and a second presentation surface area are filmed by a camera, at which said objects wholly or partially
10 during the filming cover said second presentation surface area.

PRIOR ART

Video conference systems are generally previously known and
15 are today used in a plurality of different applications. By the Swedish patent application SE-9902626-2 such a conference system is shown.

A common application is that one in a company wants to have possibility to communicate with other units of a company in
20 different localities. Another application is at different types of education/training situations. The video conference system then is built up in such a way that there is a video camera and presentation monitor, or other presentation surface area, at either unit and it is
25 possible to transmit both sound and video of the talking person.

The most common method today is that the commentator is standing at the side of his/her presentation where he/she can be filmed without the presentation, which is
30 constituted by some type of writing board or other object functioning as means, being part of the video. This has the big disadvantage that the commentator cannot point within the presentation. An illustration of this situation is shown in Figure 1.

35

TECHNICAL PROBLEM

In connection with video conference, one preferably wants to have possibility to film both the one who is making the presentation and the presentation material he/she is
5 showing, because the lecturer frequently is pointing within his/her material. A big problem on these occasions then is that video recording of presentation pictures does not reproduce the material into its original quality, the solution will be poor, and there are frequently problems
10 with the light. In reality today the presentation material and the lecturer are not filmed at the same time, with one video camera, when a good quality is wanted. The normal way of solving this is to apply the method according to the previously known technology and film the lecturer and the
15 presentation surface area separately. Then a separation of data and video signals and good quality at the receiver is achieved. The present invention provides a video conference arrangement which results in that it will be possible to film both the lecturer and the presentation surface area
20 with good quality, and that the lecturer can point within the presentation surface area without quality degradation.

SOLUTION

The solution is shown by the statements in the patent
25 claims.

ADVANTAGES

The invention provides a lot of advantages. Firstly a way and an arrangement is achieved which reproduces a lecturer
30 and presentation material in its original condition. Further, a better solution is achieved. Another advantage is that the commentator can point within his/her presentation material during the filming, without causing a degradation of the showing of the film at the
35 participants in the video conference.

LIST OF FIGURES

Figure 1 shows in a schematic way the previously known way of filming, from which the invention proceeds.

5 A. As it functions today. Filmed surface area is marked with dotted rectangle; data presentation is transmitted separately.

Figure 2 shows a filmed commentator and the presentation surface area and its reproduction at a presentation.

B. The commentator can point within the presentation.

10 Figure 3 shows persons meeting, though being in different localities.

Figure 4 shows a system configuration according to the invention.

Figure 5 shows how the light is synchronized at filming.

15 Figure 6 shows how persons are meeting at a common meeting place.

DETAILED DESCRIPTION

In Figure 1 is shown the previously known technology in connection with video conference where a person (in dotted rectangle) lecturing is filmed by a camera (not shown) together with a presentation surface area which is also filmed by a camera (not shown). This film information then is transmitted in ordinary way to a remotely located place where the person is projected by a projector on some kind of surface area. The same applies to the presentation material that will be projected on a suitable surface. This figure consequently shows a usual way of transmitting information to another place and sitting in a video conference.

20
25
30

When one wants to transmit, in a video conference system, a moving picture of a person and it is only the picture of the person that shall be transmitted, the normal procedure is that the person is filmed against a neutral background with one in advance defined quality. The surface area

35

against which the person is filmed can for instance be white. When the person is standing in front of a surface area with only one quality, there are no problems to separate the person from the background. This is made by
5 means of known technology. By means of blue screen chromakey, it will be possible to eliminate the background in a picture. This can be done when one knows the exact quality of the background; in blue screen chromakey one knows, for instance, that the background is entirely blue,
10 which means that all picture elements that are all blue can be eliminated.

However, the fact is that if one has one by light projected picture of a moving object, or a still picture of, for
15 instance, an overhead transparency on the surface that is located behind the person being filmed, it is not so easy to separate the person from the picture that is shown on the surface behind, which constitutes a presentation surface area.

20

The solution of this, according to the invention, is to film the person and the presentation surface area when the presentation picture is not shown.

25 A number (about 7 and upwards) times per second the projector is put out (or blocked out/dimmed) (and the projection surface area is given one single distinguishable quality) during a short interval of time.

The time interval must be sufficiently long to make it
30 possible for the camera to take a picture, and the interval at the same time must be sufficiently short to prevent present persons who are looking directly at the presentation, from perceiving this interval. Cameras today have shutter speeds down to 1/500 second at normal
35 illumination. If, during this short time interval (1/500 second), the projector is put out or blocked/dimmed, it is

not noticed by persons present at the presentation.
However, it will be possible to film during this recurrent
short interval. That will make it possible to separate
background and person by means of chromakey (the luminance
5 or chrominance). When the pictures reach the receiver, they
are mixed or superimposed on a projection surface area that
shall show the pictures, without creating a poor result
(impaired contrast or interference). One alternative is to
transmit the video signal as it is, without separating
10 background from person and then mix the pictures at
receiver location. See Figure 2.

Another effect that occurs is that there is no feedback in
the video signal if both sides (both video conference
15 localities) are transmitting video of the same surface
area. This means that it will be possible to meet up on the
stage, at the presentation surface area. See Figure 3.

Above said does not only apply to projectors; the
20 technology can also be used together with other picture
presentation equipment.

Below two examples are described of how the technology can
be used.

25 Embodiment example 1 is shown and illustrated in Figure 4.
In the figure, S1 indicates a so called LCD-shutter, or a
device that blocks the camera at certain times. An LCD-
shutter either lets light pass, or is not transparent. The
camera K1 and the LCD-shutter are "counter-synchronized",
30 i.e. the light from the projector P1 does not reach the
screen when the camera K1 is filming. This is schematically
shown by the synchronization curves that are shown in
Figure 5. The camera arrangement shows to the left in the
35 figure a transmitter end located in a room where a
commentator is, and diagonally behind the commentator there

is a presentation surface area where pictures can be projected by a projector P1.

To the right in the figure there is shown a receiver end where the commentator is projected by a projector P2 and is
5 shown full-figure at the side of the there located presentation surface area.

Before the by camera K1 recorded video is transmitted, the background is eliminated by "ordinary" chromakey and a
10 black background is added there instead; in that way the light from the background will not interfere with the presentation material. At the receiver end the two pictures are superimposed, i.e. the video and transmitted presentation material.

15

The procedure according to the invention is that still pictures and/or moving pictures are transmitted from a room where a person is giving for instance a lecture, to a remotely located room where there is equipment to receive
20 and via projectors project these pictures on a first presentation surface area.

In the room where video recording is made, and from where the transmission is made, there is a camera that films a lecturer who at his/her side has a presentation surface
25 area on which a projected picture is shown. The video filming of the lecturer and the presentation surface area is made by one camera. The filming of the lecturer and the presentation surface area is made when no picture is shown on the presentation surface area, which occurs 7 or more
30 times per second during the filming. At the times when no picture is shown on the presentation surface area, the projector that produces the picture on the projection surface area is blocked out by an LCD-shutter. This is not noticed by the audience who are there looking at the
35 presentation. Because the time when the picture is not

shown on the presentation surface area is very short, the eye will not have time to perceive it.

Embodiment example 2 is shown in Figure 6.

5 In this example the situation is illustrated schematically where two in relation to each other remotely located rooms are in contact with each other, and the person who is not physically present will be "present" as a projected picture from the second room. At this example there are parallel
10 equipment in the two rooms represented by camera, projector and LCD-shutter. As for the rest, the transmission will function in the same way as has previously been described. Two persons consequently can meet at a common two-dimensional meeting place.

15

The invention is not limited to the above shown examples, but can be modified in a lot of ways within the frame of the idea that is given in the patent claims.

PATENT CLAIMS

1. Procedure to transmit still pictures and/or moving
pictures in a video conference system to first
5 presentation surface area at which one or more objects
(persons) and a second presentation surface area are
filmed by a camera, at which said objects wholly or
partially during the filming cover said second
presentation surface area, c h a r a c t e r i z e d in
10 that the filming of said objects and said second
presentation surface area is made when no picture is
shown on said second presentation surface area.
2. Procedure as claimed in patent claim 1,
15 c h a r a c t e r i z e d in that a projector which
produces a picture on the second presentation surface
area is blocked for a short moment.
3. Procedure as claimed in patent claim 2,
20 c h a r a c t e r i z e d in that the second
presentation surface area has one in advance defined
quality which appears during the time the presentation
surface area is blocked out.
- 25 4. Procedure as claimed in patent claim 2,
c h a r a c t e r i z e d in that the second
presentation surface area is blocked out 7 or more times
per second.
- 30 5. Procedure as claimed in patent claim 1,
c h a r a c t e r i z e d in that the second
presentation surface area shows a moving picture of one
or more objects (persons).
- 35 6. Arrangement to transfer or transmit still pictures
and/or moving pictures in a video conference system to a

first presentation surface area, where one or more objects (persons) and a second presentation surface area are filmed by cameras, at which said objects wholly or partially during the filming cover said second presentation surface area, c h a r a c t e r i z e d in that the arrangement includes

- a transmitter room where a person is giving a lecture or the like.
- a second presentation surface area where some type of presentation is shown within which the lecturer is pointing, at the lecture.
- at least one camera that films the lecturer and the presentation surface area.
- a projector.
- an LCD-shutter or a device that blocks the camera at given times.
- a remotely located room which receives information from the first room which includes
- at least one projector.
- a first presentation surface area.

7. Arrangement as claimed in patent claim 6, c h a r a c t e r i z e d in that LCD-shutter either lets light pass, or is not transparent.
8. Arrangement as claimed in patent claim 6, c h a r a c t e r i z e d in that LCD-shutter will be not transparent 7 or a more times per second.

9. Arrangement as claimed in patent claim 6,
c h a r a c t e r i z e d in that one of said cameras
films both said objects and the second presentation
surface area, at which the second said camera films
5 said second presentation surface area.
10. Arrangement as claimed in patent claim 6,
c h a r a c t e r i z e d in that said cameras are
"counter-synchronized", i.e. the light from said
10 projector does not reach the screen when the camera
that films both said objects and the second
presentation surface area, is filming.
11. Arrangement as claimed in patent claim 6,
15 c h a r a c t e r i z e d in that the two rooms serve
as transmitter room and receiver room at the same time
and includes necessary equipment for this.

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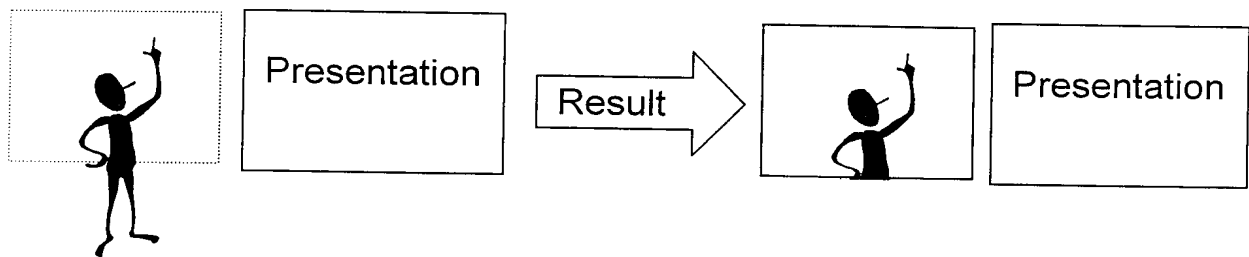


Figure 1

A.

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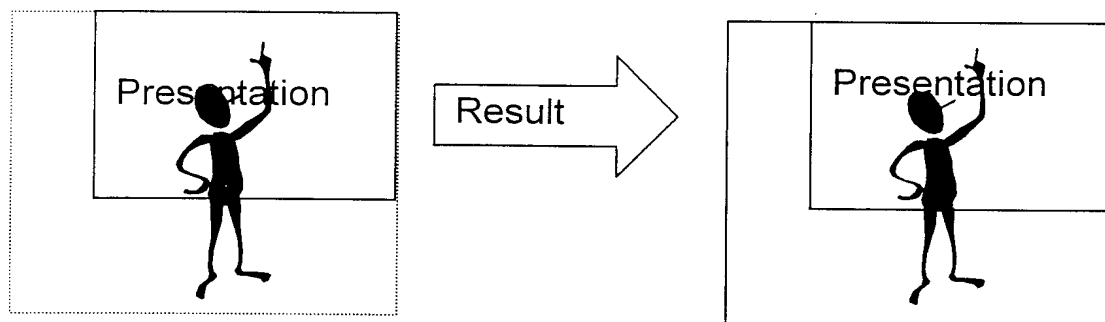


Figure 2

B.

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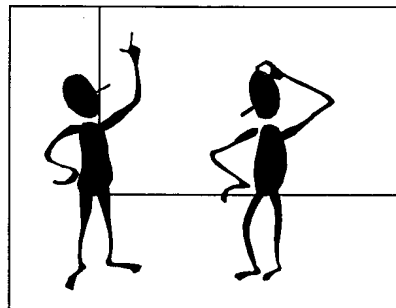
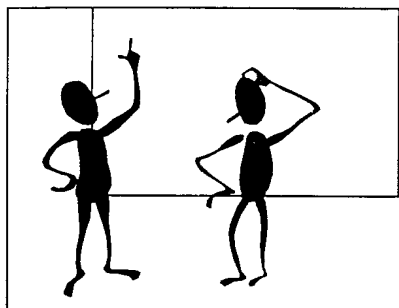


Figure 3

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Example 1

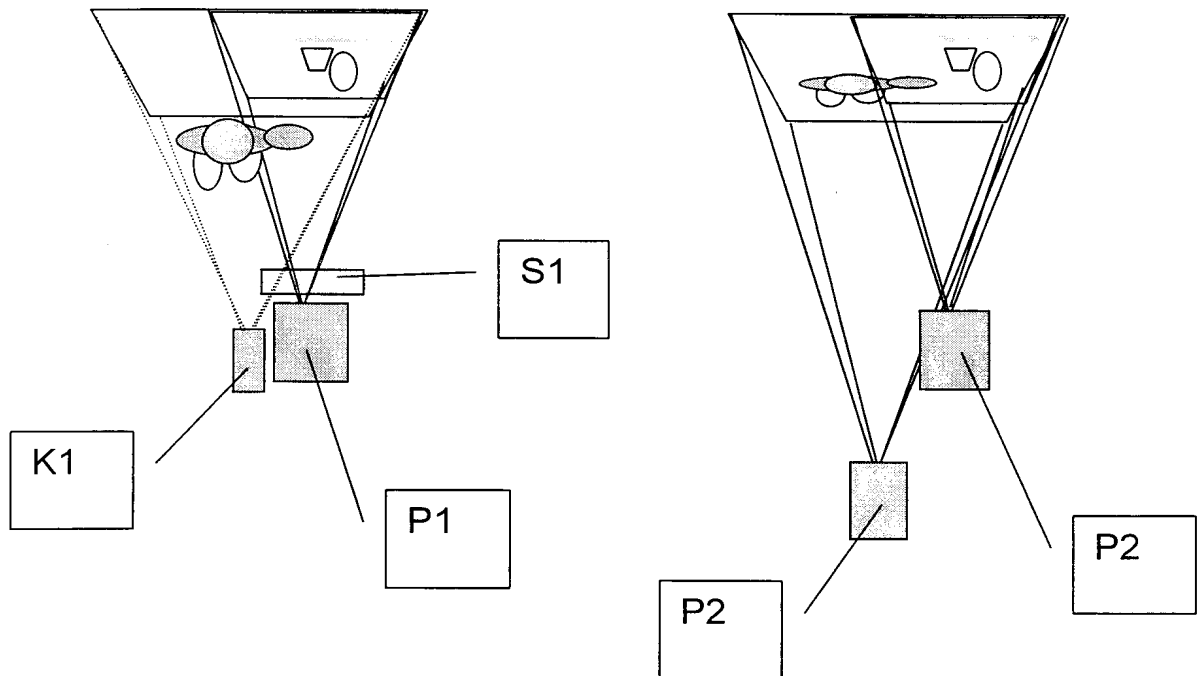


Figure 4

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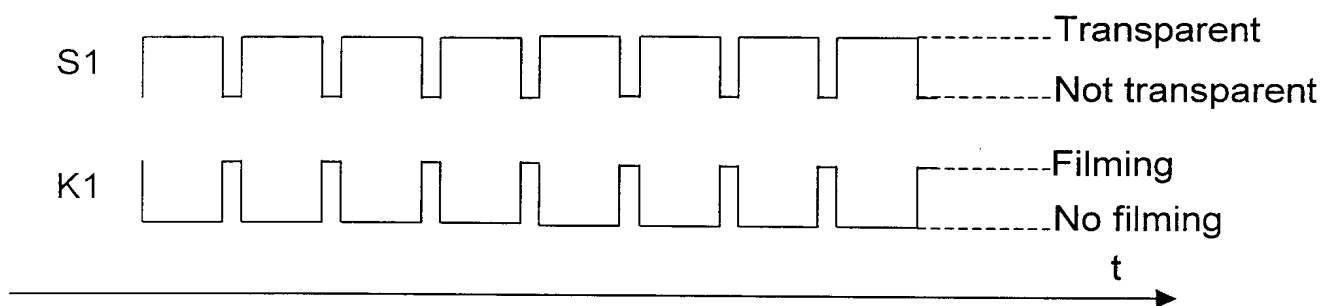


Figure 5

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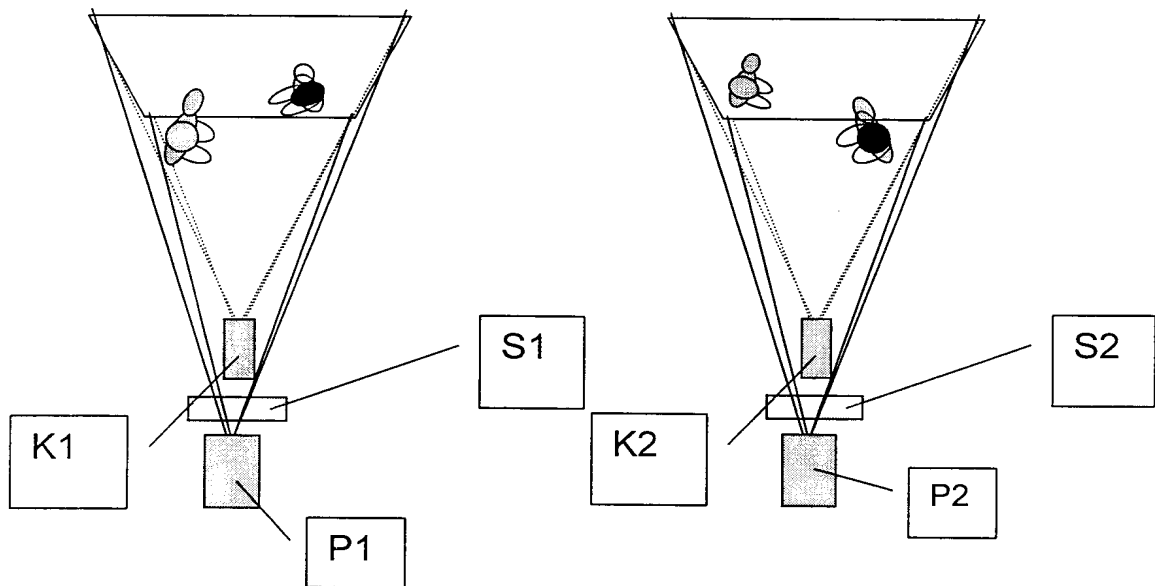


Figure 6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/02278

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04N 5/74, H04N 7/15 // G03B 19/00, G03B 21/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: H04N

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

SE,DK,FI,NO classes as above

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 9214924 A (CANON KK)1997-08-15 (abstract) World Patents Index (online). London, U.K.: Derwent Publications, Ltd. (retrived on 2000-09-05) Retrieved from: EPO WPI Database. DW199743 Accession No. 90-121923 JP 9214924 A (CANON INC) 1997-12-25 (abstract). (online) (retrived on 2000-09-05).Retrieved from EPO PAJ Database see abstract and figure	1
Y	--	6-9,11
A	JP 60208184 A (NIPPON DENKI KK) 1985-10-19 (abstract). (online) (retrived on 2000-09-05). Retrieved from EPO PAJ Database see abstract and figure --	1-5

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

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

29 March 2001

Date of mailing of the international search report

03 -04- 2001

Name and mailing address of the ISA/

Swedish Patent Office

Box 5055, S-102 42 STOCKHOLM

Facsimile No. +46 8 666 02 86

Authorized officer

Jesper Bergstrand/LR

Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/02278

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5400069 A (D. BRAUN ET AL), 21 March 1995 (21.03.95), see the whole document --	1-5
A	US 5751445 A (M.MASUNAGA), 12 May 1998 (12.05.98), see the whole document --	1-5
Y	Patent Abstracts of Japan, abstract of JP 10-133306 A (IND TECHNOL RES INST), 22 May 1998 (22.05.98), figure, abstract --	6-9,11
P,Y	WO 0052526 A1 (INNOVATIVE PROPERTIES COMPANY), 8 Sept 2000 (08.09.00), page 19, line 21 - line 26; page 23, line 1 - line 21, figure 13, abstract	6-9,11
P,A	--	10
A	US 5990932 A (J.BEE ET AL), 23 November 1999 (23.11.99), whole document --	6-11
A	Patent Abstracts of Japan, abstract of JP 9-83915 A (NIKON CORP), 28 March 1997 (28.03.97), abstract --	6-11
A	Patent Abstracts of Japan, abstract of JP 8-9356 A (NEC ENG LTD), 12 January 1996 (12.01.96), abstract -- -----	6-11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE00/02278

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

A first invention according to claims 1-5 concerning a video conference system, where filming of an object in front of a presentation area is performed, when no picture is showed on the presentation area and a second invention according to claims 6-11 concerning a video conference system, which includes a room for sending, two different presentation areas, camera, projector, LCD-shutter, and a room for receiving.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims: it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

25/02/01

International application No.

PCT/SE 00/02278

Patent document cited in search report			Publication date	Patent family member(s)		Publication date
US	5400069	A	21/03/95	DE	69420270 D,T	18/05/00
				EP	0704135 A,B	03/04/96
				JP	2846120 B	13/01/99
				JP	8508151 T	27/08/96
				WO	9430016 A	22/12/94
US	5751445	A	12/05/98	JP	5244553 A	21/09/93
WO	0052526	A1	08/09/00	AU	1806700 A	21/09/00
US	5990932	A	23/11/99	EP	0924929 A	23/06/99
				JP	11317936 A	16/11/99

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	VIDEO SUPERPOSITION FOR CONTINUOUS PRESENCE			
First Named Inventor/Applicant Name:	J. William Mauchly			
Filer:	D. Andrew Floam/Paula Verkuilen			
Attorney Docket Number:	0370.0224C			
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:	5390838
Application Number:	12471567
International Application Number:	
Confirmation Number:	6112
Title of Invention:	VIDEO SUPERPOSITION FOR CONTINUOUS PRESENCE
First Named Inventor/Applicant Name:	J. William Mauchly
Customer Number:	27896
Filer:	D. Andrew Floam/Paula Verkuilen
Filer Authorized By:	D. Andrew Floam
Attorney Docket Number:	0370.0224C
Receipt Date:	26-MAY-2009
Filing Date:	
Time Stamp:	11:24:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 1090
RAM confirmation Number	7863
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part (.zip if appl.)	Pages (if appl.)
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1	Transmittal of New Application	NewUtilityTransmittal.pdf	30318	no	2
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Warnings:					
Information:					
2	Application Data Sheet	AppDataSheetCisco.pdf	964683	no	4
			a51e678dc27a40f054929c6c6d39c128e8e88483		
Warnings:					
Information:					
3		Application0224C.pdf	1489663	yes	31
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	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	14	
	Claims		15	21	
	Abstract		22	22	
	Drawings-only black and white line drawings		23	31	
Warnings:					
Information:					
4	Transmittal Letter	IDSxml.pdf	28975	no	2
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Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Filed (SB/08)	IDS.pdf	607726	no	4
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Warnings:					
Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
6	Foreign Reference	WO00137559A1.pdf	601123	no	21
			9e1dc6f1f15633a8a4140e4c21abd1bb0126458cc		
Warnings:					
Information:					
Petitioner's Exhibit 1002					

7	Oath or Declaration filed	ExecutedDeclaration.pdf	3186050 21dcd5b19479edfb4d78323ec8979a579ec d0323	no	4
Warnings:					
Information:					
8	Fee Worksheet (PTO-875)	fee-info.pdf	32894 c46a205a8ce7d517b9b78fbc1807eda2f79 b73e3	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			6941432		
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.					

**DECLARATION FOR PATENT APPLICATION, POWER OF
ATTORNEY & DESIGNATION OF CORRESPONDENCE ADDRESS**

As below named inventor, I hereby declare that:

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

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

VIDEO SUPERPOSITION FOR CONTINUOUS PRESENCE

the specification of which (check one)

- ☒ is attached hereto.
- ☐ was filed on _____ as United States Application Serial No. _____
or PCT International Application No. _____ and was amended on _____ (if applicable).

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

I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 CFR §1.56.

**PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS (6 MONTHS FOR
DESIGN) PRIOR TO THIS APPLICATION AND ANY PRIORITY CLAIMS UNDER 35 U.S.C.
§ 119(a)-(d)**

I hereby claim foreign priority benefits under 35 USC § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
Number	Country	Day/Month/Year Filed	Yes	No

**CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)
(35 U.S.C. § 119(e))**

I hereby claim the benefit under Title 35, United States Code, § 119 (e) of any United States provisional application(s) listed below:

Provisional Application Number	Filing Date

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

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

Prior U.S. Application(s) or PCT International Applications Designating the U.S. for benefit under 35 U.S.C. §120

U.S. APPLICATIONS			STATUS (check one)		
U.S. APPLICATION NO.	U.S. FILING DATE (day, month, year)		Pending	Patented	Abandoned
			☐	☐	☐
			☐	☐	☐
PCT APPLICATIONS DESIGNATING THE U.S.					
PCT APPLICATION NO.	PCT FILING DATE (day, month, year)	U.S. APPLICATION NOS. (if any)			
			☐	☐	☐
			☐	☐	☐

Power of Attorney: As a named inventor, I hereby appoint the practitioners under Customer Number

27896

jointly, and each of them severally, my attorneys at law/patent agent(s), with full power of substitution, delegation and revocation, to prosecute this application and any continuations, divisions, reissues, and reexaminations thereof, to receive the patent(s), to transact all business in the United States Patent and Trademark Office connected therewith and to act on my behalf before the competent International Authorities in connection with any and all international applications filed.

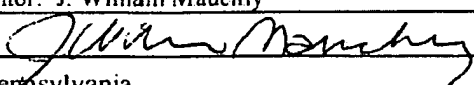
Send correspondence to:

**EDELL, SHAPIRO & FINNAN, LLC
1901 Research Boulevard, Suite 400
Rockville, MD 20850
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Fax: (301) 762-4056**

Direct telephone calls to:

**D. Andrew Floam
(301) 424-3640**

I hereby declare that all statements made herein on 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 18 USC §1001 and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full Name of First Inventor: J. William Mauchly	
Inventor's Signature: 	Date: 3/22/09
Residence: Berwyn, Pennsylvania	
Citizenship: USA	
Mailing Address: 199 Cassatt Road, Berwyn, Pennsylvania 19312	

Full Name of Second Inventor: Richard Thayer Wales	
Inventor's Signature:	Date:
Residence: Sunnyvale, California	
Citizenship: USA	
Mailing Address: 760 Caribou Court, Sunnyvale, California 94087	

I hereby declare that all statements made herein on 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 18 USC §1001 and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full Name of First Inventor: J. William Mauchly	
Inventor's Signature:	Date:
Residence: Berwyn, Pennsylvania	
Citizenship: USA	
Mailing Address: 199 Cassatt Road, Berwyn, Pennsylvania 19312	

Full Name of Second Inventor: Richard Thayer Wales	
Inventor's Signature: <i>Richard Thayer Wales</i>	Date: 7/24/07
Residence: Sunnyvale, California	
Citizenship: USA	
Mailing Address: 760 Caribou Court, Sunnyvale, California 94087	

Filing Date: 05/26/09

Approved for use through 7/31/2006. OMB 0651-0032

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 12/471,567	
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(j))	20	minus 20 =	x\$26		x\$52	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	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 \$270 (\$135 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)		
SMALL ENTITY		OTHER THAN SMALL ENTITY				
RATE (\$)		ADDITIONAL FEE (\$)		RATE (\$)		ADDITIONAL FEE (\$)
X =		X =		X =		
X =		X =		X =		
N/A		N/A		N/A		
TOTAL ADD'T FEE		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.