8356039

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

March 15, 2023

THIS IS TO CERTIFY THAT ANNEXED IS A TRUE COPY FROM THE RECORDS OF THIS OFFICE OF THE FILE WRAPPER AND CONTENTS OF:

APPLICATION NUMBER: ***17/751,283***
FILING DATE: ***May 23, 2022***
PATENT NUMBER: ***11470243***
ISSUE DATE: ***October 11, 2022***

Certified by

Kathi

Performing the Functions and Duties of the
Under Secretary of Commerce
for Intellectual Property
and Director of the United States
Patent and Trademark Office

PTO/AIA/15 (10-17)
Approved for use through 11/30/2017. OMB 0651-0032
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	20004/80842US08
First Named Inventor	Christen V. Nielsen
Title	METHODS AND APPARATUS TO CAPTURE IMAGES
Priority Mail Express® Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. [✓] **Fee Transmittal Form** (PTO/SB/17 or equivalent)
2. [ ] **Applicant asserts small entity status.** See 37 CFR 1.27
3. [ ] **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. [✓] **Specification** [*Total Pages* 37] Both the claims and abstract must start on a new page. *(See MPEP § 608.01(a) for information on the preferred arrangement)*
5. [✓] **Drawing(s)** (35 U.S.C. 113) [*Total Sheets* 5]
6. **Inventor's Oath or Declaration** [*Total Pages* 1] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. [ ] Newly executed (original or copy)
   b. [✓] A copy from a prior application (37 CFR 1.63(d))
7. [✓] **Application Data Sheet** ** See note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
8. **CD-ROM or CD-R** in duplicate, large table, or Computer Program (*Appendix*)
   [ ] Landscape Table on CD
9. **Nucleotide and/or Amino Acid Sequence Submission** (*if applicable, items a. – c. are required*)
   a. [ ] Computer Readable Form (CRF)
   b. [ ] Specification Sequence Listing on:
      i. [ ] CD-ROM or CD-R (2 copies); or
      ii. [ ] Paper
   c. [ ] Statements verifying identity of above copies

ADDRESS TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**

ACCOMPANYING APPLICATION PAPERS

10. [ ] **Assignment Papers** (cover sheet & document(s)) Name of Assignee _____
11. [ ] **37 CFR 3.73(c) Statement** (*when there is an assignee*) [✓] **Power of Attorney**
12. [ ] **English Translation Document** (*if applicable*)
13. [ ] **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    [ ] Copies of citations attached
14. [ ] **Preliminary Amendment**
15. [ ] **Return Receipt Postcard** (*MPEP § 503*) (*Should be specifically itemized*)
16. [ ] **Certified Copy of Priority Document(s)** (*if foreign priority is claimed*)
17. [ ] **Nonpublication Request** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
18. [✓] **Other:** Request for prioritized examination

*Note: (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

19. CORRESPONDENCE ADDRESS

[✓] The address associated with Customer Number: 81905 **OR** [ ] Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature	/James A Flight/	Date	2022-05-23
Name (Print/Type)	James A. Flight	Registration No. (Attorney/Agent)	37,622

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Privacy Act Statement

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

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

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20004/80842US08
	Application Number	
Title of Invention	METHODS AND APPARATUS TO CAPTURE IMAGES	

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

Secrecy Order 37 CFR 5.2:

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

Inventor Information:

Inventor 1 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Christen	V.	Nielsen	

Residence Information (Select One) ● US Residency Non US Residency Active US Military Service

City	Palm Harbor	State/Province	FL	Country of Residence	US

Mailing Address of Inventor:

Address 1	1740 Painted Bunting Circle
Address 2	

City	Palm Harbor	State/Province	FL
Postal Code	34686	Country	US

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

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

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

Customer Number	31905		
Email Address	mailroom@hfzlaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	METHODS AND APPARATUS TO CAPTURE IMAGES		
Attorney Docket Number	20004/80842US08	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	5	Suggested Figure for Publication (if any)	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20004/80842US08
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Title of Invention	METHODS AND APPARATUS TO CAPTURE IMAGES	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

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

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

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	31905		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17666322	2022-02-07

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20004/80842US08
	Application Number	
Title of Invention	METHODS AND APPARATUS TO CAPTURE IMAGES	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17666322	Continuation of	16878935	2020-05-20	11245839	2022-02-08
Prior Application Status	Abandoned				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
16878935	Continuation of	16196810	2018-11-20		
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16196810	Continuation of	15793108	2017-10-25	10165177	2018-12-25
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15793108	Continuation of	15419120	2017-01-30	9843717	2017-12-12
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15419120	Continuation of	14732175	2015-06-05	9560267	2017-01-31
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14732175	Continuation of	13327227	2011-12-15	9082004	2015-07-14
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.					Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.			Add

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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Title of Invention	METHODS AND APPARATUS TO CAPTURE IMAGES	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20004/80842US08
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Applicant Information:

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

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	The Nielsen Company (US), LLC		
Mailing Address Information For Applicant:			
Address 1	85 Broad Street		
Address 2			
City	New York	**State/Province**	NY
Country	US	Postal Code	10004
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

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Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/James A Flight/			Date (YYYY-MM-DD)	2022-05-23
First Name	James A.	Last Name	Flight	Registration Number	37622

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

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1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

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 CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

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

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/17 (10-20)
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FEE TRANSMITTAL

	Complete if known	
	Application Number	
	Filing Date	May 23, 2022
☐ Applicant asserts small entity status. See 37 CFR 1.27.	First Named Inventor	Christen V. Nielsen
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.	Examiner Name	
	Art Unit	
TOTAL AMOUNT OF PAYMENT ($) 7,540.00	Practitioner Docket No.	20004/80842US08

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-2455 Deposit Account Name: Hanley, Flight & Zimmerman, LLC

For the above-identified deposit account, the Director is hereby authorized to (check all that apply):

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayment of fee(s)

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

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES (U = undiscounted fee; S = small entity fee; M = micro entity fee)

	FILING FEES			SEARCH FEES			EXAMINATION FEES			
Application Type	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**U ($)**	**S ($)**	**M ($)**	**Fees Paid ($)**
Utility	320	160*	80	700	350	175	800	400	200	1820.00
Design	220	110	55	160	80	40	640	320	160	0
Plant	220	110	55	440	220	110	660	330	165	0
Reissue	320	160	80	700	350	175	2,320	1,160	580	0
Provisional	300	150	75	0	0	0		0	0	0

* The $150 small entity status filing fee for a utility application is further reduced to $75 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	**Undiscounted Fee ($)**	**Small Entity Fee ($)**	**Micro Entity Fee ($)**
Each claim over 20 (including Reissues)	100	50	25
Each independent claim over 3 (including Reissues)	480	240	120
Multiple dependent claims	860	430	215

Total Claims		**Extra Claims**	**Fee ($)**		**Fee Paid ($)**
29	-20 or HP =	9	x 100	=	900

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims		**Extra Claims**	**Fee ($)**		**Fee Paid ($)**
4	-3 or HP =	1	x 480	=	480

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims	
Fee ($)	**Fee Paid ($)**
0	0

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $420 ($210 for small entity) ($105 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets		**Extra Sheets**		**Number of each additional 50 or fraction thereof**		**Fee ($)**		**Fee Paid ($)**
42	- 100 =	0	/ 50 =	0 (round **up** to a whole number)	x	0	=	0

4. OTHER FEE(S)

	Fees Paid ($)
Non-English specification, $140 fee ($70 for small entity) ($35 for micro entity)	0
Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, $400 fee ($200 small or micro entity)	0
Other (e.g., late filing surcharge): Request for prioritized examination and procesing fee	4340.00

SUBMITTED BY

Signature	/James A Flight/	Registration No. (Attorney/Agent) 37,622	Telephone 312-580-1020
Name (Print/Type)	James A. Flight		Date 2022-05-23

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not yet assigned
Filing Date	May 23, 2022
First Named Inventor	Christen V. Nielsen
Title	METHODS AND APPARATUS TO CAPTURE IMAGES
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Attorney Docket Number	20004/80842US08

SIGNATURE of Applicant or Patent Practitioner

Signature	/James A Flight/	Date (Optional)	May 23, 2022
Name	James A. Flight	Registration Number	37,622
Title (if Applicant is a juristic entity)	Attorney		
Applicant Name (if Applicant is a juristic entity)	The Nielsen Company (US), LLC		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 81905

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

The Nielsen Company (US), LLC

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	April 22, 2014
Name	Thomas Strouse		
Title	Vice President of Intellectual Property, The Nielsen Company (US), LLC		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

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Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Christen V. Nielsen	Nonprovisional Application Number (if known):	
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☑ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /James A Flight/	Date 2022-05-23
Name (Print/Typed) James A. Flight	Practitioner Registration Number 37,622

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.**

☑ *Total of 1 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.
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PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHODS AND APPARATUS TO CAPTURE IMAGES

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

■ United States application or PCT international application number 14/732,175

filed on June 5, 2015.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Christen V. Nielsen Date (Optional) :_____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

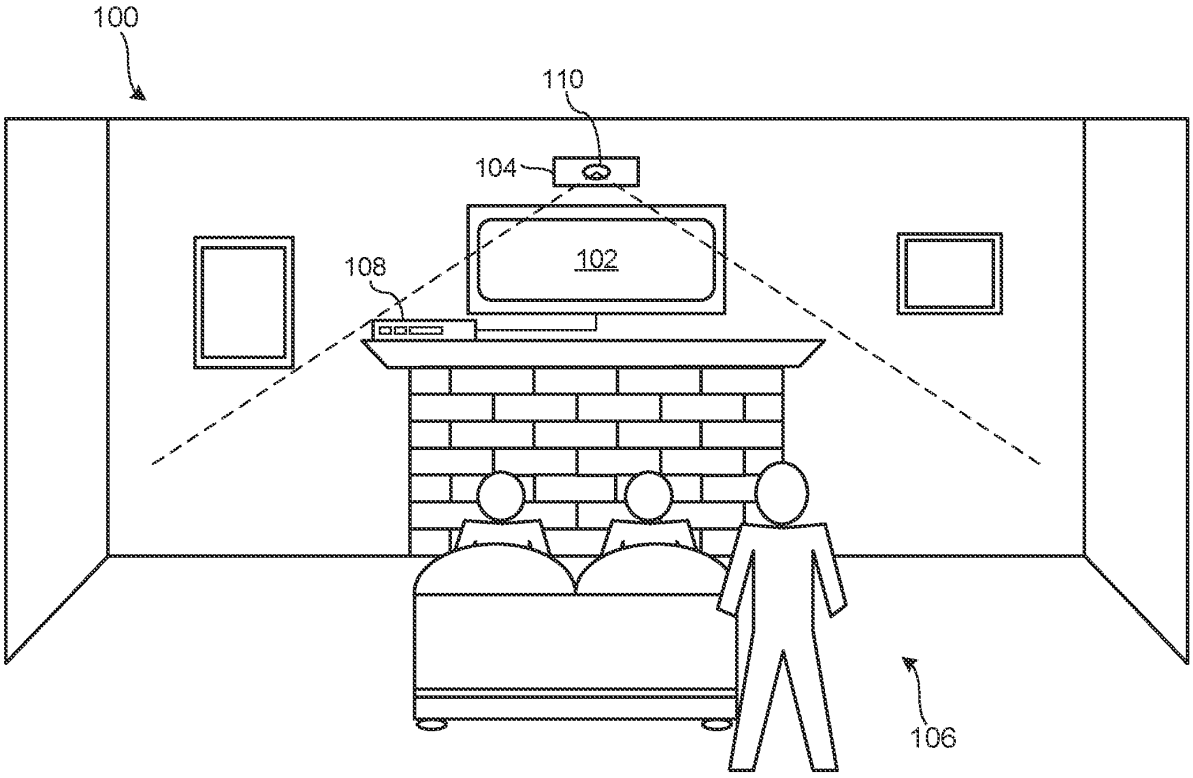


FIG. 1

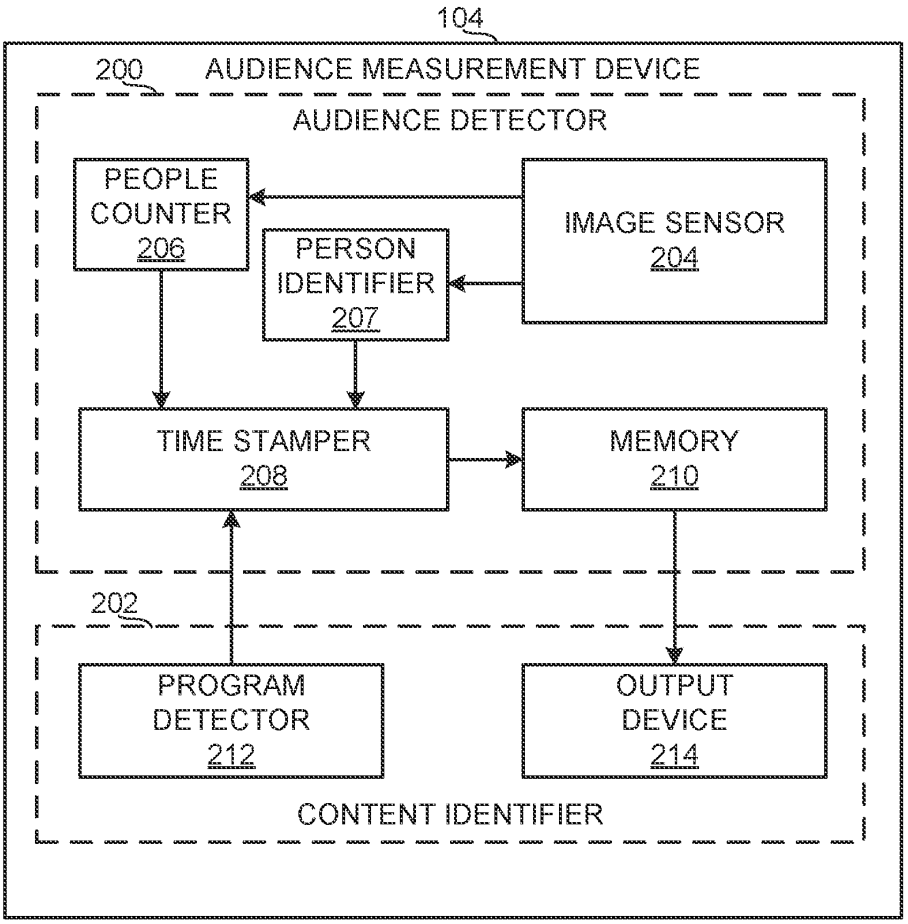

104
200
AUDIENCE MEASUREMENT DEVICE
AUDIENCE DETECTOR
PEOPLE COUNTER 206
PERSON IDENTIFIER 207
IMAGE SENSOR 204
TIME STAMPER 208
MEMORY 210
202
PROGRAM DETECTOR 212
OUTPUT DEVICE 214
CONTENT IDENTIFIER

FIG. 2

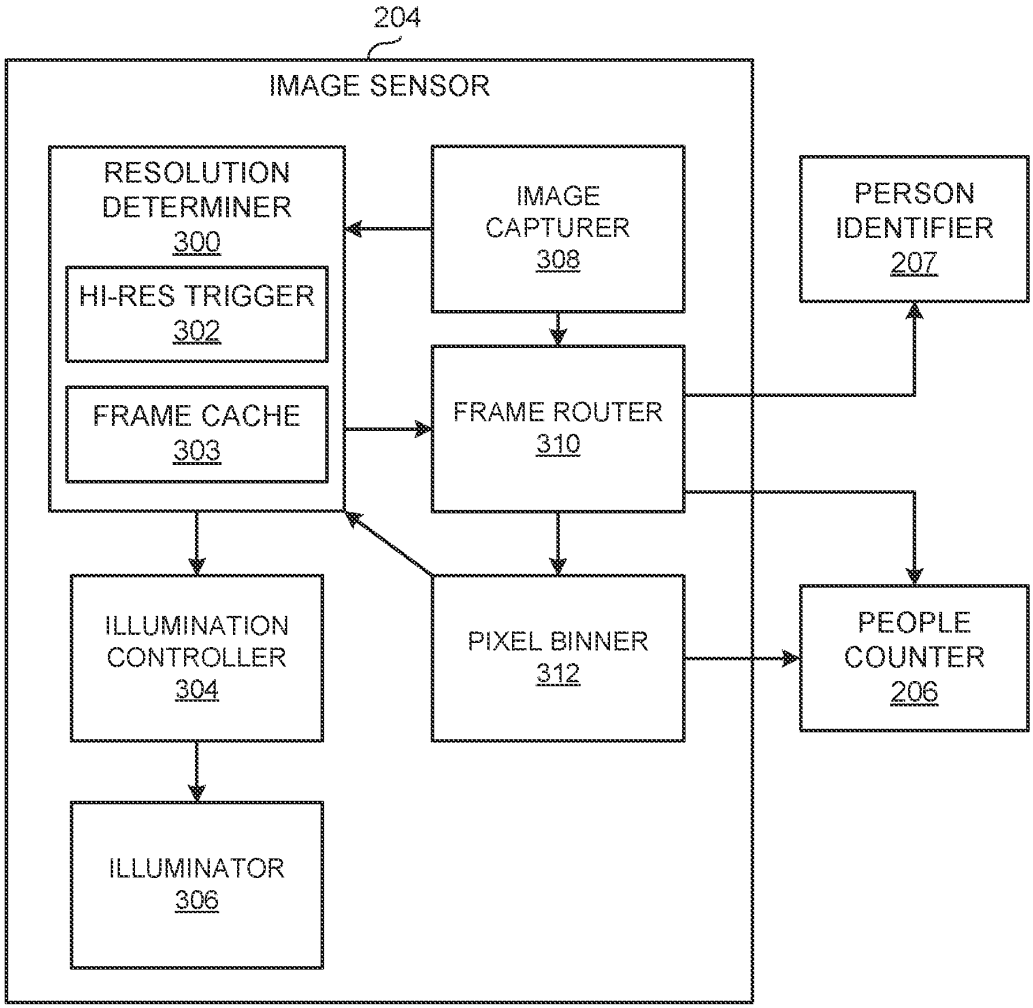

204
IMAGE SENSOR
RESOLUTION DETERMINER 300
HI-RES TRIGGER 302
FRAME CACHE 303
IMAGE CAPTURER 308
FRAME ROUTER 310
PERSON IDENTIFIER 207
ILLUMINATION CONTROLLER 304
PIXEL BINNER 312
PEOPLE COUNTER 206
ILLUMINATOR 306

FIG. 3

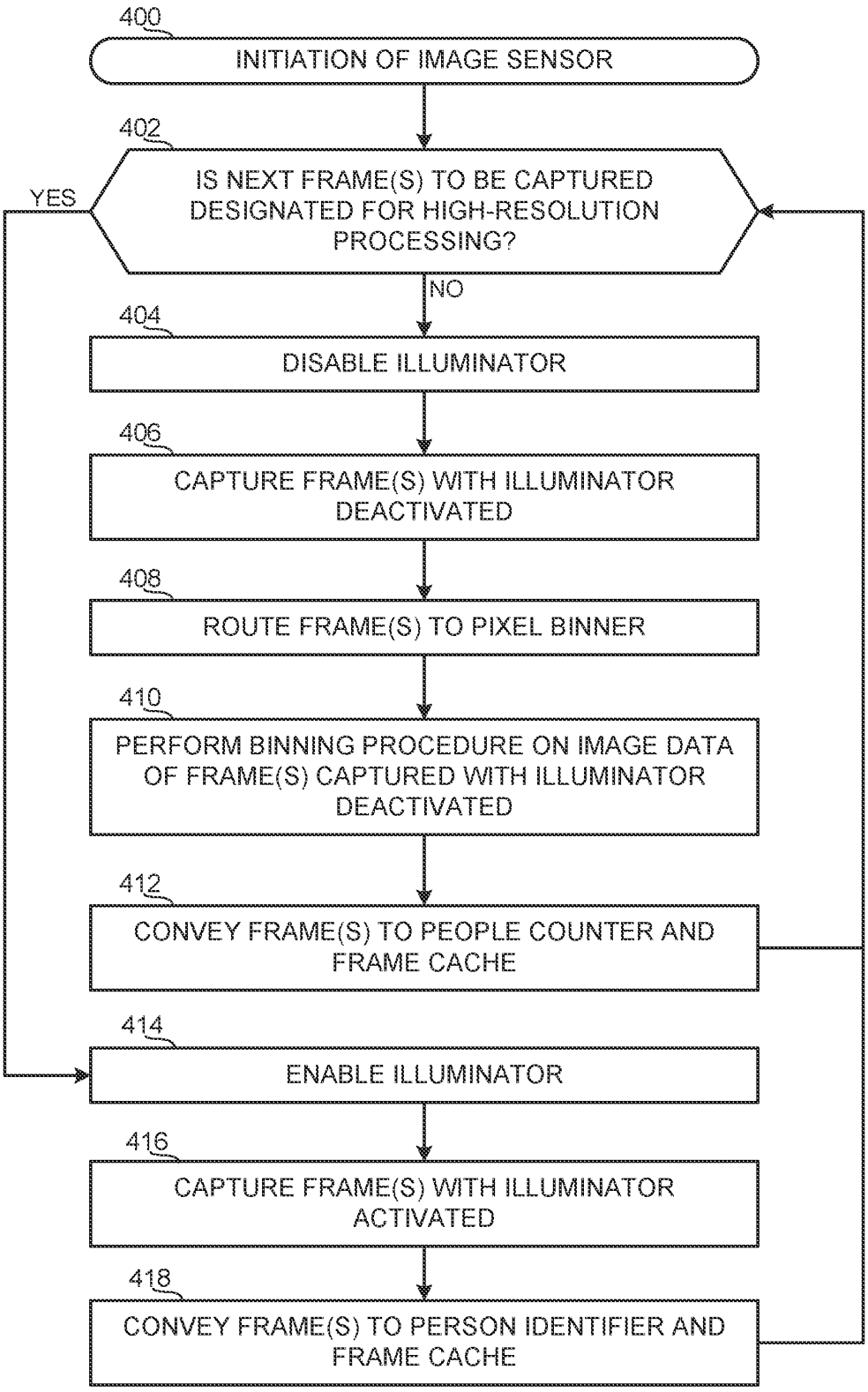

400
INITIATION OF IMAGE SENSOR
402
IS NEXT FRAME(S) TO BE CAPTURED DESIGNATED FOR HIGH-RESOLUTION PROCESSING?
YES
NO
404
DISABLE ILLUMINATOR
406
CAPTURE FRAME(S) WITH ILLUMINATOR DEACTIVATED
408
ROUTE FRAME(S) TO PIXEL BINNER
410
PERFORM BINNING PROCEDURE ON IMAGE DATA OF FRAME(S) CAPTURED WITH ILLUMINATOR DEACTIVATED
412
CONVEY FRAME(S) TO PEOPLE COUNTER AND FRAME CACHE
414
ENABLE ILLUMINATOR
416
CAPTURE FRAME(S) WITH ILLUMINATOR ACTIVATED
418
CONVEY FRAME(S) TO PERSON IDENTIFIER AND FRAME CACHE

FIG. 4

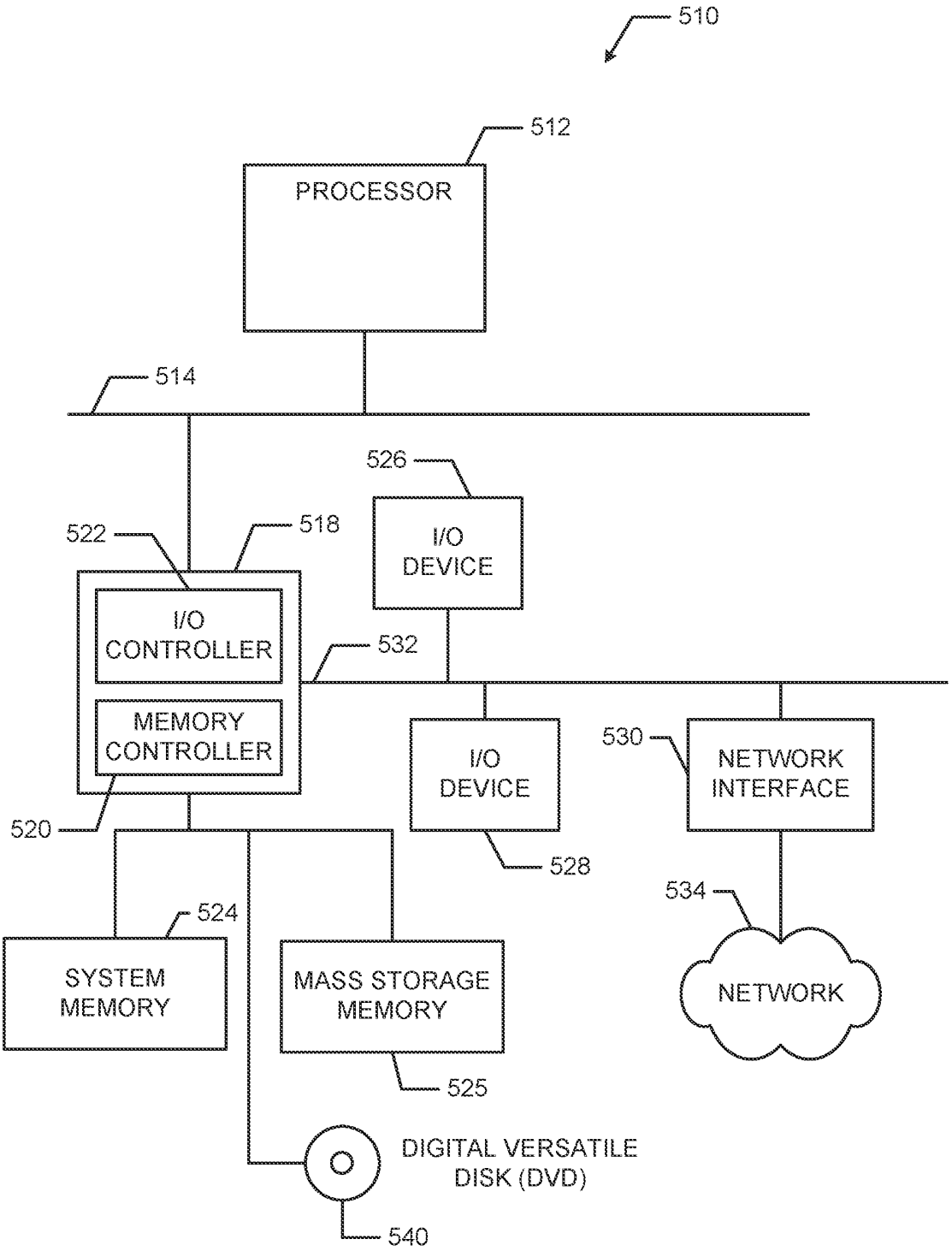

510
512
PROCESSOR
514
526
I/O DEVICE
522
518
I/O CONTROLLER
MEMORY CONTROLLER
532
520
I/O DEVICE
528
530
NETWORK INTERFACE
534
NETWORK
524
SYSTEM MEMORY
MASS STORAGE MEMORY
525
DIGITAL VERSATILE DISK (DVD)
540

FIG. 5

METHODS AND APPARATUS TO CAPTURE IMAGES

RELATED APPLICATIONS

[0001] This patent arises from a continuation of U.S. Patent Application Serial No. 17/666,322, filed February 7, 2022, now U.S. Patent No. _____, which is a continuation of U.S. Patent Application Serial No. 16/878,935, filed May 20, 2020, now U.S. Patent No. 11,245,839, which is a continuation of U.S. Patent Application Serial No. 16/196,810, filed November 20, 2018, which is a continuation of U.S. Patent Application Serial No. 15/793,108, filed October 25, 2017, now U.S. Patent No. 10,165,177, which is a continuation of U.S. Patent Application Serial No. 15/419,120, filed January 30, 2017, now U.S. Patent No. 9,843,717, which is a continuation of U.S. Patent Application Serial No. 14/732,175, filed June 5, 2015, now U.S. Patent No. 9,560,267, which is a continuation of U.S. Patent Application Serial No. 13/327,227, filed December 15, 2011, now U.S. Patent No. 9,082,004. U.S. Patent Application Serial No. 17/666,322, U.S. Patent Application Serial No. 16/878,935, U.S. Patent Application Serial No. 16/196,810, U.S. Patent Application Serial No. 15/793,108, U.S. Patent Application Serial No. 15/419,120, U.S. Patent Application Serial No. 14/732,175, and U.S. Patent Application Serial No. 13/327,227 are hereby incorporated herein by reference in their entirety. Priority to U.S. Patent Application Serial No. 17/666,322, U.S. Patent Application Serial No. 16/878,935, U.S. Patent Application Serial No. 16/196,810, U.S. Patent Application Serial No. 15/793,108, U.S. Patent Application Serial No. 15/419,120, U.S. Patent Application Serial No. 14/732,175 and U.S. Patent Application Serial No. 13/327,227 is claimed.

TVision Insights, Inc. – Ex. 1002, Page 000026

FIELD OF THE DISCLOSURE

[0002] This disclosure relates generally to audience measurement and, more particularly, to methods and apparatus to capture images.

BACKGROUND

[0003] Audience measurement of media content (e.g., broadcast television and/or radio, stored audio and/or video content played back from a memory such as a digital video recorder or a digital video disc, audio and/or video content played via the Internet, video games, etc.) often involves collection of content identifying data (e.g., signature(s), fingerprint(s), embedded code(s), channel information, time of consumption information, etc.) and people data (e.g., identifiers, demographic data associated with audience members, etc.). The content identifying data and the people data can be combined to generate, for example, media exposure data indicative of amount(s) and/or type(s) of people that were exposed to specific piece(s) of media content.

[0004] In some audience measurement systems, the collected people data includes an amount of people being exposed to media content. To calculate the amount of people being exposed to the media content, some measurement systems capture a series of images of a media exposure environment (e.g., a television room, a family room, a living room, a bar, a restaurant, etc.) and analyze the images to determine how many people appear in the images at a particular date and time. The calculated amount of people in the media exposure environment can be correlated with media content being presented at the particular date and time to provide exposure data (e.g., ratings data) for that media content. Additionally, some audience measurement systems identify people in the images via one or more identification techniques such as, for example, facial recognition.

TVision Insights, Inc. – Ex. 1002, Page 000027

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 is an illustration of an example exposure environment including an example audience measurement device disclosed herein.

[0006] FIG. 2 is a block diagram of an example implementation of the example audience measurement device of FIG. 1.

[0007] FIG. 3 is a block diagram of an example implementation of the example image sensor of FIG. 2.

[0008] FIG. 4 is a flowchart illustrating example machine readable instructions that may be executed to implement the example image sensor of FIGS. 1, 2 and/or 3.

[0009] FIG. 5 is a block diagram of an example processing system capable of executing the example machine readable instructions of FIG. 4 to implement the example image sensor of FIGS. 1, 2 and/or 3.

DETAILED DESCRIPTION

[0010] To count people in a media exposure environment, such as a room of a house in which a television is located, some audience measurement systems attempt to recognize objects as humans in a series of captured images of the room. A tally is maintained for each frame of image data to reflect an amount of people in the room at a time corresponding to a respective frame. That is, each recognition of an object as a human in a frame increases the tally associated with that frame. The audience measurement system counting the people in the room may also collect content identifying information to identify media content being presented (e.g., aurally and/or visually) in the room. With the identification of the media content and the amount of people in the room at a given date and time, the audience measurement system is aware of how many people were exposed to the specific media content.

TVision Insights, Inc. – Ex. 1002, Page 000028

[0011] Additionally, some systems recognize an identity of one or more of the detected humans by, for example, performing a facial recognition process on image data of one or more of the frames, receiving identifier(s) from the detected humans, detecting identifying signal(s) generated by devices carried by the humans, etc. Personal identification information can be used in conjunction with the content identifying information and/or the tally information to generate exposure information related to the content. When an audience measurement system uses a facial recognition process to identify people, an accuracy of the identification increases with an increase in resolution of the image data on which the facial recognition process is performed. In other words, the higher the resolution of a frame of image data, the more likely identification made via facial recognition will be accurate.

[0012] To provide high-resolution image data, audience measurement systems that include facial recognition capabilities typically employ high-resolution image sensors equipped with an illumination source, such as an infrared (IR) light emitting diode (LED). In previous systems, each time the high-resolution image sensor captures a frame of image data, the illumination source illuminates a surrounding area. The resulting illumination provides lighting conditions favorable to capturing high-resolution image data. When the illumination source is an IR LED, the illumination source emits IR light to enable the image sensor to capture illuminated objects. In addition to the IR light, IR emitters also emit light from the visible spectrum that appears as a red glow from the emitter.

[0013] Frequent activation of the illumination sources when capturing image data represents a significant power drain for the audience measurement system. Moreover, frequent interval activation (e.g., every two seconds) of the illumination source shortens a lifetime of the illumination source. Additionally, due to significant amounts of heat generated by the illumination sources, heat sinking devices and techniques are typically needed in systems that activate the illumination sources frequently. Further, light emissions of the illumination

TVision Insights, Inc. – Ex. 1002, Page 000029

source has the potential to annoy people such as, for example, members of a panel that are exposed to the illumination source while in the presence of the audience measurement system. In an audience measurement system utilizing an IR LED, the red glow emitted from the illumination source is a blinking red light that faces the panel members while the panel members are, for example, watching a television. This blinking red light may annoy some panel members. Annoyance of panel members is undesirable and may prove detrimental to an ability of the audience measurement system to maintain persons in the panel and/or to collect as much data as possible. That is, some audience measurement systems rely on the willing participation of panel members and, thus, reduction or elimination of annoying aspects of the system is beneficial to avoid impairing willingness to volunteer. An annoying feature of the audience measurement system may decrease panelist compliance with and/or participation in the system.

[0014] Example methods, apparatus, and articles of manufacture disclosed herein reserve use of an illumination source of a high-resolution image sensor for frames of image data designated for processing that requires high-resolution image data. Example frames designated for such processing include frames on which a facial recognition process is to be executed. For frames not designated for processing that requires high-resolution image data, example methods, apparatus, and articles of manufacture disclosed herein capture image data without the use of the illumination source. Example frames not designated for processing that requires high-resolution image data include frames on which a person count (e.g., a body count) is to be executed without recognizing an identity of the detected persons. Additionally, when image data is captured without activation of the illumination source (e.g., when the corresponding frame will not be subjected to facial recognition), example methods, apparatus, and articles of manufacture disclosed herein enhance resulting images to compensate for low light levels and loss of contrast due to lack of illumination. In particular,

TVision Insights, Inc. – Ex. 1002, Page 000030

example methods, apparatus, and articles of manufacture disclosed herein employ a pixel binning procedure on the image data captured without use of the illumination source. Binning is the process of summing pixel values in a neighborhood of pixels (e.g., a 2x2, 3x3, 4x4, etc. area), thereby capturing more light per pixel at the cost of lower resolution. However, for example methods, apparatus, and articles of manufacture disclosed herein, the lower resolution is acceptable for the frames captured without the use of the illumination source because, as described above, those frames will not be subjected to processing that requires high-resolution data.

[0015] Accordingly, example methods, apparatus, and articles of manufacture disclosed herein selectively activate an illumination source associated with an image sensor for certain frames. In contrast, previous systems activate the illumination source for each frame captured by a corresponding image sensor. In many instances, frames not designated for high-resolution processing (e.g., frames used solely to count people) greatly outnumber the frames designated for high-resolution frame (e.g., frame used for facial recognition). In fact, as described below, a mode of an image sensor during which image data is captured without the use of the illumination source (e.g., because high-resolution image data is not necessary for the corresponding frame(s)) is referred to herein as a 'majority capture' mode. Conversely, because the number of frames requiring high-resolution image data is far less than the number of frames for which lower resolution image data is acceptable, a mode of the image sensor during which image data is captured with the use of the illumination source is referred to herein as a 'minority capture' mode.

[0016] Because the illumination source is a significant power consumer, selective activation of the illumination source provided by example methods, apparatus, and articles of manufacture disclosed herein greatly reduce power consumption levels of the image sensors of audience measurement systems. Moreover, the selective activation provided by example

TVision Insights, Inc. – Ex. 1002, Page 000031

methods, apparatus, and articles of manufacture disclosed herein extends the operational lifetime of the image sensors of audience measurement systems by less frequently operating the corresponding illumination sources. Further, the selective activation provided by example methods, apparatus, and articles of manufacture disclosed herein reduces or even eliminates the need for heat sinking devices and/or techniques otherwise required to dissipate heat generated by the illumination sources. In addition to the reduced resource consumption provided by example methods, apparatus, and articles of manufacture disclosed herein, audience measurement methods, systems, and articles of manufacture employing the selective activation disclosed herein reduce the likelihood that panel members become irritated by light and/or glow emitted from illumination sources. As described above, illumination sources of image sensors typically face panel members in a media exposure environment (e.g., a television room) and, thus, the panel members are subjected to a blinking and/or glowing light whenever the illumination source is activated. In previous systems utilizing a high-resolution image sensor, each frame is captured with the use of the illumination source, resulting in a blinking light (e.g., red light in the case of an IR LED flash unit being used as the illumination source) or a light that is seemingly persistently on throughout operation of the system. Selectively activating the illumination source for frames requiring high-resolution image data and not activating the illumination source for other frames, as disclosed herein, considerably reduces the instances of illumination of the media exposure environment and, thus, the potential for irritating the panel members.

[0017] FIG. 1 is an illustration of an example media exposure environment 100 including a media presentation device 102 and an example audience measurement device 104 for measuring and/or identifying an audience 106 of the media presentation device 102. In the illustrated example of FIG. 1, the media exposure environment 100 is a room of a household that has been statistically selected to develop television ratings data for a

TVision Insights, Inc. – Ex. 1002, Page 000032

population/demographic of interest. Assumingly, one or more persons of the household have registered with the system and provided this demographic information. The example audience measurement device 104 can be implemented in additional and/or alternative types of environments such as, for example, a room in a non-statistically selected household, a theater, a restaurant, a tavern, a retail location, an arena, etc. In the illustrated example of FIG. 1, the media presentation device is a television 102 coupled to a set-top box (STB) 108 that implements a digital video recorder (DVR) and a digital versatile disc (DVD) player. The example audience measurement device 104 can be implemented in connection with additional and/or alternative types of media presentation devices such as, for example, a radio, a computer monitor, a video game console and/or any other communication device able to present content to one or more individuals.

[0018] The example audience measurement device 104 of FIG. 1 utilizes a camera 110 to capture a plurality of time stamped frames of image data of the environment 100. The example camera 110 captures images within a field of view defined by the dotted lines of FIG. 1. In the example shown in FIG. 1, an image captured by the camera 110 includes each member of a three-person audience 106. The images captured by the camera 110 are used to generate people tallies representative of how many people are in the audience 106 and/or personal identifications of the people in the audience. As described in detail below, the example audience measurement device 104 of FIG. 1 also monitors the environment 100 to identify media content being presented (e.g., displayed, played, etc.) by the television 102 and/or other media presentation devices to which the audience 106 is exposed. Identification(s) of media content to which the audience 106 is exposed are correlated with the people tallies and/or the personal identifications to generate exposure data for the media content.

TVision Insights, Inc. – Ex. 1002, Page 000033

[0019] FIG. 2 is a block diagram of an example implementation of the example audience measurement device 104 of FIG. 1. The example audience measurement device 104 of FIG. 2 includes an audience detector 200 and a content identifier 202. The example audience detector 200 includes an image sensor 204, a people counter 206, a person identifier 207, a time stamper 208, and a memory 210. The example image sensor 204 of FIG. 2 captures frames of image data of the environment 100, which includes the audience 106 being exposed to a presentation output by the media presentation device 102 of FIG. 1. In the illustrated example, the image sensor 204 is implemented by a high-resolution camera capable of capturing high-resolution image data, such as an image sensor configured to capture images at a resolution of, for example, 1920x1080 or 1280x960. In some examples, the image sensor 204 and/or the camera 110 of FIG. 1 is implemented by a gaming system, such as XBOX® Kinect®.

[0020] In the illustrated example, the frames obtained by the image sensor 204 of FIG. 2 are conveyed to the people counter 206. The example people counter 206 determines how many people appear in each of the received frames and records each of the amounts of people as a tally for each frame. The example people counter 206 can determine how many people appear in a frame in any suitable manner using any suitable technique. For example, the people counter 206 of FIG. 2 recognizes a general shape of a human body and/or a human body part, such as a head and/or torso. Additionally or alternatively, the example people counter 206 of FIG. 2 may count a number of "blobs" that appear in the frame and count each distinct blob as a person. Recognizing human shapes and counting "blobs" are illustrative examples and the people counter 206 of FIG. 2 can count people using any number of additional and/or alternative techniques. An example manner of counting people is described by Blumenthal in U.S. patent application number 10/538,483, filed on June 8, 2005, now U.S. Patent 7,203,338, which is hereby incorporated herein by reference in its entirety. To track

TVision Insights, Inc. – Ex. 1002, Page 000034

the number of detected people in a room, the example people counter 206 of FIG. 2 also tracks a position (e.g., an X-Y coordinate) of each detected person.

[0021] In the illustrated example, some frames obtained by the image sensor 204 of FIG. 2 are conveyed to the person identifier 207 in addition to or in lieu of the people counter 206. As described in greater detail below in connection with FIG. 3, the frames conveyed to the example person identifier 207 of FIG. 2 are frames designated (e.g., by the image sensor 204 and/or any other component of the audience measurement system 100) for a facial recognition procedure such that people captured in those frames can be individually identified. In some examples, the audience detector 200 may have additional or alternative methods and/or components to identify people in the frames captured by the image sensor 204, such as a feedback system to which the members of the audience 106 provide (e.g., actively and/or passively) identification to the audience measurement device 104). To identify people in the frames captured by the image sensor 204, the example person identifier 207 includes or has access to a collection (e.g., stored in a database) of facial signatures (e.g., vectors). Each facial signature corresponds to a person having a known identity to the person identifier 207. The collection includes an identifier (ID) for each known facial signature that corresponds to a known person. For example, in reference to FIG. 1, the collection of facial signatures may correspond to frequent visitors and/or members of the household associated with the room 100. The example person identifier 207 analyzes one or more regions of a frame thought to correspond to a human face and develops a pattern or map for the region(s). The pattern or map of the region represents a facial signature of the detected human face. The example person identifier 207 compares the detected facial signature to entries of the facial signature collection. When a match is found, the person identifier 207 has successfully identified at least one person in the frame. In such instances, the person identifier 207 records (e.g., in a memory address dedicated to the person identifier 207) the ID associated

TVision Insights, Inc. – Ex. 1002, Page 000035

with the matching facial signature of the collection. When a match is not found, the person identifier 207 of the illustrated example retries the comparison or prompts the audience 106 for information that can be added to the collection of known facial signatures for the unmatched face. More than one signature may correspond to the same face (i.e., the face of the same person).

[0022] The example people counter 206 of FIG. 2 outputs the calculated tallies and/or corresponding image frames (or identifications thereof) to the time stamper 208. Also, the person identifier 207 outputs the records ID(s) for any identified persons and/or the corresponding image frames (or identifications thereof) to the time stamper 208. The time stamper 208 of the illustrated example includes a clock and a calendar. The example time stamper 208 associates a time and date with each calculated tally and/or ID and the corresponding frame by, for example, appending the time/date data to the end of the tally data, the ID(s), and/or the frame. A data package (e.g., the tally, the ID(s), the date and time, and/or the frame) is stored in the memory 210. The memory 210 may include a volatile memory (e.g., Synchronous Dynamic Random Access Memory (SDRAM), Dynamic Random Access Memory (DRAM), RAMBUS Dynamic Random Access Memory (RDRAM, etc.) and/or a non-volatile memory (e.g., flash memory). The memory 210 may include one or more double data rate (DDR) memories, such as DDR, DDR2, DDR3, mobile DDR (mDDR), etc. The memory 210 may also include one or more mass storage devices such as, for example, hard drive disk(s), compact disk drive(s), digital versatile disk drive(s), etc.

[0023] The example content identifier 202 of FIG. 2 includes a program detector 212 and an output device 214. The example program detector 212 of FIG. 2 detects presentation(s) of media content in the media exposure environment 100 and collects identification information associated with the detected presentation(s). For example, the program detector 212, which

TVision Insights, Inc. – Ex. 1002, Page 000036

may be in wired and/or wireless communication with the presentation device 102 and/or the STB 108 of FIG. 1, can identify a presentation time and a source of a presentation. The presentation time and the source identification data may be utilized to identify the program by, for example, cross-referencing a program guide configured, for example, as a look up table. The source identification data may, for example, be the identity of a channel obtained, for example, by monitoring a tuner of the STB 108 or a digital selection (e.g., a remote control signal) of a channel to be presented on the television 102. Additionally or alternatively, codes embedded with or otherwise broadcast with media content being presented via the STB 108 and/or the television 102 may be utilized by the program detector 212 to identify the presentation. As used herein, a code is an identifier that is transmitted with the media content for the purpose of identifying and/or tuning the corresponding media content. Codes may be carried in the audio, in the video, in metadata, in a vertical blanking interval, in a program guide, in content data, or in any other portion of the media content or the signal carrying the content. Additionally or alternatively, the program detector 212 can collect a signature representative of a portion of the media content. As used herein, a signature is a representation of some characteristic of the media content (e.g., a frequency spectrum of an audio signal). Collected signature(s) can be compared against a collection of signatures of known media content to identify the corresponding media content. The signature(s) can be collected by the program detector 212 and/or the program detector 212 can collect samples of the media content and export them to a remote site for generation of the signature(s). Irrespective of the manner in which the media content of the presentation is identified, the identification information is time stamped by the time stamper 208 and maybe stored in the memory 210.

[0024] In the illustrated example of FIG. 2, the output device 214 periodically and/or aperiodically exports the recorded data from the memory 214 to a data collection facility via

TVision Insights, Inc. – Ex. 1002, Page 000037

a network (e.g., a local-area network, a wide-area network, a metropolitan-area network, the Internet, a digital subscriber line (DSL) network, a cable network, a power line network, a wireless communication network, a wireless mobile phone network, a Wi-Fi network, etc.). The data collection facility of the illustrated example utilizes the people tallies generated by the people counter 206 and/or the personal IDs generated by the person identifier 207 in conjunction with the content identifying data collected by the program detector 212 to generate exposure information and/or compliance information (e.g., indications of whether or not members of a panel have behaved in accordance with term(s) of membership). Alternatively, the data analysis could be performed locally and exported via a network or the like to a data collection facility for further processing. For example, the amount of people (as counted by the people counter 206) in the exposure environment 100 at a time (as indicated by the time stamp appended to the people tally by the time stamper 208) in which a sporting event (as identified by the program detector 212) was presented by the television 102 can be used in a rating calculation for the sporting event. In some examples, additional information (e.g., demographic data associated with one or more people personally identified by the person identifier 207, geographic data, etc.) is correlated with the exposure information at the data collection facility to expand the usefulness of the data collected by the example audience measurement device 104 of FIGS. 1 and/or 2. The data collection facility of the illustrated example compiles data from many monitored exposure environments.

[0025] While an example manner of implementing the audience measurement device 104 of FIG. 1 has been illustrated in FIG. 2, one or more of the elements, processes and/or devices illustrated in FIG. 2 may be combined, divided, re-arranged, omitted, eliminated and/or implemented in any other way. Further, the example audience detector 200, the example content identifier 202, the example image sensor 204, the example people counter 206, the person identifier 207, the example time stamper 208 and/or, more generally, the example

TVision Insights, Inc. – Ex. 1002, Page 000038

audience measurement device 104 of FIG. 2 may be implemented by hardware, software, firmware and/or any combination of hardware, software and/or firmware. Thus, for example, any of the example audience detector 200, the example content identifier 202, the example image sensor 204, the example people counter 206, the person identifier 207, the example time stamper 208 and/or, more generally, the example audience measurement device 104 of FIG. 2 could be implemented by one or more circuit(s), programmable processor(s), application specific integrated circuit(s) (ASIC(s)), programmable logic device(s) (PLD(s)) and/or field programmable logic device(s) (FPLD(s)), field programmable gate array (FPGA), etc. When any of the apparatus or system claims of this patent are read to cover a purely software and/or firmware implementation, at least one of the example audience detector 200, the example content identifier 202, the example image sensor 204, the example people counter 206, the person identifier 207, the example time stamper 208, and/or the example audience measurement device 104 of FIG. 2 are hereby expressly defined to include a tangible computer readable medium such as a memory, DVD, CD, BluRay, etc. storing the software and/or firmware. Further still, the example audience measurement device 104 of FIG. 2 may include one or more elements, processes and/or devices in addition to, or instead of, those illustrated in FIG. 2, and/or may include more than one of any or all of the illustrated elements, processes and devices.

[0026] FIG. 3 is a block diagram of an example implementation of the example image sensor 204 of FIG. 2. The example image sensor 204 of FIG. 3 includes a resolution determiner 300, a high-resolution (hi-res) trigger 302, a frame cache 303, an illumination controller 304, an illuminator 306, an image capturer 308, a frame router 310, and a pixel binner 312. In the illustrated example, the image sensor 204 operates in a first mode for frames not designated for processing that requires high-resolution image data. The first mode is referred to herein as a majority mode. In some examples, a default mode of the image

TVision Insights, Inc. – Ex. 1002, Page 000039

sensor 204 is the majority mode. The example image sensor 204 also operates in a second mode for frames designated for processing that requires high-resolution image data, such as frames designated for a facial recognition process to be executed by the example person identifier 207 of FIG. 2. The second mode is referred to herein as a minority mode. The first mode is referred to as the majority mode and the second mode is referred to as a minority mode because the image sensor 204 is expected (but not necessarily) to be in the majority mode more often than the minority mode.

[0027] The resolution determiner 300 of the illustrated example determines in which mode the image sensor 204 is to operate for a given time period, an image frame and/or set of image frames. In the illustrated example of FIG. 3, the resolution determiner 300 causes the image sensor to operate in the majority mode unless the minority mode has been triggered. As described above, the minority mode is to be entered when a frame to be captured by the image capturer 308 is designated to undergo, for example, a facial recognition process. To determine when an upcoming frame or set of frames is to undergo such resolution-demanding process, the example hi-res trigger 302 references the frame cache 303. The example frame cache 303 of FIG. 3 is a memory that stores frames recently captured by the image capturer 308. The example frame cache 303 of FIG. 3 receives frames directly from the image capturer 308 and/or the pixel binner 312, which is described in detail below. The hi-res trigger 302 retrieves one or more of the recently captured frames from the frame cache 303 and analyzes the frame(s) to determine whether a shape corresponding to a human head and/or face appears in the previous frame(s). In some examples, the hi-res trigger 302 also determines whether the detected head and/or face of the previous frames is oriented such that a facial recognition process can be successfully performed on the corresponding image data. In some examples, the hi-res trigger 302 also determines a period of time during which the detected head and/or face has been in a general location (e.g., if the corresponding person is

TVision Insights, Inc. – Ex. 1002, Page 000040

not moving from a general position in the frame). Given the results of the one or more analyses performed by the hi-res trigger 302 on the previous frame(s), the example hi-res trigger 302 of FIG. 3 determines whether succeeding frame(s) are to undergo a facial recognition process to attempt to identify the detected head(s) and/or face(s). In some examples, the hi-res trigger 302 is a clock that drives the system into the minority mode at fixed intervals. For each frame that the hi-res trigger 302 designates as a frame that will be subject to a facial recognition process (either via analysis or based on a clock), the example hi-res trigger 302 of FIG. 3 places the image sensor 204 in the minority mode. Otherwise, the example image sensor 204 of FIG. 3 operates according to the majority mode.

[0028] When the example image sensor 204 of FIG. 3 is operating in the majority mode (e.g., the hi-res trigger 302 determines that facial recognition is not to be performed on the corresponding frame(s)), the resolution determiner 300 of the illustrated example conveys an instruction or indication to the illumination controller 304 that causes the illumination controller 304 to disable the illuminator for the corresponding frame(s). In the illustrated example, the illuminator 306 is an IR LED that emits IR light to illuminate the environment 100 with IR light detectable by the image capturer 308, which includes IR capabilities. When in the majority mode, the example illumination controller 304 coordinates with the image capturer 308 to synchronize inaction of the illuminator 306 with the capture of the corresponding frame(s). Thus, the resolution determiner 300 causes the illuminator 306 to be inactive during capture of frames not designated for facial recognition processes (and/or only causes the illuminator 306 to be active during capture of frames that are designated for facial recognition processing. As described above, disabling the illuminator 306 reduces power consumption and extends the lifetime of the image sensor 204. Further, disabling the illuminator 306 reduces the heat generated by the illuminator and, thus, reduces or even eliminates the need for heat sinking devices and/or techniques. Further, when the illuminator

TVision Insights, Inc. – Ex. 1002, Page 000041

306 is not blinking and/or glowing (e.g., when active), members of the audience 106 are less likely to become annoyed by the image sensor 204.

[0029] When the example image sensor 204 of FIG. 3 is operating in the minority mode (e.g., the hi-res trigger 302 determines that facial recognition is to be performed on the corresponding frame(s)), the resolution determiner 300 conveys an instruction to the illumination controller 304 that causes the illumination controller 304 to enable the illuminator 306 during capture of the corresponding frame(s). The example illumination controller 304 coordinates with the image capturer 308 to synchronize operation of the illuminator 306 with the capture of the corresponding frame(s). Thus, the hi-res trigger 302 causes the illuminator 306 to be active for frames designated for facial recognition processes (e.g., by the person identifier 207). Frames may be specifically designated or may be generally designated as "frames which occur at a certain time." Accordingly, when operating in the majority mode, the illuminator 306 does not illuminate the environment 100. In contrast, when operating the minority mode, the illuminator 306 does illuminate the environment 100.

[0030] The example image capturer 308 of FIG. 3 is a high-resolution camera that captures image data representative of the environment 100 of FIG. 1. In the illustrated example, the image capturer 308 operates similarly in the majority mode as in the minority mode. That is, the example image capturer 308 of FIG. 3 captures high-resolution image data for each captured frame. Given the selective operation of the illuminator 306 described above, the high-resolution frames captured when operating in the majority mode are likely to be poorly lit. On the other hand, the high-resolution frames captured when operating in the minority mode are well lit. The example image capturer 308 of FIG. 3 conveys all or some (e.g., only the frames captured in the minority mode) of the captured frames to the resolution determiner 300 for storage in the frame cache 303. As described above, the frames stored in the frame

TVision Insights, Inc. – Ex. 1002, Page 000042

cache 303 are used by the example hi-res trigger 302 to identify heads and/or faces in the environment 100 that, due to their orientation, may be identifiable by the person identifier 207.

[0031] Further, the example image capturer 308 of FIG. 3conveys the captured high-resolution frames to the frame router 310. The example frame router 310 of FIG. 3 also receives an instruction from the resolution determiner 300 indicative of the mode (e.g., majority or minority) in which the image sensor 204 is operating for the received frames. For frames designated by the resolution determiner 300 as frames captured in the minority mode, the illuminator 306 was active and, thus, the image data is of high-resolution and well lit. Accordingly, the image data captured in the minority mode is in condition for the facial recognition process. Therefore, in response to the indicator from the resolution determiner 300 that the received frame(s) were captured in the minority mode, the example frame router 310 of FIG. 3 routes the illuminated, high-resolution frames to the person identifier 207 for facial recognition process(es). In some examples, the frame router 310 also routes the high-resolution frames to the people counter 206 for counting process(es).

[0032] For frames designated by the resolution determiner 300 as frames captured in the majority mode, the illuminator 306 was inactive and, thus, the image data is of high-resolution but likely to be dark and of low contrast. For many of these frames, the contrast level is likely to be too low for proper analysis (e.g., people counting) to be accurately performed. Accordingly, the image data captured in the majority mode may not be in condition (e.g., may not have high enough contrast levels) for an accurate execution of the people counting process of the people counter 206. Therefore, in response to the instruction from the resolution determiner 300 that the received frame(s) were captured in the majority mode, the example frame router 310 of FIG. 3 routes the low-contrast frames to the pixel binner 312.

TVision Insights, Inc. – Ex. 1002, Page 000043

[0033] The example pixel binner 312 of FIG. 3 receives high-resolution frames of image data from the frame router 310 that are likely to be of low contrast levels due to the illuminator 306 being inactive during capture of the frames. The example pixel binner 312 of FIG. 3 performs a binning procedure on the received frames. Binning is a process in which a neighborhood of pixels (e.g., a first pixel and a number of adjacent pixels) is summed together. Example binning procedures sum pixels according to a 2x2 neighborhood of pixels, a 3x3 neighborhood of pixels, a 4x4 neighborhood of pixels, or another arrangement of pixels. In effect, the binning procedure performed by the pixel binner 312 may assign more light per orthogonal block of pixels at the cost of lower resolution. The additional light per block pixel increases the contrast levels of the image data. After the pixel procedure performed by the example pixel binner 312 of FIG. 3, the frames are of lower resolution (e.g., in comparison with the original format of the frame as captured by the high-resolution camera of the image capturer 308) but may also have higher contrast levels. Thus, the example pixel binner 312 enhances the dark, low-contrast images generated in the majority mode for processing that does not require high-resolution image data (e.g., the facial recognition process of the person identifier 207), such as the people counting process of the people counter 206. The example pixel binner 312 conveys the resulting frames of image data to the people counter 206. The higher contrast levels provided by the example pixel binner 312 may enable the people counter 206 to distinguish between shapes in the frames of image data. The example pixel binner 312 of FIG. 3 also conveys the frames of image data to the resolution determiner 300 for storage in the frame cache 303.

[0034] While an example manner of implementing the image sensor 204 of FIG. 2 has been illustrated in FIG. 3, one or more of the elements, processes and/or devices illustrated in FIG. 3 may be combined, divided, re-arranged, omitted, eliminated and/or implemented in any other way. Further, the example resolution determiner 300, the example hi-res trigger 302,

TVision Insights, Inc. – Ex. 1002, Page 000044

the example illumination controller 304, the example frame router 310, the example pixel binner 310, and/or, more generally, the example image sensor 204 of FIG. 3 may be implemented by hardware, software, firmware and/or any combination of hardware, software and/or firmware. Thus, for example, any of the example resolution determiner 300, the example hi-res trigger 302, the example illumination controller 304, the example frame router 310, the example pixel binner 310, and/or, more generally, the example image sensor 204 of FIG. 3 could be implemented by one or more circuit(s), programmable processor(s), application specific integrated circuit(s) (ASIC(s)), programmable logic device(s) (PLD(s)) and/or field programmable logic device(s) (FPLD(s)), field programmable gate array (FPGA), etc. When any of the apparatus or system claims of this patent are read to cover a purely software and/or firmware implementation, at least one of, the example resolution determiner 300, the example hi-res trigger 302, the example illumination controller 304, the example frame router 310, the example pixel binner 310, and/or the example image sensor 204 of FIG. 3 are hereby expressly defined to include a tangible computer readable medium such as a memory, DVD, CD, Bluray, etc. storing the software and/or firmware. Further still, the example image sensor 204 of FIG. 3 may include one or more elements, processes and/or devices in addition to, or instead of, those illustrated in FIG. 3, and/or may include more than one of any or all of the illustrated elements, processes and devices.

[0035] FIG. 4 is a flowchart representative of example machine readable instructions for implementing the example image sensor 204 of FIGS. 1, 2 and/or 3. In this example, the machine readable instructions comprise a program for execution by a processor such as the processor 512 shown in the example processing system 500 discussed below in connection with FIG. 5. The program may be embodied in software stored on a tangible computer readable medium such as a CD-ROM, a floppy disk, a hard drive, a digital versatile disk (DVD), a BluRay disk, or a memory associated with the processor 512, but the entire

TVision Insights, Inc. – Ex. 1002, Page 000045

program and/or parts thereof could alternatively be executed by a device other than the processor 512 and/or embodied in firmware or dedicated hardware. Further, although the example program is described with reference to the flowchart illustrated in FIG. 4, many other methods of implementing the example image sensor 204 may alternatively be used. For example, the order of execution of the blocks may be changed, and/or some of the blocks described may be changed, eliminated, or combined.

[0036] As mentioned above, the example processes of FIG. 4 may be implemented using coded instructions (e.g., computer readable instructions) stored on a tangible computer readable medium such as a hard disk drive, a flash memory, a read-only memory (ROM), a compact disk (CD), a digital versatile disk (DVD), a cache, a random-access memory (RAM) and/or any other storage media in which information is stored for any duration (e.g., for extended time periods, permanently, brief instances, for temporarily buffering, and/or for caching of the information). As used herein, the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals. Additionally or alternatively, the example processes of FIG. 4 may be implemented using coded instructions (e.g., computer readable instructions) stored on a non-transitory computer readable medium such as a hard disk drive, a flash memory, a read-only memory, a compact disk, a digital versatile disk, a cache, a random-access memory and/or any other storage media in which information is stored for any duration (e.g., for extended time periods, permanently, brief instances, for temporarily buffering, and/or for caching of the information). As used herein, the term non-transitory computer readable medium is expressly defined to include any type of computer readable medium and to exclude propagating signals. As used herein, when the phrase "at least" is used as the transition term in a preamble of a claim, it is open-ended in the same manner as the term "comprising" is

TVision Insights, Inc. – Ex. 1002, Page 000046

open ended. Thus, a claim using "at least" as the transition term in its preamble may include elements in addition to those expressly recited in the claim.

[0037] FIG. 4 begins with an initiation of the example image sensor 204 of FIG. 3 (block 400). In the illustrated example, the initiation of the image sensor 204 corresponds to an initiation of a monitoring session of the example exposure environment 100 of FIG. 1. The example resolution determiner 300 determines whether the next frame(s) to be captured are to be subjected to processing that demands high-resolution image data (block 402). In the illustrated example, the amount of frames for which the determination is to be made varies depending on, for example, an adjustable setting and/or a finding of the hi-res trigger 302 regarding previous frame(s). As described above, the determination of the resolution determiner 300 indicates which mode (e.g., majority (e.g., low resolution) mode or minority (e.g., high resolution) mode) in which the image sensor 204 is to operate for the next frame(s). In the illustrated example, the resolution determiner 300 bases the determination on whether the next frame(s) to be captured will undergo a facial recognition process implemented by the example person identifier 207 of FIG. 2. For example, the hi-res trigger 302 of FIG. 3 determines whether a head or face is included in previous frame(s) (e.g., frames(s) obtained from the frame cache 303) capable of providing an identification of a corresponding person.

[0038] In the example of FIG. 4, when the resolution determiner 300 determines that the next frame(s) to be captured are not going to be subjected to the facial recognition process (block 402), the example resolution determiner 300 provides an instruction to the illumination controller 304 to disable the illuminator 306 during capture of the next frame(s) (block 404). In such instances, the illumination controller 304 cooperates with the image capturer 308 to capture the next frame(s) with the illuminator 306 deactivated (block 406). While the resulting frames are captured with the high-resolution camera of the image capturer

TVision Insights, Inc. – Ex. 1002, Page 000047

308, the frames are not lit by the illuminator 306 and, thus, likely to be dark and to have low contrast levels. To increase the contrast levels of the frame(s) captured without use of the illuminator 306, the frame router 310 routes the frame(s) to the pixel binner 312 (block 408). The example frame router 310 of FIG. 3 is aware of which frames were captured without use of the illuminator 306 via the instruction provided thereto by the resolution determiner 300 regarding in which mode (e.g., majority mode or minority mode) the image sensor 204 is operating.

[0039] The example pixel binner 312 of FIG. 3 performs a binning procedure (e.g., a 2x2 binning) on the received frame(s) (block 410). As described above, the binning procedure increases the contrast levels of the image data at the expense of the resolution of the image data. The lower resolution is acceptable for the frame(s) captured while in the majority mode because the people counting process(es) for which the majority mode frames are designated does not require high-resolution data, but operates more accurately with higher contrast levels. Having performed the binning procedure on the majority mode frames, the example pixel binner 312 conveys the binned frame(s) to the people counter 206 and the frame cache 303 (block 412). Control returns to block 402.

[0040] Referring back to block 402, when the resolution determiner 300 determines that the next frame(s) to be captured are going to be subjected to the facial recognition process, the example resolution determiner 300 provides an instruction to the illumination controller 304 to enable the illuminator 306 during capture of the next frame(s) (block 414). In such instances, the illumination controller 304 cooperates with the image capturer 308 to capture the next frame(s) with the illuminator 306 activated (e.g., emitting light, such as IR light into the exposure environment 100 of FIG. 1) (block 416). The resulting frames are captured with the high-resolution camera of the image capturer 308 and the frames are lit by the illuminator 306. Thus, the minority mode frames are ready for processing by the person identifier 207.

TVision Insights, Inc. – Ex. 1002, Page 000048

Accordingly, the route framer 310 conveys the minority mode frames to the person identifier 207 and the frame cache 303 (block 418). Control returns to block 402.

[0041] While the example image sensor of FIGS. 1, 2 and/or 3 is described in the context of an audience measurement device 104 and the generation of exposure data for media content, the example methods, apparatus, and articles of manufacture disclosed herein can be applied to additional or alternative contexts, systems, measurements, applications, programs, etc. That is, the example methods, apparatus, and articles of manufacture disclosed herein can be used in any application to selectively operate an illumination source of an image sensor based on a resolution demand for the resulting frames of image data.

[0042] FIG. 5 is a block diagram of an example processor system 510 capable of executing the instructions of FIG. 4 to implement the example image sensor 204 of FIGS. 2 and/or 3. The processor system 510 can be, for example, a server, a personal computer, a mobile phone, a personal digital assistant (PDA), an Internet appliance, a DVD player, a CD player, a digital video recorder, a BluRay player, a gaming console, a personal video recorder, a set-top box, an audience measurement device, or any other type of computing device.

[0043] The example processor system 510 of FIG. 5 includes a processor 512 that is coupled to an interconnection bus 514. The processor 512 may be any suitable processor, processing unit, or microprocessor (e.g., one or more Intel® microprocessors from the Pentium® family, the Itanium® family or the XScale® family and/or other processors from other families). The system 510 may be a multi-processor system and, thus, may include one or more additional processors that are identical or similar to the processor 512 and that are communicatively coupled to the interconnection bus 514.

[0044] The processor 512 of FIG. 5 is coupled to a chipset 518, which includes a memory controller 520 and an input/output (I/O) controller 522. A chipset provides I/O and memory management functions as well as a plurality of general purpose and/or special purpose

TVision Insights, Inc. – Ex. 1002, Page 000049

registers, timers, etc. that are accessible or used by one or more processors coupled to the chipset 518. The memory controller 520 performs functions that enable the processor 512 to access a system memory 524, a mass storage memory 525, and/or a digital versatile disk (DVD) 540.

[0045] In general, the system memory 524 may include any desired type of volatile and/or non-volatile memory such as, for example, static random access memory (SRAM), dynamic random access memory (DRAM), flash memory, read-only memory (ROM), double data rate memory (DDR), etc. The mass storage memory 525 may include any desired type of mass storage device including hard disk drives, optical drives, tape storage devices, etc. The machine readable instructions of FIGS. 5A-5C may be stored in the system memory 524, the mass storage memory 525, and/or the DVD 540.

[0046] The I/O controller 522 performs functions that enable the processor 512 to communicate with peripheral input/output (I/O) devices 526 and 528 and a network interface 530 via an I/O bus 532. The I/O devices 526 and 528 may be any desired type of I/O device such as, for example, a keyboard, a video display or monitor, a mouse, etc. The network interface 530 may be, for example, an Ethernet device, an asynchronous transfer mode (ATM) device, an 802.11 device, a digital subscriber line (DSL) modem, a cable modem, a cellular modem, etc. that enables the processor system 510 to communicate with another processor system. The example network interface 530 of FIG. 5 is also communicatively coupled to a network 534, such as an intranet, a Local Area Network, a Wide Area Network, the Internet, etc.

[0047] While the memory controller 520 and the I/O controller 522 are depicted in FIG. 5 as separate functional blocks within the chipset 518, the functions performed by these blocks may be integrated within a single semiconductor circuit or may be implemented using two or more separate integrated circuits.

TVision Insights, Inc. – Ex. 1002, Page 000050

[0048] Although certain example apparatus, methods, and articles of manufacture have been disclosed herein, the scope of coverage of this patent is not limited thereto. On the contrary, this patent covers all apparatus, methods, and articles of manufacture fairly falling within the scope of the claims of this patent.

TVision Insights, Inc. – Ex. 1002, Page 000051

What Is Claimed Is:

1. An audience measurement system to obtain exposure data for a media exposure environment, the audience measurement system comprising:

memory;

machine readable instructions; and

processor circuitry to execute the machine readable instructions to:

generate an audio signature of media content presented by a television within the media exposure environment;

obtain content identifying data corresponding to the presented media content, the content identifying data based on the audio signature of the media content presented by the television within the media exposure environment;

analyze a sequence of images of the media exposure environment to detect a head appearing in one or more of the images, the sequence of images obtained by a camera while the media content corresponding to the content identifying data is presented by the television;

determine an orientation of the head with respect to the camera; and

determine audience identification information based on a match of the head to a known person associated with the media exposure environment; and

network interface circuitry to output a signal indicative of the content identifying data and the audience identification information to a data collection facility.

2. The audience measurement system of claim 1, wherein the audio signature is a representation of a frequency spectrum of an audio signal of the media content.

TVision Insights, Inc. – Ex. 1002, Page 000052

3. The audience measurement system of claim 1, wherein the signal is a first signal; the processor circuitry is to determine a people tally indicative of a count of people appearing within the one or more of the images based at least in part on the detected head; and the network interface circuitry is to output a second signal indicative of the people tally.

4. The audience measurement system of claim 1, wherein the processor circuitry is to:

reduce a resolution of a first image of the one or more of the images of the media exposure environment to obtain a reduced-resolution image, and

determine the orientation of the head with respect to the camera based on the reduced-resolution image.

5. The audience measurement system of claim 4, wherein the processor circuitry is to determine the audience identification information by: (i) generating a facial signature from a region of a second image of the one or more of the images corresponding to a location of the head in the reduced-resolution image, and (ii) comparing the generated facial signature to a database of facial signatures.

6. The audience measurement system of claim 4, wherein the processor circuitry is to:

identify a region corresponding to the head within the first image from which the reduced-resolution image was obtained;

TVision Insights, Inc. – Ex. 1002, Page 000053

analyze a portion corresponding to the identified region of a second image; and

based on the analysis of the region of the second image, determine that the head matches the known person.

7. The audience measurement system of claim 6, wherein the processor circuitry is to identify a region corresponding to the head within the first image from which the reduced-resolution image was obtained by determining that a face is potentially identifiable based on the orientation of the head.

8. The audience measurement system of claim 6, wherein the audience identification information includes an identifier associated with the known person and the processor circuitry is to, responsive to a determination that the head matches the known person, cause the identifier associated with the person to be stored in the memory.

9. An audience measurement system, comprising:

an audience measurement device at a media exposure environment, the audience measurement device to:

generate an audio signature of media content presented by a television within the media exposure environment;

obtain content identifying data corresponding to the presented media content, the content identifying data based on the audio signature;

TVision Insights, Inc. – Ex. 1002, Page 000054

while the media content corresponding to the content identifying data is presented by the television, collect a first image of the media exposure environment with a camera;

attempt to detect a head in the first image;

determine an orientation of the head with respect to the camera;

determine audience identification information based on an indication that the head matches a known person associated with the audience measurement system; and

a data collection facility to obtain the content identifying data and the audience identification information from the audience measurement device.

10. The audience measurement system of claim 9, wherein the audio signature is a representation of a frequency spectrum of an audio signal of the media content.

11. The audience measurement system of claim 9, wherein the audience measurement device is to:

reduce a resolution of the first image of the media exposure environment to obtain a reduced-resolution image, and

determine the orientation of the head with respect to the camera based on the reduced-resolution image.

12. The audience measurement system of claim 11, wherein the audience measurement device is to:

TVision Insights, Inc. – Ex. 1002, Page 000055

identify a region corresponding to the head within the first image from which the reduced-resolution image was obtained; and

analyze a portion of a second image corresponding to the identified region to determine whether the head matches the known person.

13. The audience measurement system of claim 12, wherein the audience identification information includes an identifier associated with the known person and the audience measurement device is to, responsive to the indication that the head matches the known person, cause recordation of the identifier associated with the known person in a memory.

14. The audience measurement system of claim 11, wherein the audience measurement device is to determine the audience identification information by: (i) generating a facial signature from a region of a second image corresponding to a location of the head in the reduced-resolution image, and (ii) comparing the generated facial signature to a database of facial signatures.

15. The audience measurement system of claim 9, wherein the audience measurement device is to:

determine a people tally indicative of a count of people appearing in the first image based at least in part on the detected head; and

provide the people tally to the data collection facility.

TVision Insights, Inc. – Ex. 1002, Page 000056

16. A method for obtaining exposure data for a media exposure environment, the method comprising:

generating, using a program detector, an audio signature of media content presented by a television within the media exposure environment;

obtaining, based on the audio signature, content identifying data corresponding to the presented media content;

while the media content corresponding to the content identifying data is presented by the television, capturing first and second images of the media exposure environment with a camera;

analyzing, using an audience detector, the first image to attempt to detect a head in the first image;

determining, using the audience detector, an orientation of the head with respect to the camera;

determining, using the audience detector, audience identification information based on an indication that the head matches a known person associated with the audience detector; and

providing the content identifying data and the audience identification information to a data collection facility.

17. The method of claim 16, wherein the audio signature is a representation of a frequency spectrum of an audio signal of the media content.

18. The method of claim 16, further comprising:

reducing a resolution of the first image of the media exposure environment to obtain a reduced-resolution image, and

TVision Insights, Inc. – Ex. 1002, Page 000057

wherein the determining of the orientation of the head includes determining the orientation of the head with respect to the camera using the reduced-resolution image.

19. The method of claim 18, further comprising:

identifying a region corresponding to the head within the first image from which the reduced-resolution image was obtained;

analyzing a portion of the second image corresponding to the identified region; and

based on the analyzing of the region of the second image, determining whether the head matches the known person.

20. The method of claim 19, wherein the audience identification information includes an identifier associated with the known person, and further including recording the identifier associated with the known person in a memory.

21. The method of claim 16, further comprising:

determining a people tally indicative of a count of people appearing within the first image based at least in part on the detected head and one or more additional heads; and

providing the people tally to the data collection facility.

22. An audience measurement system to obtain exposure data for a media exposure environment, the audience measurement system comprising:

memory;

TVision Insights, Inc. – Ex. 1002, Page 000058

processor circuitry; and

program detector software to cause the processor circuitry to:

generate an audio signature of media content presented by a television within the media exposure environment, and

obtain, based on the audio signature, content identifying data corresponding to the presented media content;

audience detector software to cause the processor circuitry to:

while the media content corresponding to the content identifying data is presented by the television, obtain first and second images of the media exposure environment captured with a camera;

analyze one or more of the first or second images to: (i) detect one or more heads in the media exposure environment; (ii) determine corresponding orientations with respect to the camera for respective ones of the one or more heads, and (iii) determine audience identification information indicative that one or more of the heads matches respective ones of one or more persons known to be associated with the media exposure environment; and

network interface circuitry to output the content identifying data and the audience identification information to a data collection facility.

23. The audience measurement system of claim 22, wherein the audience detector software is to cause the processor circuitry to analyze the one or more of the first or second images to detect the one or more heads in the media exposure environment by:

TVision Insights, Inc. – Ex. 1002, Page 000059

analyzing the first image to detect the one or more heads in the media exposure environment, and

analyzing the second image to determine the audience identification information.

24. The audience measurement system of claim 23, wherein the audience detector software is to cause activation of an illumination source while the camera captures the second image.

25. The audience measurement system of claim 24, wherein the audience detector software is to cause the camera to capture the first image without use of the illumination source.

26. The audience measurement system of claim 23, wherein:

the audience detector software is to cause the processor circuitry to reduce a resolution of the first image using pixel binning to obtain a reduced-resolution image, and

to detect the one or more heads in the media exposure environment based on the reduced-resolution image.

27. The audience measurement system of claim 22, wherein the audio signature is a representation of a frequency spectrum of an audio signal of the media content.

28. The audience measurement system of claim 22, wherein the audience detector software is to cause the processor circuitry to determine the audience identification information by: (i) generating a facial signature from a region of the second image corresponding to a

TVision Insights, Inc. – Ex. 1002, Page 000060

location of one of the one or more heads, and (ii) comparing the generated facial signature to a database of facial signatures.

29. The audience measurement system of claim 22, wherein the audience detector software is to determine a people tally indicative of a count of people appearing within the first image based at least in part on the detected one or more heads, and

the network interface circuitry is to provide the people tally to the data collection facility.

TVision Insights, Inc. – Ex. 1002, Page 000061

ABSTRACT

Methods and apparatus to obtain exposure data for media exposure environment(s) are disclosed. An example apparatus disclosed herein includes processor circuitry to determine audience identification information and content identifying data.

TVision Insights, Inc. – Ex. 1002, Page 000062

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES
First Named Inventor/Applicant Name:	Christen V. Nielsen
Filer:	James A. Flight/Cody Sturtevant
Attorney Docket Number:	20004/80842US08

Filed as Large Entity

Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
REQUEST FOR PRIORITIZED EXAMINATION	1817	1	4200	4200
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	1202	9	100	900
INDEPENDENT CLAIMS IN EXCESS OF 3	1201	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous-Filing:				
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	1830	1	140	140
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**7540**

Electronic Acknowledgement Receipt	
EFS ID:	45780445
Application Number:	17751283
International Application Number:	
Confirmation Number:	7234
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES
First Named Inventor/Applicant Name:	Christen V. Nielsen
Customer Number:	81905
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Application Type:	Utility under 35 USC 111(a)

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Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$7540
RAM confirmation Number	E20225MH48293584
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	80842US08_App_Transmittal_Signed.pdf	279683 b454f81af01c29be685fda11ad95e8719a050a91	no	2
Warnings:					
Information:					
2	Application Data Sheet	80842US08_ADS_Signed.pdf	2226475 a86e7aef89b926832ffe05c940e6557b8da5ce18	no	9
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3	Fee Worksheet (SB06)	80842US08_Fee_Transmittal_Signed.pdf	270739 b3c65f707a0f3bce4eecbbee84bdabb94e8bb22e	no	2
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4	Power of Attorney	80842US08_POA_Signed.pdf	255340 910620622d1a1a0c1410564434eaea8940e53dc0	no	3
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6	Oath or Declaration filed	80842US08-Declaration.pdf	69261 a39b927d7823ee58b3583224725ab96f134903fd	no	1
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7	Drawings-only black and white line drawings	80842US08_Drawings_X.pdf	157030 de64d8fb6813c5455ce62cb54064a25eca898e46	no	5
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8		80842US08_Specification_Final.pdf	294647 e23c74806da20af40d21c0c9696942bb6abd68f4	yes	37

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	26
	Claims	27	36
	Abstract	37	37

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9	Fee Worksheet (SB06)	fee-info.pdf	54938 3324974b6d6548cf716a3e762c1810386c5bd4a3	no	2
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<u>New Applications Under 35 U.S.C. 111</u>
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<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.

Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

U.S. PATENT DOCUMENTS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.	6014461	2000-01-11	Hennessey et al.			
	2.	7440593	2008-10-21	Steinberg et al.			
	3.	7602524	2009-10-13	Eichhorn et al.			
	4.	7636456	2009-12-22	Collins et al.			
	5.	7676065	2010-03-09	Wiedemann et al.			
	6.	7697735	2010-04-13	Adam et al.			
	7.	7796154	2010-09-14	Senior et al.			
	8.	7899209	2011-03-01	Greiffenhagen et al.			
	9.	8620088	2013-12-31	Lee			
	10.	9082004	2015-07-14	Nielsen			
	11.	9560267	2017-01-31	Nielsen			
	12.	9843717	2017-12-12	Nielsen			
	13.	10165177	2018-12-25	Nielsen			
	14.	11245839	2022-02-08	Nielsen			
	15.	5987154	1999-11-16	Gibbon et al.			
	16.	7043056	2006-05-09	Edwards et al.			

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.	20030093784	2003-05-15	Dimitrova et al.			

EXAMINER	DATE CONSIDERED

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TVision Insights, Inc. – Ex. 1002, Page 000068

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INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2.	20060062429	2006-03-23	Ramaswamy et al.			
	3.	20060133699	2006-06-22	Widrow et al.			
	4.	20070150916	2007-06-28	Begole et al.			
	5.	20070154063	2007-07-05	Breed			
	6.	20070263934	2007-11-15	Ojima et al.			
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	9.	20090091650	2009-04-09	Kodama			
	10.	20090177528	2009-07-09	Wu et al.			
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	13.	20110019924	2011-01-27	Elgersma et al.			
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	16.	20110285845	2011-11-24	Bedros et al.			
	17.	20130156273	2013-06-20	Nielsen			
	18.	20150271390	2015-09-24	Nielsen			
	19.	20170142330	2017-05-18	Nielsen			
	20.	20180048807	2018-02-15	Nielsen			
	21.	20190089894	2019-03-21	Nielsen			
	22.	20200351436	2020-11-05	Nielsen			
	23.	20030081834	2003-05-01	Philomin et al.			

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Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	24.	20040122679	2004-06-24	Neuhauser et al.			
	25.	20070294126	2007-12-20	Maggio			
	26.	20080243590	2008-10-02	Rich			
	27.	20090307084	2009-12-10	Monighetti et al.			
	28.	20110137721	2011-06-09	Bansal			
	29.	20120081392	2012-04-05	Arthur			
	30.	20120151079	2012-06-14	Besehanic et al.			
	31.	20130013396	2013-01-10	Vinson et al.			

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*Examiner Initials	Cite No.	Document Number	Publication Date	Country	Class	Subclass	Translation Yes	Translation No
	1.							

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	1.	Wikipedia. (December 2010) "Kinect." http://en.wikipedia.org/wiki/Kinect, 15 pages.
	2.	Fellers et al. (August 2004) "Nikon MicroscopyU: Interactive Java Tutorials- CCD Signal-to-Noise Ratio." http://www.microscopyu.com/tutorials/java/digitalimaging/signaltonoise/index.html as archived by The Internet Archive, www.archive.org., 4 pages.
	3.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office Action," issued in connection with Application No. 13/327,227, May 20, 2014, 15 pages.
	4.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Final Office Action," issued in connection with Application No. 13/327,227, September 18, 2014, 20 pages.
	5.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 13/327,227, March 6, 2015, 9 pages.
	6.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Requirement for Restriction/Election," issued in connection with Application No. 14/732,175, July 8, 2016, 6 pages.

EXAMINER	DATE CONSIDERED
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INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

	7.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 14/732,175, September 23, 2016, 10 pages.
	8.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 15/419,120, August 2, 2017, 10 pages.
	9.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 15/793,108, August 23, 2018, 10 pages.
	10.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 15/793,108, March 2, 2018, 11 pages.
	11.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Advisory action," issued in connection with Application No. 16/196,810, May 13, 2020, 2 pages.
	12.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Final Office action," issued in connection with Application No. 16/196,810, February 26, 2020, 23 pages.
	13.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 16/196,810, November 7, 2019, 15 pages.
	14.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Advisory action," issued in connection with Application No. 16/196,810, August 22, 2019, 2 pages.
	15.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Final Office action," issued in connection with Application No. 16/196,810, June 13, 2019, 16 pages.
	16.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 16/196,810, March 1, 2019, 14 pages.
	17.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 16/878,935, June 10, 2021, 9 pages.
	18.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 16/878,935, September 27, 2021, 7 pages.

EXAMINER	DATE CONSIDERED
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Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

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 §1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

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

☒ A certification statement is not submitted herewith.

The Commissioner is hereby authorized to charge any fees which may be required to Deposit Account No. 50-2455.

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.

Respectfully submitted,

May 27, 2022 By: **/James A Flight /**
James A. Flight
Registration No.: 37,622
Attorney for Applicant

TVision Insights, Inc. – Ex. 1002, Page 000072

Electronic Acknowledgement Receipt	
EFS ID:	45821203
Application Number:	17751283
International Application Number:	
Confirmation Number:	7234
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES
First Named Inventor/Applicant Name:	Christen V. Nielsen
Customer Number:	81905
Filer:	James A. Flight/Janet Liu
Filer Authorized By:	James A. Flight
Attorney Docket Number:	20004/80842US08
Receipt Date:	27-MAY-2022
Filing Date:	
Time Stamp:	17:06:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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Information:					
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13	Non Patent Literature	NPL13.pdf	1196101 da1c8d7ed57db9b4e94ec8adb10d28cdc246c5d5	no	15
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Kinect

From Wikipedia, the free encyclopedia

This is an old revision of this page, as edited by McDoobAU93 (talk | contribs) at 16:31, 13 December 2010. It may differ significantly from the current revision (https://en.wikipedia.org/wiki/Kinect).

(diff) ← Previous revision | Latest revision (diff) | Newer revision → (diff)

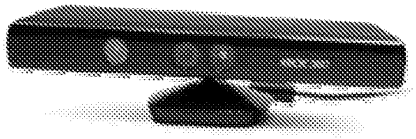
Kinect for Xbox 360, or simply **Kinect** (originally known by the code name *Project Natal*),[7] is a "controller-free gaming and entertainment experience" by Microsoft for the Xbox 360 video game platform, and may later be supported by PCs via Windows 8.[8] Based around a webcam-style add-on peripheral for the Xbox 360 console, it enables users to control and interact with the Xbox 360 without the need to touch a game controller, through a natural user interface using gestures, spoken commands,[9] or presented objects and images. The project is aimed at broadening the Xbox 360's audience beyond its typical gamer base.[10] Kinect competes with the Wii Remote with Wii MotionPlus and PlayStation Move & PlayStation Eye motion control systems for the Wii and PlayStation 3 home consoles, respectively.

Kinect was launched in North America on November 4, 2010,[7] in Europe on November 10, 2010,[2] in Australia, New Zealand and Singapore on November 18, 2010[4][11][12] and in Japan on November 20, 2010.[13] Purchase options for the sensor peripheral include a bundle with the game *Kinect Adventures* and console bundles with either a 4 GB[14][15][16] or 250 GB[17] Xbox 360 console and *Kinect Adventures*.[14][15][16][17]

As of November 29, 2010, 2.5 million Kinect sensors have been sold.[18]

Kinect for Xbox 360

Kinect for Xbox 360 logo



Kinect sensor device

Product family	Xbox
Generation	Seventh generation era
Release date	NA November 4, 2010[1] EU November 10, 2010[2] CO November 14, 2010[3] AUS November 18, 2010[4] JP November 20, 2010[5]
Platform	Xbox 360
Connectivity	USB 2.0 (type-A for original model; proprietary for Xbox 360 S)
Resolution	640×480 pixels @ 30 Hz (RGB camera) 640×480 pixels @ 30 Hz (IR depth-finding camera)[6]
Predecessor	Xbox Live Vision

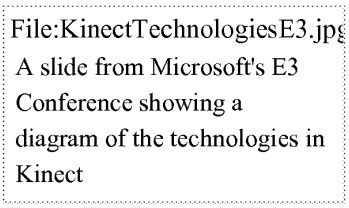
Contents

- 1 Technology

TVision Insights, Inc. – Ex. 1002, Page 000077

- 2 History
- 3 Launch
- 4 Software
- 5 Open Source Drivers
  - 5.1 3rd Party Development
- 6 Reception/Sales
- 7 See also
- 8 References
- 9 External links

Technology


File:KinectTechnologiesE3.jpg
A slide from Microsoft's E3 Conference showing a diagram of the technologies in Kinect

Kinect is based on software technology developed internally by Rare, a subsidiary of Microsoft Game Studios owned by Microsoft and range camera technology by Israeli developer PrimeSense, which interprets 3D scene information from a continuously-projected infrared structured light.[19][20]

The Kinect sensor[9] is a horizontal bar connected to a small base with a motorized pivot and is designed to be positioned lengthwise above or below the video display. The device features an "RGB camera, depth sensor and multi-array microphone running proprietary software",[21] which provide full-body 3D motion capture, facial recognition and voice recognition capabilities. At launch, voice recognition was only made available in Japan, the United Kingdom, Canada and the United States. Mainland Europe will receive the feature in spring 2011.[22] The Kinect sensor's microphone array enables the Xbox 360 to conduct acoustic source localization and ambient noise suppression, allowing for things such as headset-free party chat over Xbox Live.[9]

The depth sensor consists of an infrared laser projector combined with a monochrome CMOS sensor, which captures video data in 3D under any ambient light conditions.[9][23] The sensing range of the depth sensor is adjustable, with the Kinect software capable of automatically calibrating the sensor based on gameplay and the player's physical environment, such as the presence of furniture.[24]

Described by Microsoft personnel as the primary innovation of Kinect,[25][26][27][28] the software technology enables advanced gesture recognition, facial recognition and voice recognition.[29] According to information supplied to retailers, the Kinect is capable of simultaneously tracking up to six people, including two active players for motion analysis with a feature extraction of 20 joints per player.[30]

Through reverse engineering efforts,[31] it has been determined that the Kinect sensor outputs video at a frame rate of 30 Hz. The RGB video stream uses 8-bit VGA resolution (640 × 480 pixels) with a Bayer color filter, while the monochrome depth sensing video stream is in 11-bit VGA resolution (640 × 480

TVision Insights, Inc. – Ex. 1002, Page 000078

pixels) with 2,048 levels of sensitivity. The Kinect sensor has a practical ranging limit of 1.2–3.5 metres (3.9–11.5 ft) distance when used with the Xbox software. The area required to play Kinect is roughly 6m², although the sensor can maintain tracking through an extended range of approximately 0.7–6 metres (2.3–19.7 ft). The sensor has an angular field of view of 57° horizontally and 43° vertically, while the motorized pivot is capable of tilting the sensor up to 27° either up or down. The microphone array features four microphone capsules[32] and operates with each channel processing 16-bit audio at a sampling rate of 16 kHz.[30]

Because the Kinect sensor's motorized tilt mechanism requires more power than can be supplied via the Xbox 360's USB ports,[33] the Kinect sensor makes use of a proprietary connector combining USB communication with additional power. Redesigned "Xbox 360 S" models include a special AUX port for accommodating the connector,[34] while older models require a special power supply cable (included with the sensor[32]) which splits the connection into separate USB and power connections; power is supplied from the mains by way of an AC adapter.[33]

History

Kinect was first announced on June 1, 2009 at E3 2009 under the code name "Project Natal". Following in Microsoft's tradition of using cities as code names,[9] "Project Natal" was named after the Brazilian city of Natal as a tribute to the country by Microsoft director Alex Kipman, who incubated the project,[35] and who is from Brazil.[9] The name Natal was also chosen because the word *natal* means "of or relating to birth", reflecting Microsoft's view of the project as "the birth of the next generation of home entertainment".[26]



A January 2010 promotional banner indicating the expected release of Kinect (then "Project Natal") by holiday 2010

Four demos were shown to showcase Kinect when it was revealed at Microsoft's E3 2009 Media Briefing: *Ricochet*, *Paint Party*, *Milo & Kate* and *Mega Ring Ring, Mega Ring Ring*.[36] A demo based on *Burnout Paradise* was also shown outside of Microsoft's media briefing. The skeletal mapping technology shown at E3 2009 was capable of simultaneously tracking four people,[23][26][29][35] with a feature extraction of 48 skeletal points on a human body at 30 Hz.[24][35]

It was rumored that the launch of Project Natal would be accompanied with the release of a new Xbox 360 console (as either a new retail configuration,[37][38] a significant design revision[39] and/or a modest hardware upgrade[40]). Microsoft dismissed the reports in public and repeatedly emphasized that Project Natal would be fully compatible with all Xbox 360 consoles. Microsoft indicated that the company considers it to be a significant initiative, as fundamental to the Xbox brand as Xbox Live,[26] and with a launch akin to that of a new Xbox console platform.[41] Kinect was even referred to as a "new Xbox" by Microsoft CEO Steve Ballmer at a speech for the Executives' Club of Chicago.[42][43] When asked if the

TVision Insights, Inc. – Ex. 1002, Page 000079

introduction will extend the time before the next-generation console platform is launched (historically about 5 years between platforms),[44] Microsoft corporate vice president Shane Kim reaffirmed that the company believes that the life cycle of the Xbox 360 will last through 2015 (10 years).[26]

During Kinect's development, project team members experimentally adapted numerous games to Kinect-based control schemes to help evaluate usability. Among these games were *Beautiful Katamari* and *Space Invaders Extreme*, which were demonstrated at the Tokyo Game Show in September 2009.[45] According to creative director Kudo Tsunoda, adding Kinect-based control to pre-existing games would involve significant code alterations, making it unlikely for Kinect features to be added through software updates.[46]

Although the sensor unit was originally planned to contain a microprocessor that would perform operations such as the system's skeletal mapping, it was revealed in January 2010 that the sensor would no longer feature a dedicated processor. Instead processing would be handled by one of the processor cores of the Xbox 360's Xenon CPU.[47] According to Alex Kipman, the Kinect system consumes about 10-15% of the Xbox 360's computing resources.[48] However, in November, Alex Kipman made a statement that "the new motion control tech now only uses a single-digit percentage of the Xbox 360's processing power, down from the previously stated ten to 15 percent."[49] A number of observers commented that the computational load required for Kinect makes the addition of Kinect functionality to pre-existing games through software updates even less likely, with concepts specific to Kinect more likely to be the focus for developers using the platform.[47]

On March 25, Microsoft sent out a save the date flier for an event called the "World Premiere 'Project Natal' for the Xbox 360 Experience" at E3 2010. The event took place on the evening of Sunday, June 13, 2010 at the Galen Center.[50] The event featured a performance by Cirque du Soleil. It was announced that the system would officially be called Kinect, a portmanteau of the words "kinetic" and "connect", which describe key aspects of the initiative.[51] Microsoft also announced that the North American launch date for Kinect will be November 4, 2010.[52] Despite previous statements dismissing speculation of a new Xbox 360 to accompany the launch of the new control system, Microsoft announced at E3 2010 that it was introducing a redesigned Xbox 360, complete with a connector port ready for Kinect. In addition, on July 20, 2010, Microsoft announced a Kinect bundle with a redesigned Xbox 360, to be available with the Kinect launch.[16]

Launch

Microsoft had an advertising budget of US$500 million for the launch of Kinect, a larger sum than the investment at launch of the Xbox console.[53] Plans involved featuring Kinect on the YouTube homepage, advertisements on Disney's and Nickelodeon's digital publications as well as during *Dancing with the Stars* and *Glee*. Print ads were to be published in *People Magazine* and *InStyle*, while brands such as Pepsi, Kellogg's and Burger King would also carry Kinect advertisements.[53] A major Kinect event was organized in Times Square, where the device was promoted via the many billboards.[53]

TVision Insights, Inc. – Ex. 1002, Page 000080

On October 19, Microsoft advertised Kinect on The Oprah Winfrey Show by giving free Xbox 360 consoles and Kinect sensors to the people in the audience.[54] On November 4, Kinect bundles with Xbox 360 consoles were also given away to the audience of Late Night With Jimmy Fallon.[55]

On October 23, Microsoft held a pre-launch party for Kinect in Beverly Hills. The party was hosted by Ashley Tisdale and was attended by soccer star David Beckham and his three sons, Cruz, Brooklyn, and Romeo. Guests were treated to sessions with Dance Central and Kinect Adventures, followed by Tisdale having a Kinect voice chat with Nick Cannon.[56] On November 1, 2010, Burger King started giving away a free Kinect bundle "every 15 minutes".[57] The contest ended on November 28, 2010.

Software

See also: List of Kinect games

Requiring at least 190 MB of available storage space,[58] the Kinect system software allows users to operate the Xbox 360 Dashboard console user interface using voice commands and hand gestures. Techniques such as voice recognition and facial recognition are used for automatically identifying users. Among the applications for Kinect is Video Kinect, which enables voice chat or video chat with other Xbox 360 users or users of Windows Live Messenger. The application can use Kinect's tracking functionality and the Kinect sensor's motorized pivot to keep users in frame even as they move around. Other applications promoted with Kinect include ESPN on Xbox 360 and Zune on Xbox Live.[58]

Games that require Kinect have a purple sticker on them with a white silhouette of the Kinect sensor and "Requires Kinect Sensor" underneath in white text.[59] Games that have optional Kinect support (meaning that Kinect is not necessary to play the game or that there are optional Kinect minigames included) feature a standard green Xbox 360 case with a purple bar underneath the header, a silhouette of the Kinect sensor and "Better with Kinect Sensor" next to it in white text.[60]

Kinect launched on November 4, 2010 with 17 titles.[61] As of September 2009, third-party publishers confirmed by Microsoft to be working on future Kinect titles include Activision Blizzard, Bethesda Softworks, Capcom, Disney Interactive, Electronic Arts, Konami, MTV Games, Namco Bandai, Sega, Square Enix, THQ Inc. and Ubisoft.[62]

Open Source Drivers

In November 2010, Adafruit Industries offered a bounty for an open-source driver for Kinect. Microsoft openly voiced its disapproval of the bounty, stating that it "does not condone the modification of its products" and that it had "built in numerous hardware and software safeguards designed to reduce the chances of product tampering".[63] On November 10, Adafruit announced Héctor Martín as the winner,[64][65] who had produced a Linux driver that allows the use of both the RGB camera and depth sensitivity functions of the device.[66][67] Microsoft later clarified their position, claiming that while they don't condone hacking of either the physical device or the console, the USB connection was left open by design.

TVision Insights, Inc. – Ex. 1002, Page 000081

> The first thing to talk about is, Kinect was not actually hacked. Hacking would mean that someone got to our algorithms that sit inside of the Xbox and was able to actually use them, which hasn't happened. Or, it means that you put a device between the sensor and the Xbox for means of cheating, which also has not happened. That's what we call hacking, and that's what we have put a ton of work and effort to make sure doesn't actually occur. What has happened is someone wrote an open-source driver for PCs that essentially opens the USB connection, which we didn't protect, by design, and reads the inputs from the sensor. The sensor, again, as I talked earlier, has eyes and ears, and that's a whole bunch of noise that someone needs to take and turn into signal.
>
> —Microsoft's Alex Kipman speaking formally on NPR's *Science Friday*[68]

In December 2010, PrimeSense, whose depth sensing reference design Kinect is based on, released their own open source drivers along with motion tracking middleware called *NITE*.[69]

3rd Party Development

Numerous developers are researching possible applications of Kinect which go beyond the system's intended purpose of playing games. For example, Philipp Robbel of MIT combined Kinect with the iRobot Create to map a room in 3D and have the robot respond to human gestures,[70] while an MIT Media Lab team is working on a JavaScript extension for Google Chrome called depthJS that allows the user to control the browser with hand gestures.[71] Other programmers, including the Robot Locomotion Group at MIT, are using the drivers to develop a motion-controller user interface similar to the one envisioned in the film *Minority Report*.[72] The developers of MRPT have also integrated open source drivers into their libraries and provided examples of live 3D rendering and basic 3D visual SLAM.[73] Another team has shown an application which allows Kinect users to play a virtual piano by tapping their fingers on an empty desk.[74]

Companies So touch and Evoluce have developed presentation software for Kinect which can be controlled by hand gestures. Among its features is a multi-touch zoom mode.[75]

Reception/Sales

Reception

IGN gave the device 7.5 out of 10, saying that "Kinect can be a tremendous amount of fun for casual players, and the creative, controller-free concept is undeniably appealing", though adding that for "$149.99, a motion-tracking camera add-on for the Xbox 360 is a tough sell, especially considering that the entry level variation of the Xbox 360 itself is only $199.99".[78] *Game Informer* rated Kinect 8 out of 10, praising the technology but noting that the experience takes a while to get used to and that the spatial requirement

TVision Insights, Inc. – Ex. 1002, Page 000082

may pose a barrier.[77] *Computer and Video Games* called the device a technological gem and applauded the gesture and voice controls, while criticizing the launch lineup and Kinect Hub.[76]

CNET's review pointed out how Kinect keeps players active with its full-body motion sensing but criticized the learning curve, the additional power supply needed for older Xbox 360 consoles and the space requirements.[79] Engadget, too, listed the large space requirements as a negative, among with Kinect's launch lineup and the slowness of the hand gesture UI. The review praised the system's powerful technology and the potential of its yoga and dance games.[80] Kotaku considered the device revolutionary upon first use but noted that games were sometimes unable to recognize gestures or had slow responses, concluding that Kinect is "not must-own yet, more like must-eventually own."[85] TechRadar praised the voice control and saw a great deal of potential in the device whose lag and space requirements were identified as issues.[82] Gizmodo also noted Kinect's potential and expressed curiosity in how more mainstream titles would utilize the technology.[86] *Ars Technica's* review expressed concern that the core feature of Kinect, its lack of a controller, would hamper development of games beyond those that have either stationary players or control the player's movement automatically.[87]

Review scores	
Publication	**Score**
Computer and Video Games	8.8/10[76]
Game Informer	8/10[77]
IGN	7.5/10[78]
CNET	3.5/5[79]
Engadget	6/10[80]
USA Today	★★★½[81]
TechRadar	★★★★½[82]
The Washington Post	★★★½[83]
PCMag	4/5[84]

The mainstream press also reviewed Kinect. *USA Today* compared it to the futuristic control scheme seen in *Minority Report*, stating that "playing games feels great" and giving the device 3.5 out of 4 stars.[81] David Pogue from *The New York Times* predicted you will feel a "crazy, magical, omigosh rush the first time you try the Kinect." Despite calling the motion tracking less precise than Wii's implementation, Pogue concluded that "Kinect's astonishing technology creates a completely new activity that's social, age-spanning and even athletic."[88] *The Globe and Mail* titled Kinect as setting a "new standard for motion control." The slight input lag between making a physical movement and Kinect registering it was not considered a major issue with most games, and the review called Kinect "a good and innovative product," rating it 3.5 out of 4 stars.[89]

2.5 million units of the Kinect sensor have been sold as of November 29, 2010,[18] 1 million of which were sold within 10 days of its North American launch.[90][91] According to NPD, within one month of availability Kinect became the "top-selling accessory item in terms of dollar sales on a year-to-date basis."[92] Microsoft expects sales to reach 5 million by the end of 2010.[93]

See also

- List of Kinect games

TVision Insights, Inc. – Ex. 1002, Page 000083

- EyeToy
- PlayStation Eye
- PlayStation Move
- Dreameye
- Wii Remote
- Motion capture
- Structured-light 3D scanner
- Sega Activator

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External links

- Official website (http://www.xbox.com/kinect/)
- Kinect Playlist (http://www.youtube.com/user/xbox#grid/user/13DAE6AFF31073FB) at the official YouTube Xbox channel
- Kinect (http://www.microsoft.com/uk/wave/hardware-kinect.aspx) on Microsoft Wave
- KinectShare (http://kinectshare.com/) KinectShare.com
- iFixit teardown of Kinect (http://www.ifixit.com/Teardown/Microsoft-Kinect-Teardown/4066/1)
- Patent application (http://v3.espacenet.com/publicationDetails/biblio?CC=WO&NR=2010088032A2&KC=A2&FT=D&date=20100805&DB=EPODOC) relating to Kinect

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Besides normal editing, the reason for revision may have been that this version contains factual inaccuracies, vandalism, or material not compatible with the
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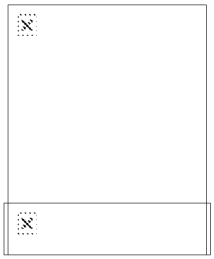
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CCD Signal-To-Noise Ratio

For any electronic measuring system, the **signal-to-noise ratio** (**SNR**) characterizes the quality of a measurement and determines the ultimate performance of the system. With a CCD (charge-coupled device) image sensor, the SNR value specifically represents the ratio of the measured light signal to the combined noise, which consists of undesirable signal components arising in the electronic system, and inherent natural variation of the incident photon flux. Because a CCD sensor collects charge over an array of discrete physical locations, the signal-to-noise ratio may be thought of as the relative signal magnitude, compared to the measurement uncertainty, on a per-pixel basis. The three primary sources of noise in a CCD imaging system are **photon noise**, **dark noise**, and **read noise**, all of which must be considered in the SNR calculation.

The tutorial initializes with the display of a graphical plot of signal-to-noise ratio as a function of integration (exposure) time for a hypothetical CCD system with specifications typical of high-performance cameras used in microscopy imaging applications. Parameters that affect signal-to-noise ratio for a CCD sensor can be varied for the system modeled in the tutorial by using the mouse to reposition any of the sliders located below the display window. As each variable is changed, the calculated value of signal-to-noise ratio is updated in the left-hand yellow box. During image acquisition with electronic sensors, including CCDs, apparently random fluctuations in signal intensity constitute noise superimposed on the signal, and as the magnitude of noise increases, uncertainty in the measured signal becomes greater. Changes made to the factors that directly affect signal level, and to those variables primarily contributing noise to the system, have an inverse effect on SNR that is reflected in the displayed value. A large signal-to-noise ratio is important in the acquisition of high-quality digital images, and is particularly critical in applications requiring precise light measurements. The radio buttons labeled **Binning Factor** can be selected individually to enable a method of signal-to-noise ratio improvement commonly used with scientific CCD cameras, in which the signal-generated charge from groups of neighboring pixels is combined during readout into larger "superpixels". The binning factor represents the number of pixels that are combined to form each larger pixel. When the SNR is recalculated to reflect the binning operation, it is assumed that the signal is the same for each pixel within a group.

TVision Insights, Inc. – Ex. 1002, Page 000092



The measured signal from a CCD imaging system, utilized in calculating SNR, depends upon the photon flux incident on the CCD (expressed as photons per pixel per second), the quantum efficiency of the device (where 1 represents 100 percent efficiency), and the integration (exposure) time over which the signal is collected (seconds). The product of these three variables determines the signal portion (numerator) of the signal-to-noise ratio, which is weighed against all noise sources that contribute to the denominator term of the ratio. The **Quantum Efficiency** slider in the tutorial provides an adjustment range of 20 to 98 percent, and the **Photon Flux** slider allows selecting incident light levels between 0.1 and 10000 photons per pixel per second. The **Integration Time** slider adjusts the CCD integration time over a range of 0.1 to 100 seconds.

Sliders are provided for varying the CCD specifications for **Read Noise** (2 to 20 electrons rms per pixel) and for **Dark Current** (0.01 to 50 electrons per pixel per second). The photon noise contribution to total noise is a function of signal level and is not an independent noise variable that can be reduced through camera design or method of operation, but is accounted for in the SNR calculation. The right-hand yellow numerical field (**Detected Photons/Pixel**) displays the total number of signal photons read out by the CCD for each pixel over the integration period currently set by the slider. This value represents the product of photon flux, quantum efficiency, and integration time. Manipulation of the five sliders, in conjunction with the radio buttons adjacent to several, produces a range of signal-to-noise ratio values corresponding to most operating conditions likely to be encountered in the use of CCD cameras designed for low light imaging in microscopy. When the tutorial is initially loaded or is reset, the slider positions default to values that are typical for a high-performance scientific grade camera system utilizing a cooled CCD.

Three primary undesirable signal components (noise), which degrade the performance of a CCD imaging device by lowering signal-to-noise ratio, are considered in calculating overall SNR:

Photon noise (sometimes referred to as **shot noise**) results from the inherent statistical variation in the arrival rate of photons incident on the CCD. Photoelectrons generated within the semiconductor device constitute the signal, the magnitude of which is perturbed by fluctuations that follow the Poisson statistical distribution of photons incident on the CCD at a given location. The photon noise, or measurement variation, is therefore equivalent to the square-root of the signal.

Dark noise arises from statistical variation in the number of electrons thermally generated within the silicon structure of the CCD, which is independent of photon-induced signal, but highly dependent on device temperature. The rate of generation of thermal electrons at a given CCD temperature is termed **dark current**. In similarity to photon noise, dark noise follows a Poisson relationship to dark current, and is equivalent to the square-root of the number of thermal electrons generated within the image exposure time. Cooling the CCD reduces the dark current dramatically, and in practice, high-performance cameras are usually cooled to a temperature at which dark current is negligible over a typical exposure interval.

Read noise is a combination of system noise components inherent to the process of converting CCD charge carriers into a voltage signal for quantification, and the subsequent processing and analog-to-digital conversion. The major contribution to read noise usually originates with the on-chip preamplifier, and this noise is added uniformly to every image pixel. High-performance camera systems utilize design enhancements that greatly reduce the significance of read noise.

The CCD signal-to-noise ratio calculation in the tutorial uses the following equation:

$$SNR = PQ_e t / [\, PQ_e t + Dt + N_r^2 \,]^{1/2}$$

where **P** is the incident photon flux (photons/pixel/second), **Q(e)** represents the CCD quantum efficiency, **t** is the integration time (seconds), **D** is the dark current value (electrons/pixel/second), and **N(r)** represents read noise (electrons rms/pixel).

Examination indicates that the equation above is simply structured as a ratio of total signal generated during the exposure time divided by the combined noise attributable to the three noise components described previously. The three noise sources are not correlated, and the denominator incorporates appropriate values for each noise component: the square-root of the signal accounts for the photon noise, dark noise is equivalent to the square-root of the product of dark current and integration time, and the square-root of N(r)-squared corresponds to the read noise component.

The calculation of SNR using the previous equation assumes that the signal is the only source of light. Various sources of unwanted background light, such as scatter in the imaging system, may contribute noise, and if significant, this background photon flux (**B**) must be added to the photon noise component as follows:

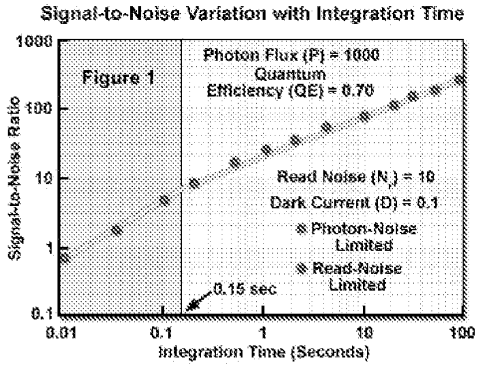
$$SNR = PQ_e t / [(P + B)Q_e t + Dt + N_r^2 \,]^{1/2}$$

An additional factor that should be considered is that the values of incident and background

TVision Insights, Inc. – Ex. 1002, Page 000093

photon flux, and quantum efficiency are functions of wavelength, and when broadband illumination sources are employed, the calculation of signal-to-noise ratio requires these variables to be integrated over all wavelengths utilized for imaging.

Various approaches are used to increase signal-to-noise ratio in high-performance CCD imaging systems. To reduce thermal charge generation within the semiconductor layers of the CCD, which is manifested as dark current, special device fabrication techniques and operation modes are sometimes employed. It is common to cool the CCD to reduce dark current to a negligible level using thermoelectric or cryogenic refrigeration, or if necessary, the extreme approach of liquid nitrogen cooling may be taken. In general, high-performance CCD sensors exhibit a one-half reduction in dark current for every 5 to 9 degrees Celsius as they are cooled below room temperature, a specification referred to as the "doubling temperature". This rate of improvement typically continues to a temperature of approximately 5 to 10 degrees below zero, beyond which the reduction in dark current diminishes quickly. In addition to specialized circuit and electronics design, filtration techniques utilizing advanced integrators and double sampling methods are sometimes employed to remove certain components of read noise.



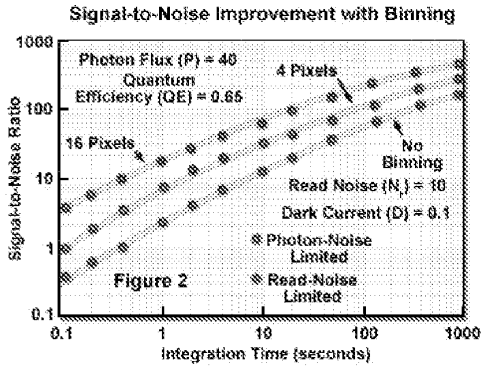
Because photon noise is an inherent property of CCD signal detection, which cannot be reduced by camera design factors, it essentially represents a "noise floor" that is the minimum achievable noise level, diminishing in relative effect as photon flux increases. Consequently, it is desirable to operate an imaging system under conditions that are limited by photon noise, with other noise components being reduced to relative insignificance. Under low illumination level conditions (assuming dark noise is essentially eliminated by CCD cooling), read noise is greater than photon noise and the image signal is said to be **read-noise limited**. The camera exposure time (integration time) can be increased to collect more photons and increase SNR, until a point is reached at which photon noise exceeds both read noise and dark noise. Above this exposure time, the image is said to be **photon-noise limited**.

The limited number of photons available for image formation is a critical factor in many microscopy techniques, and high-performance CCD camera systems are specifically designed to reach a photon-noise limited operation mode at much lower signal levels than conventional cameras, which typically never achieve photon-noise limited performance (and a suitably high SNR) at low light levels. In widefield microscopes, which commonly employ CCD cameras, the total signal available from the specimen focal volume may vary by several orders of magnitude, depending largely upon the imaging technique employed and the specimen itself. A photon flux of 10e6 (1 million) photons per second from the focal volume, an extremely low light level, is equivalent to an average of 1 photon/pixel/second distributed over the surface of a sensor having 1 million active pixels. As a point of reference, the minimum detection limit of the dark-adapted eye is approximately 40 times that (40 million photons/second). A properly designed fluorescence microscope typically yields 10e8 to 10e9 photons per second from the focal volume, or 100 to 1000 photons/pixel/second with the same 1-megapixel sensor. Conventional brightfield imaging mode commonly produces illumination levels, averaged over the full sensor area, of 5000 to approximately 40,000 photons/pixel/second. Unless the integration interval is very short, bright areas of a widefield image can generate a total detected signal of more than 100,000 photons per pixel.

Figure 1 presents a plot of signal-to-noise ratio versus integration (exposure) time for a typical high-performance CCD camera designed for imaging at low signal levels, with photon flux and sensor characteristics fixed at the values shown in the figure. In a plot of this type, a read-noise limited region and a photon-noise limited region can be identified, separated at the exposure time for which photon noise begins to exceed read noise (approximately 0.15 second for the sensor and light flux values specified in the figure). Because of the square-root relationship of photon noise to signal, this division between the two regions occurs at an exposure time for which the total detected signal per pixel is approximately the square of the read noise value. For example, with a read noise specification of 5 electrons rms per pixel, photon noise becomes the dominant noise source when the exposure time is sufficient to result in more than 25 detected photons per pixel at the existing incident photon flux. The interactive tutorial displays a plot similar to that in Figure 1, but reflects changes in the

TVision Insights, Inc. – Ex. 1002, Page 000094

graphical plot as each of the variables controlled by a slider is adjusted. In addition to the calculated SNR value, shown on the left, the right-hand yellow window updates the value of **Detected Photons/Pixel**, and the red text message in the upper portion of the graph changes to indicate whether read noise or photon noise predominates for the values selected by the sliders. A red arrow follows the plotted curve as an indication of the currently selected integration time. The transition between the two dominant-noise regimes assumes that dark noise is negligible, which is typical in operation of scientific-grade CCD imaging systems, although other situations are possible. Operation at high dark-current levels alters the significance of the relative values of read noise and photon noise under some conditions, and in such circumstances dark noise can overwhelm both signal and other noise components.



Some scientific-grade CCD cameras allow implementing an on-chip pixel **binning** function as another mechanism for increasing signal-to-noise ratio. It should be realized that this method involves a sacrifice of some spatial resolution, as well as a concomitant increase in dark current. By improving the signal-to-noise ratio of the CCD, the imaging system is able to reach photon-noise limited conditions at a lower light level and/or shorter exposure time. Some camera systems automatically utilize a pixel binning mode for monitor display of a preview image to provide a brighter image at rapid frame rates, which facilitates specimen positioning and focusing. To demonstrate this binning effect on calculated SNR, the tutorial provides radio buttons corresponding to three binning factors. The button labels indicate the number of binned pixels as follows: 1 pixel, no binning; 4 pixels, 2x2 pixel array combined into one; 16 pixels, 4x4 pixel array combined into one. Figure 2 illustrates the effect of different binning values on curves plotting the variation of SNR with exposure time. The equation used in the tutorial for calculating SNR is modified to account for binning, as shown below:

$$SNR = MPQ_e t / [\, MPQ_e t + MDt + N_r^2 \,]^{1/2}$$

In this modified equation, the symbol **M** represents the number of binned pixels, and it is assumed that the signal in each of those pixels is the same. The three curves are plotted for the same typical CCD specifications, as denoted on the graph, and for a very low specimen signal intensity, producing a photon flux of 40 photons per pixel per second incident on the sensor. Note that without pixel binning, an exposure time of approximately 4 seconds is required to achieve a photon-noise limited signal level. By implementing 16-pixel binning, an equivalent SNR and total number of detected photons per pixel is reached at an exposure time of only 0.25 seconds (see Figure 2), which would allow refreshing a preview image at an adequate frame rate to permit focusing and specimen positioning even at a low image intensity. Another consideration is that an image acquired using a 4-second integration time would benefit from an approximate 5-times improvement in signal-to-noise ratio with the use of 16-pixel binning, compared to the unbinned mode. In many situations, particularly at low light levels, the benefits of reduced noise and the resulting improved image contrast outweigh the loss of theoretical spatial resolution that is inherent to the pixel binning process.

Contributing Authors

Thomas J. Fellers, **Kimberly M. Vogt**, and **Michael W. Davidson** - National High Magnetic Field Laboratory, 1800 East Paul Dirac Dr., The Florida State University, Tallahassee, Florida, 32310.

BACK TO DIGITAL IMAGING IN OPTICAL MICROSCOPY

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/327,227	12/15/2011	Christen V. Nielsen	20004/80842US01	4352

81905 7590 05/20/2014

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DRENNAN, BARRY T	
ART UNIT	PAPER NUMBER
2665	

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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.

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Office Action Summary	Application No. 13/327,227	Applicant(s) NIELSEN, CHRISTEN V.	
	Examiner Barry Drennan	Art Unit 2665	AIA (First Inventor to File) Status No

-- 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* MONTHS 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 *15 December 2011*.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-29* 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) *1-29* is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

11)☒ The drawing(s) filed on *15 December 2011* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *6/25/2013*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

TVision Insights, Inc. – Ex. 1002, Page 000097

This is cited Non-Patent Literature

DETAILED ACTION

Priority

1. This application was filed 15 December 2011 and does not claim priority to any other application.

Priority

2. The preliminary amendment filed concurrently with the present application, cancelling claims 30-34, has been entered in full. Accordingly, claims 1-29 are pending in the application.

Specification

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

The following title is suggested: "Counting people in low-resolution non-illuminated images and identifying people in high-resolution illuminated images".

Claim Objections

4. ***Claims 3 and 16*** are objected to because of the following informalities.

5. **Claim 3** recites "wherein the binner is to bin the pixels *to and* increase a contrast level". This appears to be a typographical error, with "and to" being intended instead of "to and". Appropriate correction is required.

This is cited Non-Patent Literature

6. **Claim 16** recites "personal", which appears to be a typographical error where "person" was intended. Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 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.

8. ***Claims 21-29*** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a "tangible computer readable medium". However, the word "tangible" does not exclude all transitory forms of media. For example, a high-powered laser beam could be modulated to carry the claimed instruction data; while this medium would certainly be tangible - as anyone unfortunate enough to put their hand in the beam path would soon realize - it would also be transitory.

Transitory forms of media do not fall within any of the four statutory classes of invention under 35 U.S.C. 101 (*In re Nuijten*, 500 F.3d 1346, 84 USPQ2d 1495 (Fed. Cir. 2007)) (See also USPTO Official Gazette notice 1351 OG 212.).

Claim Rejections - 35 USC § 112

9. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

This is cited Non-Patent Literature

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

10. ***Claims 5, 6, 13, 14, 20, 27, and 28*** are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

11. With respect to **claims 5, 13, 20, and 27**, the claims each recite "high-resolution sensor". However, the meaning of the term "high" in this context is subjective and unclear; the ordinary artisan would not know how high the sensor resolution would need to be to qualify as "high resolution", and the present specification fails to provide sufficient guidance in construing this term. This renders the claims indefinite.

12. With respect to **claims 6, 14, and 28**, the claims each recite "XBOX Kinect". The use of trademarks in a claim generally leads to indefiniteness, in part because the scope of the claim can change based upon the whims of a third party; additionally, trademarks are not intended to identify a product, but rather to identify the source or origin of a product. *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). See also MPEP 2173.05(u).

References Cited in Prior Art Rejections

13. The following references are cited in the prior art rejections set forth below and are referred to as noted.

This is cited Non-Patent Literature

Widrow, B., U.S. Patent Application Publication 2006/0173560 A1. Published 3 August 2006, hereinafter **Widrow**.

Ojima et al., U.S. Patent Application Publication 2007/0263934 A1. Published 15 November 2007, hereinafter **Ojima**.

Fellers et al., "Nikon MicroscopyU: Interactive Java Tutorials - CCD Signal-to-Noise Ratio." http://www.microscopyu.com/tutorials/java/digitalimaging/signaltonoise/index.html . Published 5 August 2004, as archived by The Internet Archive, www.archive.org, hereinafter **Fellers**.

Suzuki et al., U.S. Patent Application Publication 2008/0232650 A1. Published 25 September 2008, hereinafter **Suzuki**.

Wikipedia. "Kinect." http://en.wikipedia.org/wiki/Kinect . Version as of 13 December 2010, hereinafter **Wikipedia**.

Claim Rejections - 35 USC § 103

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

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

15. ***Claims 1-5, 7-13, 16-20, 21-27*** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ojima, and further in view of Widrow and Fellers.

This is cited Non-Patent Literature

16. With respect to **claim 1**, the claim recites:

An apparatus, comprising:

a resolution determiner to determine that a first frame of image data is to undergo processing at a first resolution and that a second frame of image data is to undergo processing at a second resolution lower than the first resolution; and

a controller to activate an illuminator when an image sensor is to capture the first frame and to deactivate the illuminator when the image sensor is to capture the second frame.

Ojima discloses an apparatus (**Fig. 2**) which deactivates an illuminator during a phase in which people are counted, and then activates the flash in order to photograph the people, using the people counting information as part of the flash intensity calculation (**see Fig. 22, using Fig. 4 as part of the process disclosed therein**). Ojima therefore discloses a controller to activate an illuminator when an image sensor is to capture a first frame and to deactivate the illuminator when the image sensor is to capture the second frame (**i.e., the people counting in step #S202-205 corresponds to the second frame, while the actual photographing of the scene corresponds to the first frame**).

Ojima does not disclose determining that a first frame of image data is to undergo processing at a first resolution and a second frame is to undergo processing at a second resolution, the second resolution being lower than the first resolution.

However, Widrow teaches that people can be detected from an image at a low resolution, and subsequently identified at a high resolution (**paragraphs 292 and 408**).

This is cited Non-Patent Literature

Furthermore, Fellers teaches that an image can be subsampled by binning to increase contrast in a manner suitable for low-light conditions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Ojima by (1) using the low-resolution face detection of Widrow as a substitute for the face detection of Ojima, motivated by the improved speed of detection resulting from using a low resolution image to decrease the time taken to scan the detection window across the image; (2) adding the high-resolution face identification of Widrow to the well-lit high-resolution image subsequently captured, motivated by the need to identify people in an image such as for social media tagging purposes or for access control purposes; and (3) using the resolution reduction subsampling (binning) technique of Fellers, motivated by the improvement in contrast of the low-light image that would result (see Fellers, last sentence). Note that it would be obvious to consolidate the face counting of Ojima and the face detection of Widrow, to reduce redundancy of effort, and to use the high-quality well-lit image of Ojima for the face recognition of Widrow, because of the improvement in recognition accuracy that would result.

17. With respect to **claim 2**, Fellers further teaches a binner to bin pixels of the second frame (e.g., 2x2 binning; see last paragraph).

18. With respect to **claim 3**, Fellers further teaches that the binner is to bin the pixels to and increase a contrast level (see last sentence).

This is cited Non-Patent Literature

19. With respect to **claim 4**, Ojima as modified by Widrow and Fellers teach that the resolution determiner is to determine the first frame is to undergo processing at the first resolution by determining that the first frame is to be used for facial recognition (**the combination of references performs facial recognition on the well-lit high-resolution image**).

20. With respect to **claim 5**, Ojima further teaches a high-resolution image sensor to capture the first frame and to capture the second frame (**Fig. 2 #102**).

21. With respect to **claim 7**, the claim is obvious in view of Ojima in view of Widrow and Fellers as described above for claim 1, and the rejection for claim 1 is incorporated herein. The claim recites a method, comprising:

activating an illuminator when capturing a first frame of image data to be processed at a first resolution (**Ojima activates the illuminator to capture the image at full quality, i.e., high resolution**);

not activating the illuminator when capturing a second frame of image data to be processed at a second resolution lower than the first resolution (**Ojima deactivates the illuminator to capture a low-light image for counting people, and Fellers teaches binning pixels to reduce resolution of a low-light image to improve its contrast; this could be the image captured immediately prior to capturing the full quality "first" image, or could be captured as part of a previous iteration**); and

This is cited Non-Patent Literature

processing the first frame to identify a person in the image data (**Widrow teaches identifying people who were previously counted, using a high-resolution image**).

The rationale to combine the references is the same as given above for claim 1.

22. With respect to **claim 8**, Fellers further teaches binning pixels of the second frame (**last paragraph, e.g., 2x2 binning**).

23. With respect to **claim 9**, Fellers further teaches that binning the pixels comprises combining a first pixel with a second pixel adjacent to the first pixel (**2x2 binning**).

24. With respect to **claim 10**, Ojima in view of Widrow and Fellers further teach designating the first frame for processing at the first resolution when the first frame is to be analyzed by a facial recognition process (**Widrow teaches performing the high-resolution recognition for each face detected from the low-resolution image, meaning that if no faces are detected, then no recognition is performed thereafter; detecting faces in a low-light low-resolution image therefore designates the subsequent "first" frame for processing at high-resolution by the face recognition process**).

25. With respect to **claim 11**, Ojima in view of Widrow and Fellers further teach designating the first frame for processing at the first resolution in response to detecting a head or face shape in a third frame captured before the first frame (**the "third frame" here**

This is cited Non-Patent Literature

is the low-light low-resolution face detection image captured as taught by Ojima just before capturing the well-lit "first frame" image; as noted above, the first frame is designated for processing at the higher resolution for each face detected in the low-resolution image, as taught by Widrow).

26. With respect to **claim 12**, Ojima in view of Widrow and Fellers teach designating the first frame for processing at the first resolution in response to detecting that a head or face shape has been in a location for a period of time (**i.e., the period of time required to capture the previous low-light frame on which face detection is performed**).

27. With respect to **claim 13**, Ojima further teaches capturing the first frame and capturing the second frame are performed by a same high-resolution image sensor (**Fig. 2 #102**).

28. With respect to **claim 16**, the claim is obvious in view of Ojima in view of Widrow and Fellers as described above for claim 1, and the rejection for claim 1 is incorporated herein. The claim recites a method, comprising:

identifying a first frame of image data from which a person is to be identified; using an illuminator to illuminate an area when the first frame is captured (**Ojima activates the illuminator to capture the image at full quality, and Widrow teaches performing recognition on the high-resolution image**); and

This is cited Non-Patent Literature

not activating the illuminator when capturing a second frame of image data (**Ojima deactivates the illuminator to capture a low-light image for counting people, and Fellers teaches binning pixels to reduce resolution of a low-light image to improve its contrast; this could be the image captured immediately prior to capturing the full quality "first" image, or could be captured as part of a previous iteration**),

the second frame to be used to count persons in the area without identifying the persons (**Ojima teaches counting persons in the area, as above; the combined references teach using the well-lit high-resolution "first" frame to perform recognition**).

29. With respect to **claim 17**, Fellers further teaches binning pixels of the second frame (**e.g., 2x2 binning; see last paragraph**).

30. With respect to **claim 18**, Fellers further teaches that binning the pixels comprises combining a first pixel with a second pixel adjacent to the first pixel (**e.g., 2x2 binning; see last paragraph**).

31. With respect to **claim 19**, Fellers further teaches that the first frame has a first resolution, and the second frame has a second resolution lower than the first resolution after the binning (**binning reduces resolution by combining pixels**).

This is cited Non-Patent Literature

32. With respect to **claim 20**, Ojima further teaches that a same high-resolution image sensor is to capture the first and second frames of image data (**Fig. 2 #102**).

33. **Claims 21-27** are substantially similar to claims 7-13 and are therefore rejected for the same reasons given above. Ojima further teaches a tangible computer readable medium carrying the claimed instructions (**e.g., Fig. 2 #115b/c**).

34. ***Claims 6, 14, and 28*** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ojima, Widrow, and Fellers as applied to claims 5, 13, and 27 above, respectively, and further in view of the Microsoft Kinect product, on public sale in the United States on 4 November 2010 (using Wikipedia as evidence thereof).

35. With respect to **claims 6, 14, and 28**, the claims each recite:

An [apparatus/method/medium] as defined in claim [5/13/27], wherein the image sensor comprises an XBOX Kinect sensor product.

As disclosed by Wikipedia, the XBOX Kinect was on public sale in the United States on 4 November 2010, more than one year before the priority date of the present application.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Ojima, Widrow, and Fellers by utilizing the XBOX Kinect rather than the specific camera hardware disclosed by Ojima, representing the simple substitution of one known device for another with the predictable result of allowing for face counting and recognition; it is noted that the Kinect includes an

This is cited Non-Patent Literature

IR emitter usable as a flash in accordance with Ojima, or, alternatively, the ordinary artisan would find the use of an external flash to be routine as well. Moreover, this modification is motivated by the resulting ability to share face recognition information in images with other Xbox users online.

36. ***Claims 15 and 29*** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ojima, Widrow, and Fellers as applied to claims 7 and 21 above, and further in view of Suzuki.

37. With respect to **claims 15 and 29**, each claim recites the following:

A [method/medium] as defined in claim [7/21], wherein the illuminator comprises an infrared light emitting diode.

Suzuki teaches the use of an IR LED as a flash for assistance in illumination for face recognition (**paragraph 47**).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Ojima, Widrow, and Fellers by providing the IR emitter of Suzuki, motivated by the resulting decrease in people blinking in the subject images captured.

This is cited Non-Patent Literature

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Drennan whose telephone number is (571)270-7262. The examiner can normally be reached on Monday through Friday, 11am to 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on 571-272-7453. 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.

/Barry Drennan/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/327,227	12/15/2011	Christen V. Nielsen	20004/80842US01	4352

81905 7590 09/18/2014
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EXAMINER	
DRENNAN, BARRY T	
ART UNIT	PAPER NUMBER
2665	

NOTIFICATION DATE	DELIVERY MODE
09/18/2014	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):

jflight@hfzlaw.com
mhanley@hfzlaw.com
docketing@hfzlaw.com

This is cited Non-Patent Literature

Office Action Summary	Application No. 13/327,227	Applicant(s) NIELSEN, CHRISTEN V.	
	Examiner Barry Drennan	Art Unit 2665	AIA (First Inventor to File) Status No

-- 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* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☒ Responsive to communication(s) filed on *20 August 2014*.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-33* 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) *1-33* is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

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

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

This is cited Non-Patent Literature

DETAILED ACTION

Response to Amendment

1. The amendment filed 20 August 2014, adding four new claims, has been entered in full. Claims 1-33 are pending in the application. However, the four new claims were not added in accordance with 37 CFR 1.121(c)(1) and (c)(5), which requires in this case that previously cancelled claims 30-34 must still be presented as cancelled, with new claims being presented starting with claim number 35.

Applicant must re-cancel claims 30-33 and may, if desired, present these claims again as claims 35-38 in Applicant's next response. An objection to the claims to this effect is set forth below.

For purposes of moving prosecution forward, all presented claims are considered on the merits in this Office action rather than sending a notice of noncompliance to Applicant.

Response to Arguments

2. Applicant has argued, in response to the rejections of claims 21-29 under 35 U.S.C. 101, that the specification, at paragraph 35, provides a special definition for the term "tangible computer readable medium" that expressly disclaims propagating signals from the scope of this term. Examiner thanks Applicant for pointing out this passage in the specification and agrees that this claim term should be construed accordingly. Therefore, the rejections of claims 21-29 under 35 U.S.C. 101 are withdrawn.

This is cited Non-Patent Literature

3. Applicant has amended claims 5, 6, 13, 14, 20, 27, and 28 in response to the rejections of those claims under 35 U.S.C. 112, second paragraph, as being indefinite.[1] The amendment resolves the issues of indefiniteness raised in the prior Office action, and accordingly, the rejections of these claims under 35 U.S.C. 112, second paragraph, are withdrawn, excepting any claims for which separate issues of indefiniteness have arisen by way of the amendment, as noted below.

4. Applicant has amended claims 1, 7, 16, and 21 in response to the rejections of the various claims under 35 U.S.C. 103(a) as being obvious in view of the prior art of record. Applicant's arguments are directed to the claims as amended.

Applicant sets forth two arguments pertaining to the rejection of claim 1 under 35 U.S.C. 103(a) as being obvious over Ojima in view of Widrow and Fellers. In particular, Applicant argues:

1) That "Ojima does not determine, before a frame of image is captured, whether the frame is to undergo processing at a first greater than a second resolution" (p. 11, emphasis in original).

2) That Widrow does not cure this deficiency, and makes a determination "after the photograph is captured" (p. 11, emphasis in original).

Examiner respectfully disagrees with Applicant's arguments. Ojima must necessarily determine, before a frame is captured, whether to use the flash or not. The

[1] Applicant erroneously indicates in the response at pp. 9-10 that these claims were rejected under the written description requirement of 35 U.S.C. 112, first paragraph. Examiner believes this error was unintentional and notes that the amendments address the grounds of rejection that were actually set forth in the prior Office action.

This is cited Non-Patent Literature

frames taken before the face detection has taken place must necessarily occur without using the flash - as a result, the determination has necessarily been reached not to use a flash for these frames. The determination is subsequently reached to use a flash for taking the actual image (i.e., the image desired by the photographer as the final result of the process). In fact, these determinations are expressly disclosed in Fig. 22 (#S401, disabling the flash, occurring before performing the face detection processing, which necessarily requires image capture and occurs without a flash, and #S408/412, enabling the flash for the next image capture at and beyond #S426).

While it is acknowledged that Ojima by itself does not reach a determination of whether the frame is to be processed at a low or high resolution, this determination comes about through combination of Ojima with Widrow and Fellers. Widrow teaches that a low resolution image can be used to detect the locations of faces in an image, and Fellers teaches that contrast can be improved in an image through binning, which improves contrast while simultaneously reducing resolution.

As Ojima notes, an image is first captured for detecting faces without using a flash; such an image will necessarily be of low contrast. Fellers's technique can improve this contrast by binning the image, at the cost of resolution. But Widrow teaches that faces can be located in the image at low resolution anyway, deferring recognition of the faces for a high resolution image.

Since Ojima's process takes place rapidly, the people in the image will likely not move much (if at all, since most subjects stay still in portrait-type images), and so the locations detected by Widrow will provide an accurate determination of whether there are

This is cited Non-Patent Literature

any faces in the non-flash image, as well as where the faces will be found in the second high-resolution image. Thus, even though Widrow specifically teaches downsampling the same image for face detection at low resolution, the ordinary artisan would understand that this particular feature is not necessary (and would not be desired) for combination with Ojima, since Ojima ultimately makes an effort to capture an image at high contrast *and* high resolution, which is the final image desired by the photographer, while only using the flash once to avoid distracting the subject.

The resulting combination of Ojima with Widrow and Fellers functions as such:

1. Disable flash (corresponding to the determination to process at a second resolution, and deactivating the illuminator)
2. Capture a first image without the flash
3. Bin the image to reduce resolution and increase contrast
4. Detect faces in the low-resolution image (processing at second resolution)
5. Set the flash based on the detected faces (corresponding to the determination that the next captured image will be processed at a higher first resolution, and activating the illuminator)
6. Capture a second image with the flash
7. Recognize faces in the high-resolution flash image (processing at first resolution)

Applicant's arguments for claims 7, 16, and 21 are substantially the same as those given above for claim 1 and are likewise not convincing. Accordingly, the rejections of claims 1-29 under 35 U.S.C. 103(a) are maintained.

5. All new grounds of rejection set forth herein are necessitated by Applicant's amendment. Accordingly, this action is made final.

This is cited Non-Patent Literature

6. Following is a statement of all objections and rejections pending in the application.

Claim Objections

7. ***Claims 30-34*** are objected to under 37 CFR 1.121(c) because claims 30-33 utilize the numbers of previously cancelled claims instead of being presented as new claim numbers starting with the next claim number in sequence (i.e., as claims 35-38), and because previously cancelled claim 34 was not presented at all.

Claims 30-33 must be cancelled in the next response, claims 30-34 must be presented as cancelled in the next response, and the claims presented in the current response as claims 30-33 may be presented, if desired, as claims 35-38 in the next response.

Claim Rejections - 35 USC § 112

8. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

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

9. ***Claims 2-5, 7-15, and 31*** are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

This is cited Non-Patent Literature

10. With respect to **claim 2**, the claim recites "further comprising a binner to bin pixels of the frame processed at the second resolution". However, the frame recited in claim 1 is only recited as "the frame *is to undergo processing* at the second resolution", thereby creating an issue of unclear antecedent basis. (Moreover, the binner is intended to cause the image to be reduced to the second resolution, and so therefore cannot bin pixels of a frame that is already processed at the second resolution.)

11. With respect to **claim 7**, the claim recites "the second frame" on line 5 of the claim, for which antecedent basis is not yet established.

12. **Claims 3-5, 8-15, and 31** each depend from an indefinite claim and are likewise indefinite.

References Cited in Prior Art Rejections

13. The following references are cited in the prior art rejections set forth below and are referred to as noted.

Widrow, B., U.S. Patent Application Publication 2006/0173560 A1. Published 3 August 2006, hereinafter **Widrow**.

Ojima et al., U.S. Patent Application Publication 2007/0263934 A1. Published 15 November 2007, hereinafter **Ojima**.

Fellers et al., "Nikon MicroscopyU: Interactive Java Tutorials - CCD Signal-to-Noise Ratio."

This is cited Non-Patent Literature

http://www.microscopyu.com/tutorials/java/digitalimaging/signaltonoise/index.html . Published 5 August 2004, as archived by The Internet Archive, www.archive.org, hereinafter **Fellers**.

Suzuki et al., U.S. Patent Application Publication 2008/0232650 A1. Published 25 September 2008, hereinafter **Suzuki**.

Wikipedia. "Kinect." http://en.wikipedia.org/wiki/Kinect . Version as of 13 December 2010, hereinafter **Wikipedia**.

Claim Rejections - 35 USC § 103

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

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

15. ***Claims 1-5, 7-13, 16-20, 21-27, and 30-33*** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ojima, and further in view of Widrow and Fellers.

16. With respect to **claim 1**, the claim recites:

An apparatus, comprising:

a resolution determiner to, before a frame of image data is captured, determine whether the frame of image data is to undergo processing at a first resolution greater than a second resolution; and

a controller to:

This is cited Non-Patent Literature

activate an illuminator when the frame is to undergo processing at the first resolution and

deactivate the illuminator when the frame is to undergo processing at the second resolution.

Ojima discloses an apparatus (**Fig. 2**) which deactivates an illuminator during a phase in which people are counted, and then activates the flash in order to photograph the people, using the people counting information as part of the flash intensity calculation (**see Fig. 22, using Fig. 4 as part of the process disclosed therein**). Ojima therefore discloses a controller to activate an illuminator when an image sensor is to capture a first frame and to deactivate the illuminator when the image sensor is to capture the second frame (**i.e., the people counting in step #S202-205 corresponds to the second frame, while the actual photographing of the scene corresponds to the first frame**).

In addition, Ojima discloses making a determination not to use a flash before capturing an image from which faces are detected (**Fig. 22 #S401**), and a determination to use a flash before capturing a subsequent final high quality high resolution image (**Fig. 22 #S408/412**).

Ojima does not disclose determining that a first frame of image data is to undergo processing at a first resolution and a second frame is to undergo processing at a second resolution, the second resolution being lower than the first resolution.

However, Widrow teaches that people can be detected from an image at a low resolution, and subsequently identified at a high resolution (**paragraphs 292 and 408**).

This is cited Non-Patent Literature

Furthermore, Fellers teaches that an image can be subsampled by binning to increase contrast in a manner suitable for low-light conditions.

As combined with Widrow and Fellers, the determination of Ojima would thus be a determination of whether an image is to go processing at a first or second resolution as a result of that factor being coincident with whether a flash is to be used when lighting conditions are low.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Ojima by (1) using the low-resolution face detection of Widrow as a substitute for the face detection of Ojima, motivated by the improved speed of detection resulting from using a low resolution image to decrease the time taken to scan the detection window across the image; (2) adding the high-resolution face identification of Widrow to the well-lit high-resolution image subsequently captured, motivated by the need to identify people in an image such as for social media tagging purposes or for access control purposes; and (3) using the resolution reduction subsampling (binning) technique of Fellers, motivated by the improvement in contrast of the low-light image that would result (see Fellers, last sentence). Note that it would be obvious to consolidate the face counting of Ojima and the face detection of Widrow, to reduce redundancy of effort, and to use the high-quality well-lit image of Ojima for the face recognition of Widrow, because of the improvement in recognition accuracy that would result.

See also the discussion in the Response to Arguments above, which is incorporated in this rejection by reference.

This is cited Non-Patent Literature

17. With respect to **claim 2**, Fellers further teaches a binner to bin pixels of the frame processed at the second resolution (**e.g., 2x2 binning; see last paragraph, applied to the non-flash image to produce a low resolution image needed by Widrow**).

18. With respect to **claim 3**, Fellers further teaches that the binner is to increase a contrast level (**see last sentence**).

19. With respect to **claim 4**, Ojima as modified by Widrow and Fellers teach that the resolution determiner is to determine the frame is to undergo processing at the first resolution by determining that the frame is to be used for facial recognition (**the combination of references performs facial recognition on the well-lit high-resolution image; the disabling of the flash at #S401, or the enabling of the flash at #S408/412 is a determination of whether the subsequently captured image is a preview image for face detection/location or a final image on which face recognition, as taught by Widrow, is performed**).

20. With respect to **claim 5**, Ojima further teaches an image sensor to capture the frame (**Fig. 2 #102**).

This is cited Non-Patent Literature

21. With respect to **claim 7**, the claim is obvious in view of Ojima in view of Widrow and Fellers as described above for claim 1, and the rejection for claim 1 is incorporated herein. The claim recites a method, comprising:

in response to determining that a first frame of image data is to undergo processing at a first resolution greater than a second resolution, activating an illuminator while capturing the first frame (**Ojima activates the illuminator to capture the image at full quality, i.e., high resolution, Fig. 22 #S408/412, and Widrow teaches processing the image to recognize faces**);

in response to determining that the second frame of image data is to be processed at the second resolution, not activating the illuminator while capturing the second frame (**Ojima deactivates the illuminator to capture a low-light image for counting people, and Fellers teaches binning pixels to reduce resolution of a low-light image to improve its contrast; Widrow teaches detecting and locating faces in a low-resolution image; this could be the image captured immediately prior to capturing the full quality "first" image, or could be captured as part of a previous iteration**); and

processing the first frame to identify a person in the image data (**as above, Widrow teaches identifying people who were previously counted, using a high-resolution image**).

The rationale to combine the references is the same as given above for claim 1.

22. With respect to **claim 8**, Fellers further teaches binning pixels of the second frame (**last paragraph, e.g., 2x2 binning**).

This is cited Non-Patent Literature

23. With respect to **claim 9**, Fellers further teaches that binning the pixels comprises combining a first pixel with a second pixel adjacent to the first pixel (**2x2 binning**).

24. With respect to **claim 10**, Ojima in view of Widrow and Fellers further teach designating the first frame for processing at the first resolution when the first frame is to be analyzed by a facial recognition process (**Widrow teaches performing the high-resolution recognition for each face detected from the low-resolution image, meaning that if no faces are detected, then no recognition is performed thereafter; detecting faces in a low-light low-resolution image therefore designates the subsequent "first" frame for processing at high-resolution by the face recognition process**).

25. With respect to **claim 11**, Ojima in view of Widrow and Fellers further teach designating the first frame for processing at the first resolution in response to detecting a head or face shape in a third frame captured before the first frame (**the "third frame" here is the low-light low-resolution face detection image captured as taught by Ojima just before capturing the well-lit "first frame" image; as noted above, the first frame is designated for processing at the higher resolution for each face detected in the low-resolution image, as taught by Widrow; furthermore, the "second frame" in claim 7 in this interpretation is a frame captured from a previous iteration of the taught method, as noted above**).

This is cited Non-Patent Literature

26. With respect to **claim 12**, Ojima in view of Widrow and Fellers teach designating the first frame for processing at the first resolution in response to detecting that a head or face shape has been in a location for a period of time (**i.e., the period of time required to capture the previous low-light frame on which face detection is performed**).

27. With respect to **claim 13**, Ojima further teaches capturing the first frame and capturing the second frame are performed by a same image sensor (**Fig. 2 #102**).

28. With respect to **claim 16**, the claim is obvious in view of Ojima in view of Widrow and Fellers as described above for claim 1, and the rejection for claim 1 is incorporated herein. The claim recites a method, comprising:

in response to determining, before a first frame of image data is captured, that the first frame of image data is to undergo a facial recognition process, using an illuminator to illuminate an area when capturing the first frame (**Ojima activates the illuminator to capture the image at full quality, and Widrow teaches performing recognition on the high-resolution image**); and

in response to determining, before a second frame of image data different than the first frame of image data is captured by an image sensor, that the second frame is not to undergo the facial recognition process, not activating the illuminator when capturing the second frame of image data (**Ojima deactivates the illuminator to capture a low-light image for counting people, and Fellers teaches binning pixels to reduce resolution of**

This is cited Non-Patent Literature

a low-light image to improve its contrast; this could be the image captured immediately prior to capturing the full quality "first" image, or could be captured as part of a previous iteration).

29. With respect to **claim 17**, Fellers further teaches binning pixels of the second frame (**e.g., 2x2 binning; see last paragraph**).

30. With respect to **claim 18**, Fellers further teaches that binning the pixels comprises combining a first pixel with a second pixel adjacent to the first pixel (**e.g., 2x2 binning; see last paragraph**).

31. With respect to **claim 19**, Fellers further teaches that the first frame has a first resolution, and the second frame has a second resolution lower than the first resolution after the binning (**binning reduces resolution by combining pixels**).

32. With respect to **claim 20**, Ojima further teaches that a same high-resolution image sensor is to capture the first and second frames of image data (**Fig. 2 #102**).

33. **Claims 21-27** are substantially similar to claims 7-13 and are therefore rejected for the same reasons given above. Ojima further teaches a tangible computer readable medium carrying the claimed instructions (**e.g., Fig. 2 #115b/c**).

This is cited Non-Patent Literature

34. With respect to **claim 30**, Ojima, Widrow, and Fellers further teach that the resolution determiner is to determine whether the frame of image data is to undergo processing at the first resolution based on at least one of a shape corresponding to a human head or face appearing in a previous frame (**i.e., if no faces were detected in the previous frame, the flash is not activated according to Ojima and the face recognition is necessarily not performed according to Widrow**), a person having moved from a position in the previous frame, or a fixed time interval (**the time required between the capture of the previous frame at Fig. 22 #S403 and the capture of the final frame at/immediately after #S426, inasmuch as the entirety of this process is automatic and not subject to substantial change in duration**).

35. **Claims 31-33** are substantially similar to claim 30 and are therefore rejected for the same reasons given above.

36. ***Claims 6, 14, and 28*** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ojima, Widrow, and Fellers as applied to claims 5, 13, and 27 above, respectively, and further in view of the Microsoft Kinect product, on public sale in the United States on 4 November 2010 (using Wikipedia as evidence thereof).

37. With respect to **claims 6, 14, and 28**, the claims each recite:

An [apparatus/method/medium] as defined in claim [5/13/27], wherein the image sensor comprises a three-dimensional sensor.

This is cited Non-Patent Literature

As disclosed by Wikipedia, the XBOX Kinect was on public sale in the United States on 4 November 2010, more than one year before the priority date of the present application.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Ojima, Widrow, and Fellers by utilizing the XBOX Kinect rather than the specific camera hardware disclosed by Ojima, representing the simple substitution of one known device for another with the predictable result of allowing for face counting and recognition; it is noted that the Kinect includes an IR emitter usable as a flash in accordance with Ojima, or, alternatively, the ordinary artisan would find the use of an external flash to be routine as well. Moreover, this modification is motivated by the resulting ability to share face recognition information in images with other Xbox users online.

38. ***Claims 15 and 29*** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ojima, Widrow, and Fellers as applied to claims 7 and 21 above, and further in view of Suzuki.

39. With respect to **claims 15 and 29**, each claim recites the following:

A [method/medium] as defined in claim [7/21], wherein the illuminator comprises an infrared light emitting diode.

Suzuki teaches the use of an IR LED as a flash for assistance in illumination for face recognition (**paragraph 47**).

This is cited Non-Patent Literature

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Ojima, Widrow, and Fellers by providing the IR emitter of Suzuki, motivated by the resulting decrease in people blinking in the subject images captured.

Conclusion

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

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Drennan whose telephone number is (571)270-7262. The examiner can normally be reached on Monday through Friday, 11am to 7pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on 571-272-7453. 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.

/Barry Drennan/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

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NOTICE OF ALLOWANCE AND FEE(S) DUE

81905 7590 03/06/2015
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
DRENNAN, BARRY T

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 03/06/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/327,227	12/15/2011	Christen V. Nielsen	20004/80842US01	4352

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

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	06/08/2015

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.

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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Alexandria, Virginia 22313-1450
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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)

81905 7590 03/06/2015
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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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.
13/327,227	12/15/2011	Christen V. Nielsen	20004/80842US01	4352

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

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nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	06/08/2015

EXAMINER	ART UNIT	CLASS-SUBCLASS
DRENNAN, BARRY T	2665	382-118000

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 _____
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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)
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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
  NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27
  NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status.
  NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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81905 7590 03/06/2015

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Chicago, IL 60606

EXAMINER	
DRENNAN, BARRY T	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 03/06/2015

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.

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

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

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether 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.

This is cited Non-Patent Literature

Examiner-Initiated Interview Summary	**Application No.** 13/327,227	**Applicant(s)** NIELSEN, CHRISTEN V.	
	Examiner Barry Drennan	**Art Unit** 2665	

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

(1) *Barry Drennan*. (3)_____.

(2) *Daniel Glitto, Reg. No. 58,996, Atty of Record*. (4)_____.

Date of Interview: *25 February 2015*.

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: *16*.

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...)

Offered Examiner's amendment to place application in condition for allowance, to which Applicant's representative agreed. The amendment is as shown in the accompanying Notice of Allowability.

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

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

☐ Attachment

/Barry Drennan/
Primary Examiner, Art Unit 2665

TVision Insights, Inc. – Ex. 1002, Page 000135

This is cited Non-Patent Literature

Notice of Allowability	Application No. 13/327,227	Applicant(s) NIELSEN, CHRISTEN V.	
	Examiner Barry Drennan	Art Unit 2665	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 *the Request for Continued Examination filed 20 January 2015*.
   ☐ 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 *1-3,5-10,12-24 and 26-29*. 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 2/25/2015
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 _____.

/Barry Drennan/
Primary Examiner, Art Unit 2665

TVision Insights, Inc. – Ex. 1002, Page 000136

This is cited Non-Patent Literature

EXAMINER'S AMENDMENT

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

Authorization for this examiner's amendment was given in a telephone interview with Daniel Glitto, Reg. No. 58,996, Attorney of Record, on 25 February 2015.

The application has been amended as follows:

In ***claim 16, on line 4*** of the claim, **delete** the phrase "detected in the first frame".

This is cited Non-Patent Literature

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 January 2015 has been entered.

Response to Amendment

3. The amendment filed 20 January 2015, cancelling claims 4, 11, and 25, has been entered in full. Accordingly, claims 1-3, 5-10, 12-24, and 26-29 are pending in the application.

Response to Arguments

4. Applicant has amended various claims in response to the rejections under 35 U.S.C. 112, second paragraph, and 35 U.S.C. 103(a). Applicant's arguments pertaining to these amendments are found convincing. Accordingly, the rejections are withdrawn.

5. As there are no further pending objections or rejections, this application is in condition for allowance.

This is cited Non-Patent Literature

Allowable Subject Matter

6. ***Claims 1-3, 5-10, 12-24, and 26-29*** are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barry Drennan whose telephone number is (571)270-7262. The examiner can normally be reached on Monday through Friday, 11am to 7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on 571-272-7453. 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.

/Barry Drennan/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

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.
14/732,175	06/05/2015	Christen V. Nielsen	20004/80842US02	3156

81905 7590 07/08/2016

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2665	

NOTIFICATION DATE	DELIVERY MODE
07/08/2016	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):

jflight@hfzlaw.com
mhanley@hfzlaw.com
docketing@hfzlaw.com

This is cited Non-Patent Literature

Office Action Summary	Application No. 14/732,175	Applicant(s) NIELSEN, CHRISTEN V.	
	Examiner Amandeep Saini	Art Unit 2665	AIA (First Inventor to File) Status No

-- 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 *2* MONTHS 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 *06/05/2015*.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-22* 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) _____ is/are rejected.

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

9)☒ Claim(s) *1-22* are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

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

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

This is cited Non-Patent Literature

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Election/Restrictions

2. This application contains claims directed to the following patentably distinct species:

Species I, directed to the illumination source is active while capturing image data or illumination mode when the illumination source is inactive; using that data to detect a head in a first frame at a first time and using facial recognition to capture a second frame at a second time with a greater than likely threshold; use the illumination mode when active at a second time when a head is oriented and detect when facial recognition process is greater than the threshold; and use the illumination mode when inactive at a second time when a head is not oriented and detected when facial recognition process is greater than a threshold, corresponding to claims 1-12. The disclosure of species I in the specification is not clearly apparent. Particularly, the comparison to a threshold or being effective is not disclosed.

Species II, disclosed in [0038], directed to the two modes as described in species I, however, claim species II further describes a facial recognition process on the captured image data is performed when in the first illumination mode, but not in the second illumination mode, corresponding to claims 13-22.

The species are independent or distinct because they recite alternative techniques for when to apply facial recognition based upon image analysis. In addition, these species are not obvious variants of each other based on the current record.

This is cited Non-Patent Literature

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species, or a single grouping of patentably indistinct species, for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claims are generic.

There is a search and/or examination burden for the patentably distinct species as set forth above because at least the following reason(s) apply: The search involved for each species is substantially different in strategy; for example, Species I would require a search for the applying facial recognition based upon the analyzed data and compared to a threshold or when it is effective, while Species II would require a search for the application of the facial recognition based upon the analyzed data in a first illumination mode, but not in a second illumination mode.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species or grouping of patentably indistinct species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species or grouping of patentably indistinct species.

This is cited Non-Patent Literature

Should applicant traverse on the ground that the species, or groupings of patentably indistinct species from which election is required, are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing them to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103 or pre-AIA 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be corrected in compliance with 37 CFR 1.48(a) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. A request to correct inventorship under 37 CFR 1.48(a) must be accompanied by an application data sheet in accordance with 37 CFR 1.76 that identifies each inventor by his or her legal name and by the processing fee required under 37 CFR 1.17(i).

This is cited Non-Patent Literature

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on Monday - Friday: 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Koziol can be reached on 571-270-1844. 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.

/Amandeep Saini/
Examiner, Art Unit 2665

This is cited Non-Patent Literature

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

81905 7590 09/23/2016
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
SAINI, AMANDEEP SINGH

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 09/23/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/732,175	06/05/2015	Christen V. Nielsen	20004/80842US02	3156

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

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	12/23/2016

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.

TVision Insights, Inc. – Ex. 1002, Page 000146

This is cited Non-Patent Literature

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)

81905 7590 09/23/2016
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/732,175	06/05/2015	Christen V. Nielsen	20004/80842US02	3156

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

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	12/23/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAINI, AMANDEEP SINGH	2665	382-100000

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

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

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

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

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

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

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

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or 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
  NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27
  NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status.
  NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TVision Insights, Inc. – Ex. 1002, Page 000147

This is cited Non-Patent Literature

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.
14/732,175	06/05/2015	Christen V. Nielsen	20004/80842US02	3156

81905 7590 09/23/2016

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 09/23/2016

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.

TVision Insights, Inc. – Ex. 1002, Page 000148

This is cited Non-Patent Literature

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.

This is cited Non-Patent Literature

Examiner-Initiated Interview Summary	**Application No.** 14/732,175	**Applicant(s)** NIELSEN, CHRISTEN V.	
	Examiner Amandeep Saini	**Art Unit** 2665	

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

(1) *Amandeep Saini*. (3)_____.

(2) *Steven L. Webb (R# 44,395)*. (4)_____.

Date of Interview: *15 September 2016*.

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: *N/A*.

Identification of prior art discussed: *N/A*.

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 has approved the amendment to specification to incorporate the U.S. Patent No. in [0001].

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

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

☐ Attachment

/Amandeep Saini/ Examiner, Art Unit 2665	

This is cited Non-Patent Literature

Notice of Allowability	Application No. 14/732,175	Applicant(s) NIELSEN, CHRISTEN V.	
	Examiner Amandeep Saini	Art Unit 2665	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 *the remarks filed on 09/07/2016*.
   ☐ 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 *13-27*. 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 _____.

/Amandeep Saini/ Examiner, Art Unit 2665	/SIAMAK HARANDI/ Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Election/Restrictions

2. Applicant's election without traverse of the invention of Group II (i.e., claims 13 - 22) in the reply filed on 09/07/2016 is acknowledged. Accordingly, claims 1-12 have been cancelled without prejudice. New claims 23-27 are added.

Claim Rejections - 35 USC § 101

3. 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.

Claims 13-22 are not rejected under 35 U.S.C. 101 because the claimed invention is not directed to non-statutory subject matter. The claimed subject matter recites" a tangible computer readable medium" which by definition means something you can touch and therefore a signal per say is not a tangible medium. Further, applicants specification, [0036], recites the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals.

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This is cited Non-Patent Literature

Examiner's Amendment

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

Authorization for this examiner's amendment was given in an interview with Steven L. Webb (R# 44,395) on 09/15/2016. Please amend the specification to incorporate the U.S. Patent No. as shown below in the "related application section", paragraph [0001].

RELATED APPLICATION

[0001] This patent arises from a continuation of U.S. patent application Ser. No. 13/327,227, filed Dec. 15, 2011, now U.S. Pat. No. US 9,082,004, which is hereby incorporated herein by reference in its entirety.

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This is cited Non-Patent Literature

Allowable Subject Matter

5. Claims 13-27 are allowed. The following is an examiner's statement of reasons for allowance: The prior art of record, either alone or in combination, fails to teach or suggest: the acquisition of an image in a first and second illumination mode, the orientation of a head within the captured image respectively being oriented in a desired position and not in a desired position, the illumination respectively being active and inactive, to ultimately perform facial recognition on the first illumination mode. For example, Ojima, Figure 2 & 22, teaches discloses an apparatus which toggles an illuminator active and inactive in order to photograph people and making a determination not to use a flash before capturing an image from which faces are detected, however, Ojima does not explicitly teach the orientation of the head being in a desired position in the initial image acquisition with illumination and the head not being in a desired position in the initial image while capturing the second image. Further, for example, Breed, [0534], teaches the facial recognition in different illuminations, however, this is completed when illumination is poor and not specifically when the illumination is present in the first image and not present in the second image. Therefore, it is for at least the aforementioned reasons, the prior art of record, either alone or in combination, fails to teach or suggest the claimed subject matter.

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."

This is cited Non-Patent Literature

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on Monday - Friday: 8:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Koziol can be reached on 571-270-1844. 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.

/Amandeep Saini/
Examiner, Art Unit 2665

/SIAMAK HARANDI/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

81905 7590 08/02/2017
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
SAINI, AMANDEEP SINGH

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 08/02/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/419,120	01/30/2017	Christen V. Nielsen	20004/80842US03	3367

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

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	11/02/2017

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.

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This is cited Non-Patent Literature

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)

81905 7590 08/02/2017
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/419,120	01/30/2017	Christen V. Nielsen	20004/80842US03	3367

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

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	11/02/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAINI, AMANDEEP SINGH	2665	382-100000

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

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

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

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

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

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

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

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or 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
  NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27
  NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status.
  NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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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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P.O. Box 1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/419,120	01/30/2017	Christen V. Nielsen	20004/80842US03	3367

81905 7590 08/02/2017

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 08/02/2017

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.

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TVision Insights, Inc. – Ex. 1002, Page 000158

This is cited Non-Patent Literature

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether 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.

This is cited Non-Patent Literature

Notice of Allowability	Application No. 15/419,120	Applicant(s) NIELSEN, CHRISTEN V.	
	Examiner Amandeep Saini	Art Unit 2665	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 *the application filed on 01/30/2017*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-20*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

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 _____.

/Amandeep Saini/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 101

2. 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.

3. Claims 14-20 are not rejected under 35 U.S.C. 101 because the tangible computer readable medium, as described in the specification [0036], to exclude propagating signals.

Claim Interpretation

4. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

5. The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

Use of the word "means" (or "step for") in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is invoked is rebutted when the function is recited with

This is cited Non-Patent Literature

sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word "means" (or "step for") in a claim creates a rebuttable presumption that the claim element **is not** to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

Claim elements in this application that use the word "means" (or "step for") are presumed to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action. Similarly, claim elements that do not use the word "means" (or "step for") are presumed not to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action.

6. Claim limitation "image capturing device" and "machine" has/have been interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because it uses/they use a generic placeholder "machine" coupled with functional language "capturing data", "determine", operate", perform", "synchronize", "bin" without reciting sufficient structure to achieve the function. Furthermore, the generic placeholder is not preceded by a structural modifier.

Since the claim limitation(s) invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, claim(s) 1, 4, 8, 10, 12-14, 16 and 19 has/have been interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth

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paragraph limitation: image capturing device: [0030] the device is a camera used to capture data; machine: [0035] the machine includes a processor to execute programs; “capturing data”, “determine”, operate”, perform”, “synchronize”, “bin”: see Figure 4.

If applicant wishes to provide further explanation or dispute the examiner’s interpretation of the corresponding structure, applicant must identify the corresponding structure with reference to the specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does not intend to have the claim limitation(s) treated under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112 , sixth paragraph, applicant may amend the claim(s) so that it/they will clearly not invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, or present a sufficient showing that the claim recites/recite sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

For more information, see MPEP § 2173 *et seq.* and *Supplementary Examination Guidelines for Determining Compliance With 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

This is cited Non-Patent Literature

Allowable Subject Matter

7. Claims 1-20 are allowed.

8. The following is an examiner's statement of reasons for allowance: The prior art of record, alone or in combination, fails to teach or suggest the prior art of record, either alone or in combination, fails to teach or suggest the specific illumination modes for face detection and performing facial recognition. For example, the prior art document US 2009/0091650 A1, teaches the illumination modes in claim 3 to be set, but does not explicitly state in which illumination mode and which orientation the face detection will occur.

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."

This is cited Non-Patent Literature

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on Monday - Friday: 8:00am - 4:00pm.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Koziol can be reached on 303-297-4332. 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.

/Amandeep Saini/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

81905 7590 08/23/2018

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 08/23/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/793,108	10/25/2017	Christen V. Nielsen	20004/80842US04	7221

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	11/23/2018

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.

TVision Insights, Inc. – Ex. 1002, Page 000166

This is cited Non-Patent Literature

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)

81905 7590 08/23/2018
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/793,108	10/25/2017	Christen V. Nielsen	20004/80842US04	7221

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	11/23/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAINI, AMANDEEP SINGH	2665	382-100000

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

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

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

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

1 _____
2 _____
3 _____

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

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

(A) NAME OF ASSIGNEE

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

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

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

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

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

❑ A check is enclosed.

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

❑ The director is hereby authorized to charge the required fee(s), any deficiency, or 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. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/793,108	10/25/2017	Christen V. Nielsen	20004/80842US04	7221

81905 7590 08/23/2018

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	
ART UNIT	**PAPER NUMBER**
2665	

DATE MAILED: 08/23/2018

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.

TVision Insights, Inc. – Ex. 1002, Page 000168

This is cited Non-Patent Literature

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.

This is cited Non-Patent Literature

Notice of Allowability	Application No. 15/793,108	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2665	AIA 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 the amendment and remarks filed on 06/04/2018.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3. ☑ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐All b) ☐ Some *c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file areply 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 _____.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2665

TVision Insights, Inc. – Ex. 1002, Page 000170

This is cited Non-Patent Literature

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Arguments

Double Patenting

2. With regards to the double patenting rejection of claim(s) 1, 8, and 15, applicant has filed terminal disclaimer. The terminal disclaimer filed on 08/10/2018 has been approved and the double patenting rejection has been withdrawn.

35 USC § 101

3. With regards to the 35 USC § 101 rejection of claim(s) 1, 8, and 15, applicant argues the claims present an actual real world process executed by a mobile device should not be rejected under 35 USC § 101. Applicant's remarks and amendments have been fully considered and are persuasive. The rejection under 35 USC § 101 with regards to claims 1, 8, and 15, along with their dependents, is withdrawn.

35 USC § 112 (b)

4. With regards to the 35 USC § 112 (b) claim rejection of claims 3, 9, 10, 12, and 17, applicant argues the claims as amended or presented are definite and for the aforementioned reasons the claims should not be rejected under 35 USC § 112 (b). Applicant's remarks and amendments have been fully considered and are persuasive. The claim rejection under 35 USC § 112 (b) with regards to claim 3, 9, 10, 12, and 17 are withdrawn.

35 USC § 112 (f)

5. With regards to the 35 USC § 112 (f) claim interpretation of claims 15, 16, 18, and 19, applicant argues the term "logic circuit" does not invoke 35 USC § 112 (f). Applicant's remarks

This is cited Non-Patent Literature

and amendments have been fully considered and are persuasive. The claim interpretation under 35 USC § 112 (f) with regards to the term logic circuit is withdrawn, however, the claim interpretations for the remaining terms is maintained and updated below.

Claim Interpretation

6. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

7. Use of the word "means" (or "step for") in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is invoked is rebutted when the function is recited with sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word "means" (or "step for") in a claim creates a rebuttable presumption that the claim element is not to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

This is cited Non-Patent Literature

Claim elements in this application that use the word "means" (or "step for") are presumed to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action. Similarly, claim elements that do not use the word "means" (or "step for") are presumed not to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action. Such claim limitation(s) is/are: image capturing means, triggering means, orientation determining means, facial recognition means, and illumination means in claim 15-19.

Because this/these claim limitation(s) is/are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, it/they is/are being interpreted to cover the corresponding structure described in the specification as performing the claimed function, and equivalents thereof.

If applicant does not intend to have this/these limitation(s) interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may: (1) amend the claim limitation(s) to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph (e.g., by reciting sufficient structure to perform the claimed function); or (2) present a sufficient showing that the claim limitation(s) recite(s) sufficient structure to perform the claimed function so as to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

This is cited Non-Patent Literature

Allowable Subject Matter

8. Claims 1-20 are allowed.

9. The following is an examiner's statement of reasons for allowance: the prior art of record, either alone or in combination, fails to teach or suggest the performing of a facial recognition on a second image, but not the first image, dependent upon the face orientation in the first image.

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."

This is cited Non-Patent Literature

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rudolph Vincent can be reached on (571)272-8243. 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.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/793,108	10/25/2017	Christen V. Nielsen	20004/80842US04	7221

81905 7590 03/02/2018

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2665	

NOTIFICATION DATE	DELIVERY MODE
03/02/2018	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):

jflight@hfzlaw.com
mhanley@hfzlaw.com
docketing@hfzlaw.com

TVision Insights, Inc. – Ex. 1002, Page 000176

This is cited Non-Patent Literature

Office Action Summary	Application No. 15/793,108	Applicant(s) NIELSEN, CHRISTEN V.	
	Examiner Amandeep Saini	Art Unit 2665	AIA (First Inventor to File) Status No

-- 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* MONTHS 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 *10/25/2017*.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

11)☒ The drawing(s) filed on *10/25/2017* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

This is cited Non-Patent Literature

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP

This is cited Non-Patent Literature

§§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 8 and 14 of U.S. Patent No. 9,843,717. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims of the immediate application are broader in scope of that of the U.S. Patent.

This is cited Non-Patent Literature

Claim Rejections - 35 USC § 101

4. 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.

5. Independent claim(s) 1, 8, and 15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter because the claim(s) as a whole, considering all claim elements both individually and in combination, do not amount to significantly more than an abstract idea.

The claims are directed to a statutory category (process, machine, manufacture, or composition of matter). The claims employ abstract idea of mathematical relationship, where information is organized and manipulated through mathematical correlation. The claims lack an inventive concept sufficient to transform the abstract idea into a patent-eligible invention. The claim does not include additional step(s)/element(s) that are sufficient to amount to significantly more than the judicial exception because the recited step(s)/element(s), when considered both individually and as an ordered combination, do not amount to more than the above-identified abstract idea. The additional elements or combination of elements "mobile phone" in the claim taken individually or in combination is not sufficient to amount to significantly more than the judicial exception (abstract idea) itself because the "mobile phone" is recited at a high level of generality as performing generic computer functions routinely used in computer applications. The use of generic computer components does not impose any meaningful limits on the computer implementation of the abstract idea. A claim without significantly additional limitations is not patent eligible.

This is cited Non-Patent Literature

In the present case, claim 1 is directed to the abstract idea of the configuration to capture an image, calculation of the face orientation in the image with respect to the configuration to capture the image, and in a particular scenario to capture another image and apply facial recognition to the another image.

Using the 101 subject matter eligibility test, the claims pass Step 1 since they are directed to a statutory category (process, machine, manufacture, or composition of matter). Analyzing under Step 2A, i.e., part 1- Mayo Test, the claims are directed to abstract idea and therefore must be analyzed at Step 2B. Using Step 2B, viewed as a whole, these additional claim element(s) do not provide meaningful limitation(s) to transform the abstract idea into a patent eligible application of the abstract idea such that the claim(s) amounts to significantly more than the abstract idea itself. Therefore, the claim(s) are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. The claims in question are most similar to *SmartGene, Inc. v. Advanced Biological Laboratories, SA* wherein information is analyzed and using rules to identify options.

Dependent claim(s) 2-7, 9-14, and 16-20 when analyzed as a whole are held to be patent ineligible under 35 U.S.C. 101 because the additional recited limitation(s) fail(s) to establish that the claim(s) is/are not directed to an abstract idea.

6. Claims 8-14 are directed to a "tangible computer readable medium" and is not rejected under 35 U.S.C. 101 because upon review of the specification, see [0036], “As used herein, the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals”.

This is cited Non-Patent Literature

Claim Rejections - 35 USC § 112

7. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 3, 9, 10, 12 and 17 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

a. Claims 7 and 8 recites the limitation "the illumination source". There is insufficient antecedent basis for this limitation in the claim.

b. Claims 15 and 18 recites the limitation "the image sensor". There is insufficient antecedent basis for this limitation in the claim.

c. Claims 3, 10, and 17 recite the limitations "high resolution image data", however, the meaning of the term "high" in this context is subjective and unclear. The ordinary artisan would not know the cope of how high the sensor resolution would be to qualify as "high resolution".

This is cited Non-Patent Literature

Claim Interpretation

9. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

10. Use of the word "means" (or "step for") in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is invoked is rebutted when the function is recited with sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word "means" (or "step for") in a claim creates a rebuttable presumption that the claim element **is not** to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

Claim elements in this application that use the word "means" (or "step for") are presumed to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action. Similarly, claim

This is cited Non-Patent Literature

elements that do not use the word "means" (or "step for") are presumed not to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action.

This application includes one or more claim limitations that do not use the word "means," but are nonetheless being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because the claim limitation(s) uses a generic placeholder that is coupled with functional language without reciting sufficient structure to perform the recited function and the generic placeholder is not preceded by a structural modifier. Such claim limitation(s) is/are: a logic circuit, illumination means, image capturing means, orientation determining means, triggering means, and facial recognition means in claims 15, 16, 18, and 19.

Because this/these claim limitation(s) is/are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, it/they is/are being interpreted to cover the corresponding structure described in the specification as performing the claimed function, and equivalents thereof.

If applicant does not intend to have this/these limitation(s) interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may: (1) amend the claim limitation(s) to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph (e.g., by reciting sufficient structure to perform the claimed function); or (2) present a sufficient showing that the claim limitation(s) recite(s) sufficient structure to perform the claimed function so as to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

This is cited Non-Patent Literature

Allowable Subject Matter

11. Although the prior art of record is not used to reject the claims as presented, the reasons for allowance are withheld upon resolution of the 101 and 112 issues noted above.

This is cited Non-Patent Literature

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on Monday - Friday: 8:00am - 4:00pm.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Koziol can be reached on 303-297-4332. 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.

/Amandeep Saini/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/196,810	11/20/2018	Christen V. Nielsen	80842US05	1069

81905 7590 05/13/2020

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
SAINI, AMANDEEP SINGH

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
05/13/2020	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):

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

This is cited Non-Patent Literature

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 16/196,810	**Applicant(s)** Nielsen, Christen V.	
	Examiner Amandeep Saini	**Art Unit** 2661	**AIA (FITF) Status** No

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

THE REPLY FILED 24 April 2020 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires ____ months from the mailing date of the final rejection.
   b) ☑ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☑ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____ (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☑ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: Upon further search and consideration US 2008/0048120 A1, 0023, teaches the infrared detector system without the use of a heat sink.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1-22.
    Claim(s) withdrawn from consideration:_____.

/AMANDEEP SAINI/ Primary Examiner, Art Unit 2661	

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/196,810	11/20/2018	Christen V. Nielsen	80842US05	1069

81905 7590 02/26/2020

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
02/26/2020	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):

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

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Office Action Summary	Application No. 16/196,810	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	AIA (FITF) Status No

-- 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 MONTHS 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 02/07/2020.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-22 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) 1-22 is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☑ The drawing(s) filed on 11/20/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Arguments

Double Patenting

2. With regards to the double patenting rejection of claim(s) 1, 8, and 15, applicant does not comment on the propriety of the rejections and asks the rejections be held in abeyance until allowable subject matter is confirmed. The double patenting rejection is updated below.

Claim Interpretation

3. With regards to the claim interpretation of claim(s) 8, and 11-13, applicant does not further clarify the claimed subject matter. The claim interpretation with regards to claim(s) 8, and 11-13 is maintained. Please note, the Office Action dated 11/07/2019 incorrectly identifies the claims. The correction claims interpreted are 8, and 11-13. The claim interpretation is updated below.

35 USC § 103

4. With regards to the 35 USC § 103 rejection of claim(s) 1, 8, and 15, applicant argues the claims as amended does not teach all the limitations and the claim(s) should not be rejected under 35 USC § 103. Applicant's amendments and remarks filed on 02/07/2020 have been entered and fully considered, but are not found convincing. The grounds of rejection set forth in the previous non-final rejection are maintained; herein; accordingly, this action is made final. It is noted, applicant has amended the claim to recite subject matter requiring an updated rejection which is taught by prior art documents D1 [US 2012/0314914 A1] and D2 [US 2013/0015946 A1].

A device comprising:

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an image sensor to:

operate in a first illumination mode, the first illumination mode corresponding to operation of the image sensor without use of an illumination source of the device; and ***D1 [0028 and 0032] D1 teaches the feature detection in the captured video to find the head of the person. The first illumination source, IR source, is timed to correspond with the detection of a head or the heads position in order to save power/battery.***

observe a first image of a face captured in the first illumination mode; and ***[D1, [0032]] D1 teaches the detection of the persons head and detecting features from the current video information.***

a logic circuit to:

determine whether the face in the first image is in a first orientation with respect to the image sensor; ***[D1, [0032]] D1 teaches the detection of the persons head and then further activation of the orientation detection process.***

trigger the image sensor to switch from the first illumination mode to a second illumination mode based on whether the face in the first image is in the first orientation, the second illumination mode corresponding to operation of the image sensor with use of the illumination source; ***[D1, [0032]] D1 teaches the activation of the orientation detection process, and in response to detecting the at least one head, activating at least one infrared imaging mechanism of the electronic device operable to illuminate the head.***

capture a second image of the face in the first orientation; and ***[D1, [0012, 0028, and 0032]] D1 teaches the device can analyze a subsequent frame.***

perform a facial recognition process on the second image, but not on the first image. ***[D1, [0012, 0032]] D1 teaches the determination of the user facing the device is within the allowed range, the subsequent frame, and the facial recognition is performed.***

D1 teaches the limitations of claim 1, 8, and 15, with the exception of explicitly teaching the second image of the face is in the orientation of the first image. D2 [D2, [0078]] D2 teaches the same facial orientation is captured in the subsequent image. It is therefore noted, the prior art of record does in fact teach the limitations as claimed and the respective dependent claims are rejected for similar reasons as the prior art does teach the limitations of their base claims.

Official Notice

5. It is noted that applicant has not challenged the use of official notice as applied in the 11/07/2019 office action. According to MPEP 2144.03 C: "If applicant does not traverse the

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examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate." Accordingly, each of the officially notices facts in the 11/07/2019 office action are taken to be admitted prior art.

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Claim Interpretation

6. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

7. The claims in this application are given their broadest reasonable interpretation using the plain meaning of the claim language in light of the specification as it would be understood by one of ordinary skill in the art. The broadest reasonable interpretation of a claim element (also commonly referred to as a claim limitation) is limited by the description in the specification when 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is invoked.

As explained in MPEP § 2181, subsection I, claim limitations that meet the following three-prong test will be interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph:

(A) the claim limitation uses the term "means" or "step" or a term used as a substitute for "means" that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;

(B) the term "means" or "step" or the generic placeholder is modified by functional language, typically, but not always linked by the transition word "for" (e.g., "means for") or another linking word or phrase, such as "configured to" or "so that"; and

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(C) the term "means" or "step" or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Use of the word "means" (or "step") in a claim with functional language creates a rebuttable presumption that the claim limitation is to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites sufficient structure, material, or acts to entirely perform the recited function.

Absence of the word "means" (or "step") in a claim creates a rebuttable presumption that the claim limitation is not to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is not interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites function without reciting sufficient structure, material or acts to entirely perform the recited function.

Claim limitations in this application that use the word "means" (or "step") are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action. Conversely, claim limitations in this application that do not use the word "means" (or "step") are not being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action.

See claims 8, and 11-13 "means for".

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Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the

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form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

9. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1, 8, and 15 of U.S. Patent No. 10,165,177 (previous typographical error as 10,165,117. Has been corrected to recite 10,165,177) in view of D1 [US 2012/0314914 A1] and D2 [US 2013/0015946 A1]. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims are similar and D1 teaches the limitations of claim 1, with the exception of explicitly teaching the second image of the face is in the orientation of the first image. [D2, [0078]] D2 teaches the same facial orientation is captured in the subsequent image. It would have been obvious, at the time the invention was made to one of ordinary skill in the art to combine the method of the U.S. Patent and D1 in view of D2 in order to acquire an image without an illuminance source and then with the illumination source, in a particular orientation. Claims 2, 3, 9, 10 16, and 17 is similar to claims 3, 10, and 17. Claims 7 and 14 is similar to claims 1. Mobile device is handheld. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 8, and 14 of U.S. Patent No. 9,843,717 in view of D1 [US 2012/0314914 A1] and D2 [US 2013/0015946 A1]. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims are similar and D1 teaches the limitations of claim 1, with the exception of explicitly teaching the second image of the face is in the orientation of the first image. [D2,

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[0078]] D2 teaches the same facial orientation is captured in the subsequent image. It would have been obvious, at the time the invention was made to one of ordinary skill in the art to combine the method of the U.S. Patent and D1 in view of D2 in order to acquire an image without an illuminance source and then with the illumination source, in a particular orientation.

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Claim Rejections - 35 USC § 101

10. Claims 15-20 are directed to a "tangible computer readable medium" and is not rejected under 35 U.S.C. 101 because upon review of the specification, see [0036], “As used herein, the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals”.

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Claim Rejections - 35 USC § 112

11. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1, 8, and 15 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention. With regards to, for example, claim 1, applicant claims the first illumination mode with the illumination source not used or off and determination of a particular scenario and activation of the illumination mode to provide a second illumination mode dependent upon the particular scenario. Upon review of the remarks, it is not clear where this scenario is discussed in the specification. The closest spec paragraph is [0029] and Figure 4, however, this does not disclose the subject matter which the applicant regards as the invention. Further, clarification is required. The dependent claims do not cure the deficiencies of claims 1, 8, and 15 and are rejected for similar reasons. Accordingly, claims 1-22 are rejected.

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Claim Rejections - 35 USC § 103

13. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

14. The following is a quotation of pre-AIA 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, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

16. Claim 1, 5-8, 12-15, 19-20, and 22 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over D1 [US 2012/0314914 A1] in view of D2 [US 2013/0015946 A1].

Claim 1: A device comprising:

an image sensor to:

operate in a first illumination mode, the first illumination mode corresponding to operation of the image sensor without use of an illumination source of the device; and ***D1 [0028 and 0032] D1 teaches the feature detection in the captured video to find the head of the person. The first illumination source, IR source, is timed to correspond with the detection of a head or the heads position in order to save power/battery.***

This is cited Non-Patent Literature

observe a first image of a face captured in the first illumination mode; and ***[D1, [0032]] D1 teaches the detection of the persons head and detecting features from the current video information.***

a logic circuit to:

determine whether the face in the first image is in a first orientation with respect to the image sensor; ***[D1, [0032]] D1 teaches the detection of the persons head and then further activation of the orientation detection process.***

trigger the image sensor to switch from the first illumination mode to a second illumination mode based on whether the face in the first image is in the first orientation, the second illumination mode corresponding to operation of the image sensor with use of the illumination source; ***[D1, [0032]] D1 teaches the activation of the orientation detection process, and in response to detecting the at least one head, activating at least one infrared imaging mechanism of the electronic device operable to illuminate the head.***

capture a second image of the face in the first orientation; and ***[D1, [0012, 0028, and 0032]] D1 teaches the device can analyze a subsequent frame.***

This is cited Non-Patent Literature

perform a facial recognition process on the second image, but not on the first image. *[D1, [0012, 0032]] D1 teaches the determination of the user facing the device is within the allowed range, the subsequent frame, and the facial recognition is performed.*

D1 teaches the limitations of claim 1, with the exception of explicitly teaching the second image of the face is in the orientation of the first image. [D2, [0078]] D2 teaches the same facial orientation is captured in the subsequent image. It would have been obvious, at the time the invention was made, to one of ordinary skill in the art to combine the teachings of D1, wherein, image data is acquired with the illumination off, determination of the orientation information, activation of the illumination source based upon the determined orientation information, capture of another image, and performing facial recognition, with the teachings of D2, wherein the additional teachings would provide the specific guidelines that the captured second image of the face would be in the first orientation acquired in the first illumination mode. One skilled in the art would have been motivated to modify D1 in this manner in order to utilize the configuration of D2 without significantly changing the device and process described in D1. The configuration would merely require the second image to be in the same orientation as the first image. Therefore one of ordinary skill in the art, such as an individual with a basic degree in electrical engineering could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately. It is for at least the aforementioned reasons that the Examiner has reached a conclusion of obviousness with respect to claim 1.

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Claim 5: The device of claim 1, wherein the device is in an environment and the image sensor is to change a contrast between the face and the environment before capturing the second image. ***D1 in view of D2 teaches the method of claim 1, however, the prior art of record does not explicitly teach the limitation wherein the image sensor is to change a contrast between the face and the environment before capturing the second image. However, official notice is taken to note that the uses and benefits of using contrast adjustment dependent upon the environment in the system are known and expected within the image processing arts. It would have been obvious to the ordinarily-skilled artisan at the time the invention was made to adjust the contrast dependent upon the environment in which the sensor is present, to achieve the known and expected uses and benefits of image acquisition settings adjustment to avoid false positives as described in claim 1.***

Claim 6: The device of claim 1, further including an infrared light source to project infrared light on the face when the logic circuit triggers the image sensor to capture the second image. ***[D1, [0022 and 0032]] D1 teaches the infrared source and claim 6 is rejected for similar reason as to those described in claim 1, wherein the image data is captured using the infrared light.***

Claim 7: The device of claim 1, wherein the device is a handheld device. ***[D1, Figure 3(a)] D1 teaches the handheld device.***

Claim 8 is rejected for similar reasons as to those described in claim 1.

Claim 12 is rejected for similar reasons as to those described in claim 5.

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Claim 13 is rejected for similar reasons as to those described in claim 6.

Claim 14 is rejected for similar reasons as to those described in claim 7.

Claim 15 is rejected for similar reasons as to those described in claim 1.

Claim 19 is rejected for similar reasons as to those described in claim 5.

Claim 20 is rejected for similar reasons as to those described in claim 6.

Claim 22: The device of claim 1, wherein the device is to operate the illumination source without a heat dissipation device. *Examiner considers "the illumination source without a heat dissipation device" to be a device not using, for example, an IR device as disclosed in the prior art of claim 1. However, it is well known in the art to utilize substation of components of an imaging system to utilize an illumination source without a heat dissipation device. D1 in view of D2 teaches the limitations of using an IR illumination source, however, the prior art does not explicitly teach the limitation wherein illumination source is not a heat dissipation device. However, official notice is taken to note that the uses and benefits of using a substitute device within the device as a non-heat dissipation device are known and expected within the image processing arts. It has been seen in a variety of device, the interchangeability between various sources of illumination is easily conceived. It would have been obvious to the ordinarily-skilled artisan at the time the invention was made to utilize an illumination device without a heat dissipation device, to achieve the known and expected uses and benefits of the use of an illumination source that does not use a heat dissipation device for readings heat signatures.*

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17. Claims 21are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over D1 et al. [US 2012/0314914 A1] in view of D2 et al. [US 2013/0015946 A1] in view of D3 [US 20100253833 A1].

Claim 21: The device of claim 1, wherein the logic circuit is to: employ a pixel binning procedure on the first image captured without use of the illumination source; create an enhanced first image based on the pixel binning procedure; and determine whether the face is in the first orientation based on the enhanced first image. ***D1 [0028 and 0032] D1 teaches the feature detection in the captured video to find the head of the person. The first illumination source, IR source, is timed to correspond with the detection of a head or the heads position in order to save power/battery. Further, D1 teaches the detection of the persons head and then further activation of the orientation detection process. D1 does not explicitly teach the use of the creation of an enhanced image using a binning procedure, however, the claim limitations are taught as follows: [D3, [0003]] D3 teaches the desire to capture an image sequence having a high image quality. Further, D3 the image quality with respect to noise can be improved by combining pixels through the technique of binning. It would have been obvious, before the effective filing date of the claimed invention, to one of ordinary skill in the art to combine the teachings of D1 and D2, as described in claim 1, with the teachings of D3, wherein the combination would allow for D1's detection of the persons head, then the use of D3's image enhancement by use of pixel binning, and then continuing the teachings of D1 to complete the orientation analysis based upon the enhanced image. One skilled in the art would have been motivated to modify D1 in view of D2 in this manner in order to apply an image enhancement to the collected image data and then provide the analysis of the enhanced image for more accurate orientation detection. Therefore one of ordinary skill in the art, such as an individual***

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with a basic degree in electrical engineering could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately. It is for at least the aforementioned reasons that the Examiner has reached a conclusion of obviousness with respect to claim 21.

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18. Claims 2-4, 9-11, and 16-18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over D1 [US 2012/0314914 A1] in view of D2 [US 2013/0015946 A1] in view of D4 [US 2001/0031072 A1] as applied to claim 1 above, and further in view of D5 [US 6,714,665 B1].

Claim 2: The device of claim 1, wherein the first image has a first resolution and the second image has a second resolution. ***[D5, Claim 16] D5 teaches the second image is a resolution different than the first resolution. It would have been obvious at the time the invention was made to combine the method of D1, D2, and D4, as described in claim 1, with the method of D5 to include the first image and second image at different variations of resolution. The determination of obviousness is predicated upon the following findings: one skilled in the art would have been motivated to modify D1, in view of D2, in view of D4 in this manner because/in order to acquire images at different resolutions, as done by D5. By acquiring images of different resolutions the image data being used to recognize the face can be done more efficiently and more accurate recognition. In particular, if a lower resolution image is suffice for processing the image data the processing power needed will be less, however, if the lower resolution image does not contain enough pixel data for recognition a higher resolution image may be used for a more accurate recognition. Furthermore, the prior art collectively includes each element claimed (though not all in the same reference), and one of ordinary skill in the art could have combined the elements in the manner explained above using known engineering design, interface and/or programming techniques, without changing a 'fundamental' operating principle of D1, while the teaching of D5 continues to perform the same function as originally taught prior to being combined, in order to produce the repeatable and predictable result of acquiring images at different resolutions. It is for at least the***

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aforementioned reasons that the examiner has reached a conclusion of obviousness with respect to the claim in question.

Claim 3: The device of claim 2, wherein the second resolution is higher than the first resolution. ***[D5, Claim 16] D5 teaches the second image is a resolution higher than the first resolution.***

Claim 4: The device of claim 2, wherein the logic circuit is to determine the first resolution and change a mode of the image sensor to capture the second image with the second resolution based on the determination of the first resolution. ***[D5, Claim 16] D5 teaches processing the second image at a second resolution greater than the first resolution to capture a high resolution image of the object. The determination is done by using a higher resolution and narrower field of view compared to the first image.***

Claim 9 is rejected for similar reasons as to those described in claim 2.

Claim 10 is rejected for similar reasons as to those described in claim 3.

Claim 11 is rejected for similar reasons as to those described in claim 4.

Claim 16 is rejected for similar reasons as to those described in claim 2.

Claim 17 is rejected for similar reasons as to those described in claim 3.

Claim 18 is rejected for similar reasons as to those described in claim 4.

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Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Rudolph can be reached on (571) 272-8243. 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

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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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/196,810	11/20/2018	Christen V. Nielsen	80842US05	1069

81905 7590 11/07/2019

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
11/07/2019	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):

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

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Office Action Summary	Application No. 16/196,810	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	AIA (FITF) Status No

-- 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 MONTHS 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 08/09/2019.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☑ The drawing(s) filed on 11/20/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/28/2019 has been entered.

Response to Arguments

Double Patenting

3. With regards to the double patenting rejection of claim(s) 1, 8, and 15, applicant requests to review the double patenting rejection once allowable subject matter has been determined. The double patenting rejection is updated and maintained.

35 USC § 103

4. With regards to the 35 USC § 103 rejection of claim(s) 1, 8, and 15, applicant argues the claims as amended overcome the prior art of record and the claim(s) should not be rejected under 35 USC § 103. Applicant argues the prior art does not teach "operating in a first illumination mode" or "operating in a second illumination mode". Applicant's remarks and amendments have been fully considered and are found convincing, however, applicant's amendments have necessitated the new grounds of rejection. See below updated rejection.

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Claim Interpretation

5. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

6. The claims in this application are given their broadest reasonable interpretation using the plain meaning of the claim language in light of the specification as it would be understood by one of ordinary skill in the art. The broadest reasonable interpretation of a claim element (also commonly referred to as a claim limitation) is limited by the description in the specification when 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is invoked.

As explained in MPEP § 2181, subsection I, claim limitations that meet the following three-prong test will be interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph:

(A) the claim limitation uses the term "means" or "step" or a term used as a substitute for "means" that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;

(B) the term "means" or "step" or the generic placeholder is modified by functional language, typically, but not always linked by the transition word "for" (e.g., "means for") or another linking word or phrase, such as "configured to" or "so that"; and

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(C) the term "means" or "step" or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Use of the word "means" (or "step") in a claim with functional language creates a rebuttable presumption that the claim limitation is to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites sufficient structure, material, or acts to entirely perform the recited function.

Absence of the word "means" (or "step") in a claim creates a rebuttable presumption that the claim limitation is not to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is not interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites function without reciting sufficient structure, material or acts to entirely perform the recited function.

Claim limitations in this application that use the word "means" (or "step") are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action. Conversely, claim limitations in this application that do not use the word "means" (or "step") are not being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action.

See claims 8-13 "means for".

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Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the

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form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

8. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1, 8, and 15 of U.S. Patent No. 10,165,117 in view of Lau et al. [US 2013/0015946 A1] further in view of Dobashi et al. [US 2001/0031072 A]. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims similar and Lau, see [0078], teaches the same facial orientation is captured in the subsequent image. It would have been obvious before the effective filing date of the claimed invention to one of ordinary skill in the art to combine the method of the U.S. Patent and Lau in order to acquire an additional image with the particular configuration of having the same orientation. One skilled in the art would have been motivated to modify Karakotsios in this manner in order to allow for the additional images in the set to provide additional data points that can help the overall effectiveness of the facial recognition process by increasing the probability that the captured images are sufficient to properly identify the subject and by decreasing the likelihood of false positives. Claims 2, 3, 9, 10 16, and 17 is similar to claims 3, 10, and 17. Claims 7 and 14 is similar to claims 1. Mobile device is handheld. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 8, and 14 of U.S. Patent No. 9,843,717 in view of Lau et al. [US 2013/0015946 A1]. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims similar and Lau, see [0078], teaches the same facial orientation is captured in the subsequent image and Dobashi, see

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[0074]. It would have been obvious before the effective filing date of the claimed invention to one of ordinary skill in the art to combine the method of the U.S. Patent with Lau and Dobashi in order to acquire an additional image with the particular configuration of having the same orientation while using two different orientations.

Claim Rejections - 35 USC § 101

9. Claims 15-20 are directed to a "tangible computer readable medium" and is not rejected under 35 U.S.C. 101 because upon review of the specification, see [0036], “As used herein, the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals”.

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Claim Rejections - 35 USC § 103

10. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

11. The following is a quotation of pre-AIA 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, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claim 1, 5-8, 12-15, and 19-20 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Karakotsios et al. [US 2012/0314914 A1] in view of Lau et al. [US 2013/0015946 A1] further in view of Dobashi et al. [US 2001/0031072 A1].

Claim 1: A device comprising:

an image sensor to operate in a first illumination mode and to observe a first image of a face when operating in the first illumination mode; and a logic circuit to:

determine whether the face in the first image is in a first orientation with respect to the image sensor; and ***[Karakotsios, [0012, 0032]] Karakotsios teaches receiving the image frames and the orientation detection process for a person's head. The orientation of***

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the head is determined such that the person is determined to be substantially facing an image capture element of the device. Information from the orientation detection process corresponds to the current frame of video information.

when the face in the first image is in the first orientation:

trigger the image sensor to operate in a second illumination mode and to capture a second image of the face in the first orientation; and ***[Karakotsios, [0012, 0032]] Karakotsios teaches if it is determined that the user is not substantially facing the device within an acceptable deviation the information can be discarded the device can analyze a subsequent frame.***

perform a facial recognition process on the second image, but not on the first image. ***[Karakotsios, [0012, 0032]] Karakotsios teaches upon determination of the user facing the device is within the allowed range of deviation, facial recognition is performed.***

Karakotsios teaches the limitations of claim 1, with the expectation of explicitly teaching the second image of the face is in the orientation of the first image and the operation of the first illumination mode and second illumination mode. Lau, see [0078], teaches the same facial orientation is captured in the subsequent image. Dobashi, see [0074], teaches the first and second illumination modes radiating light towards the face of the user. It would have been obvious before the effective filing date of the claimed invention to one of ordinary skill in the art to combine the method of Karakotsios and Lau in order to acquire an additional image

This is cited Non-Patent Literature

with the particular configuration of having the same orientation. One skilled in the art would have been motivated to modify Karakotsios in this manner in order to allow for the additional images in the set to provide additional data points that can help the overall effectiveness of the facial recognition process by increasing the probability that the captured images are sufficient to properly identify the subject and by decreasing the likelihood of false positives. Further, it would've been obvious before the effective filing date of the claimed invention to one of ordinary skill in the art to combine the method of Karakotsios and Lau further with Dobashi in order to utilize multiple illumination modes while conduction facial recognition. One skilled in the art would have been motivated to modify Karakotsios and Lau in this manner in order to use the first and second illumination mode to acquire another image with respect to the particular illumination mode to avoid issues while acquiring image data, such as shadows dependent upon amount of light, direction of light, and type of light being used to illuminate the subject for recognition. Therefore one of ordinary skill in the art, such as an individual with a basic degree in electrical engineering could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately. It is for at least the aforementioned reasons that the Examiner has reached a conclusion of obviousness with respect to claim 1.

Claim 5: The device of claim 1, wherein the device is in an environment and the image sensor is to change a contrast between the face and the environment before capturing the second image. ***Karakotsios in view of Lau teaches the method of claim 1, however, the prior art of record does not explicitly teach the limitation wherein the image sensor is to change a contrast between the face and the environment before capturing the second image. However, official***

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notice is taken to note that the uses and benefits of using contrast adjustment dependent upon the environment in the system are known and expected within the image processing arts. It would have been obvious to the ordinarily-skilled artisan at the time the invention was made to adjust the contrast dependent upon the environment in which the sensor is present, to achieve the known and expected uses and benefits of image acquisition settings adjustment to avoid false positives as described in claim 1.

Claim 6: The device of claim 1, further including an infrared light source to project infrared light on the face when the logic circuit triggers the image sensor to capture the second image. ***[Karakotsios, [0022 and 0032]] Karakotsios teaches the infrared source and claim 6 is rejected for similar reason as to those described in claim 1, wherein the image data is captured using the infrared light.***

Claim 7: The device of claim 1, wherein the device is a handheld device. ***[Karakotsios, Figure 3(a)] Karakotsios teaches the handheld device.***

Claim 8 is rejected for similar reasons as to those described in claim 1.

Claim 12 is rejected for similar reasons as to those described in claim 5.

Claim 13 is rejected for similar reasons as to those described in claim 6.

Claim 14 is rejected for similar reasons as to those described in claim 7.

Claim 15 is rejected for similar reasons as to those described in claim 1.

Claim 19 is rejected for similar reasons as to those described in claim 5.

Claim 20 is rejected for similar reasons as to those described in claim 6.

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14. Claims 2-4, 9-11, and 16-18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Karakotsios et al. [US 2012/0314914 A1] in view of Lau et al. [US 2013/0015946 A1] in view of Dobashi et al. [US 2001/0031072 A1] as applied to claim 1 above, and further in view of Hanna et al. [US 6,714,665 B1].

Claim 2: The device of claim 1, wherein the first image has a first resolution and the second image has a second resolution. ***[Hanna, Claim 16] Hanna teaches the second image is a resolution different than the first resolution. It would have been obvious at the time the invention was made to combine the method of Karakotsios, Lau, and Dobashi, as described in claim 1, with the method of Hanna to include the first image and second image at different variations of resolution. The determination of obviousness is predicated upon the following findings: one skilled in the art would have been motivated to modify Karakotsios, in view of Lau, in view of Dobashi in this manner because/in order to acquire images at different resolutions, as done by Hanna. By acquiring images of different resolutions the image data being used to recognize the face can be done more efficiently and more accurate recognition. In particular, if a lower resolution image is suffice for processing the image data the processing power needed will be less, however, if the lower resolution image does not contain enough pixel data for recognition a higher resolution image may be used for a more accurate recognition. Furthermore, the prior art collectively includes each element claimed (though not all in the same reference), and one of ordinary skill in the art could have combined the elements in the manner explained above using known engineering design, interface and/or programming techniques, without changing a 'fundamental' operating principle of Karakotsios, while the teaching of Hanna continues to perform the same function as originally taught prior to being combined, in order to produce the repeatable and predictable***

This is cited Non-Patent Literature

result of acquiring images at different resolutions. It is for at least the aforementioned reasons that the examiner has reached a conclusion of obviousness with respect to the claim in question.

Claim 3: The device of claim 2, wherein the second resolution is higher than the first resolution. ***[Hanna, Claim 16] Hanna teaches the second image is a resolution higher than the first resolution.***

Claim 4: The device of claim 2, wherein the logic circuit is to determine the first resolution and change a mode of the image sensor to capture the second image with the second resolution based on the determination of the first resolution. ***[Hanna, Claim 16] Hanna teaches processing the second image at a second resolution greater than the first resolution to capture a high resolution image of the object. The determination is done by using a higher resolution and narrower field of view compared to the first image.***

Claim 9 is rejected for similar reasons as to those described in claim 2.

Claim 10 is rejected for similar reasons as to those described in claim 3.

Claim 11 is rejected for similar reasons as to those described in claim 4.

Claim 16 is rejected for similar reasons as to those described in claim 2.

Claim 17 is rejected for similar reasons as to those described in claim 3.

Claim 18 is rejected for similar reasons as to those described in claim 4.

This is cited Non-Patent Literature

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Rudolph can be reached on (571) 272-8243. 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.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/196,810	11/20/2018	Christen V. Nielsen	80842US05	1069

81905 7590 08/22/2019

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
SAINI, AMANDEEP SINGH

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
08/22/2019	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):

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

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Advisory Action Before the Filing of an Appeal Brief	**Application No.** 16/196,810	**Applicant(s)** Nielsen, Christen V.	
	Examiner Amandeep Saini	**Art Unit** 2661	**AIA (FITF) Status** No

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

THE REPLY FILED 15 August 2019 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☐ The period for reply expires ____ months from the mailing date of the final rejection.
   b) ☑ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: See interview summary (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☑ For purposes of appeal, the proposed amendment(s):(a) ☑ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
13. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☑ Other: PTO 2323 and PTO 413 Attached.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:_____.
    Claim(s) rejected:1-20.
    Claim(s) withdrawn from consideration:_____.

/AMANDEEP SAINI/ Primary Examiner, Art Unit 2661	

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16/196,810	11/20/2018	Christen V. Nielsen	80842US05	1069

81905 7590 06/13/2019

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
06/13/2019	ELECTRONIC

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

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

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jflight@hfzlaw.com
mhanley@hfzlaw.com

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Office Action Summary	Application No. 16/196,810	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	AIA (FITF) Status No

-- 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 MONTHS 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 11/20/2018.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☑ The drawing(s) filed on 11/20/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Arguments

Double Patenting

2. With regards to the double patenting rejection of claim(s) 1, 8, and 15, applicant requests to review the double patenting rejection once allowable subject matter has been determined. The double patenting rejection is maintained.

35 USC § 103

3. With regards to the 35 USC § 103 rejection of claim(s) 1, 8, and 15, applicant argues the claims as amended overcome the prior art of record and the claim(s) should not be rejected under 35 USC § 103. Applicant argues the prior art does not teach "a second image of a face in a first orientation". Applicant's remarks and amendments have been fully considered and are found convincing, however, applicant's amendments have necessitated the new grounds of rejection set forth; herein; accordingly, this action is made final. Please see below updated rejection.

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Claim Interpretation

4. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

5. The claims in this application are given their broadest reasonable interpretation using the plain meaning of the claim language in light of the specification as it would be understood by one of ordinary skill in the art. The broadest reasonable interpretation of a claim element (also commonly referred to as a claim limitation) is limited by the description in the specification when 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is invoked.

As explained in MPEP § 2181, subsection I, claim limitations that meet the following three-prong test will be interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph:

(A) the claim limitation uses the term "means" or "step" or a term used as a substitute for "means" that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;

(B) the term "means" or "step" or the generic placeholder is modified by functional language, typically, but not always linked by the transition word "for" (e.g., "means for") or another linking word or phrase, such as "configured to" or "so that"; and

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(C) the term "means" or "step" or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Use of the word "means" (or "step") in a claim with functional language creates a rebuttable presumption that the claim limitation is to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites sufficient structure, material, or acts to entirely perform the recited function.

Absence of the word "means" (or "step") in a claim creates a rebuttable presumption that the claim limitation is not to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is not interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites function without reciting sufficient structure, material or acts to entirely perform the recited function.

Claim limitations in this application that use the word "means" (or "step") are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action. Conversely, claim limitations in this application that do not use the word "means" (or "step") are not being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action.

See claims 8-13 "means for".

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Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the

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form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

7. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1, 8, and 15 of U.S. Patent No. 10,165,117 in view of Lau et al. [US 2013/0015946 A1]. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims similar and Lau, see [0078], teaches the same facial orientation is captured in the subsequent image. It would have been obvious before the effective filing date of the claimed invention to one of ordinary skill in the art to combine the method of the U.S. Patent and Lau in order to acquire an additional image with the particular configuration of having the same orientation. One skilled in the art would have been motivated to modify Karakotsios in this manner in order to allow for the additional images in the set to provide additional data points that can help the overall effectiveness of the facial recognition process by increasing the probability that the captured images are sufficient to properly identify the subject and by decreasing the likelihood of false positives. Claims 2, 3, 9, 10 16, and 17 is similar to claims 3, 10, and 17. Claims 7 and 14 is similar to claims 1. Mobile device is handheld. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 8, and 14 of U.S. Patent No. 9,843,717 in view of Lau et al. [US 2013/0015946 A1]. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims similar and Lau, see [0078], teaches the same facial orientation is captured in the subsequent image. It would have been obvious before the effective filing date of the claimed

This is cited Non-Patent Literature

invention to one of ordinary skill in the art to combine the method of the U.S. Patent and Lau in order to acquire an additional image with the particular configuration of having the same orientation. One skilled in the art would have been motivated to modify Karakotsios in this manner in order to allow for the additional images in the set to provide additional data points that can help the overall effectiveness of the facial recognition process by increasing the probability that the captured images are sufficient to properly identify the subject and by decreasing the likelihood of false positives.

Claim Rejections - 35 USC § 101

8. Claims 15-20 are directed to a "tangible computer readable medium" and is not rejected under 35 U.S.C. 101 because upon review of the specification, see [0036], “As used herein, the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals”.

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Claim Rejections - 35 USC § 103

9. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

10. The following is a quotation of pre-AIA 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, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 5, 12, and 19 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Karakotsios et al. [US 2012/0314914 A1] in view of Lau et al. [US 2013/0015946 A1].

Claim 1: A device comprising:

an image sensor to observe a first image of a face; and a logic circuit to:

determine whether the face in the first image is in a first orientation with respect to the image sensor; and ***[Karakotsios, [0012, 0032]] Karakotsios teaches receiving the image frames and the orientation detection process for a person's head. The orientation of the head is determined such that the person is determined to be substantially facing an***

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image capture element of the device. Information from the orientation detection process corresponds to the current frame of video information.

when the face in the first image is in the first orientation:

trigger the image sensor to capture a second image of the face in the first orientation; and
[Karakotsios, [0012, 0032]] Karakotsios teaches if it is determined that the user is not substantially facing the device within an acceptable deviation the information can be discarded the device can analyze a subsequent frame.

perform a facial recognition process on the second image, but not on the first image.
[Karakotsios, [0012, 0032]] Karakotsios teaches upon determination of the user facing the device is within the allowed range of deviation, facial recognition is performed.

Karakotsios teaches the limitations of claim 1, with the expectation of explicitly teaching the second image of the face is in the orientation of the first image. Lau, see [0078], teaches the same facial orientation is captured in the subsequent image. It would have been obvious before the effective filing date of the claimed invention to one of ordinary skill in the art to combine the method of Karakotsios and Lau in order to acquire an additional image with the particular configuration of having the same orientation. One skilled in the art would have been motivated to modify Karakotsios in this manner in order to allow for the additional images in the set to provide additional data points that can help the overall effectiveness of the facial recognition process by increasing the probability that the captured images are sufficient

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to properly identify the subject and by decreasing the likelihood of false positives. Therefore one of ordinary skill in the art, such as an individual with a basic degree in electrical engineering could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately. It is for at least the aforementioned reasons that the Examiner has reached a conclusion of obviousness with respect to claim 1.

Claim 5: The device of claim 1, wherein the device is in an environment and the image sensor is to change a contrast between the face and the environment before capturing the second image. ***Karakotsios in view of Lau teaches the method of claim 1, however, the prior art of record does not explicitly teach the limitation wherein the image sensor is to change a contrast between the face and the environment before capturing the second image. However, official notice is taken to note that the uses and benefits of using contrast adjustment dependent upon the environment in the system are known and expected within the image processing arts. It would have been obvious to the ordinarily-skilled artisan at the time the invention was made to adjust the contrast dependent upon the environment in which the sensor is present, to achieve the known and expected uses and benefits of image acquisition settings adjustment to avoid false positives as described in claim 1.***

Claim 6: The device of claim 1, further including an infrared light source to project infrared light on the face when the logic circuit triggers the image sensor to capture the second image. ***[Karakotsios, [0022 and 0032]] Karakotsios teaches the infrared source and claim 6 is rejected***

This is cited Non-Patent Literature

for similar reason as to those described in claim 1, wherein the image data is captured using the infrared light.

Claim 7: The device of claim 1, wherein the device is a handheld device. ***[Karakotsios, Figure 3(a)] Karakotsios teaches the handheld device.***

Claim 8 is rejected for similar reasons as to those described in claim 1.

Claim 12 is rejected for similar reasons as to those described in claim 5.

Claim 13 is rejected for similar reasons as to those described in claim 6.

Claim 14 is rejected for similar reasons as to those described in claim 7.

Claim 15 is rejected for similar reasons as to those described in claim 1.

Claim 19 is rejected for similar reasons as to those described in claim 5.

Claim 20 is rejected for similar reasons as to those described in claim 6.

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13. Claims 2-4, 9-11, and 16-18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Karakotsios et al. [US 2012/0314914 A1] in view of Lau et al. [US 2013/0015946 A1] as applied to claim 1 above, and further in view of Hanna et al. [US 6,714,665 B1].

Claim 2: The device of claim 1, wherein the first image has a first resolution and the second image has a second resolution. ***[Hanna, Claim 16] Hanna teaches the second image is a resolution different than the first resolution. It would have been obvious at the time the invention was made to combine the method of Karakotsios, as described in claim 1, with the method of Hanna to include the first image and second image at different variations of resolution. The determination of obviousness is predicated upon the following findings: one skilled in the art would have been motivated to modify Karakotsios in this manner because/in order to acquire images at different resolutions, as done by Hanna. Furthermore, the prior art collectively includes each element claimed (though not all in the same reference), and one of ordinary skill in the art could have combined the elements in the manner explained above using known engineering design, interface and/or programming techniques, without changing a 'fundamental' operating principle of Karakotsios, while the teaching of Hanna continues to perform the same function as originally taught prior to being combined, in order to produce the repeatable and predictable result of acquiring images at different resolutions. It is for at least the aforementioned reasons that the examiner has reached a conclusion of obviousness with respect to the claim in question.***

This is cited Non-Patent Literature

Claim 3: The device of claim 2, wherein the second resolution is higher than the first resolution. ***[Hanna, Claim 16] Hanna teaches the second image is a resolution higher than the first resolution.***

Claim 4: The device of claim 2, wherein the logic circuit is to determine the first resolution and change a mode of the image sensor to capture the second image with the second resolution based on the determination of the first resolution. ***[Hanna, Claim 16] Hanna teaches processing the second image at a second resolution greater than the first resolution to capture a high resolution image of the object. The determination is done by using a higher resolution and narrower field of view compared to the first image.***

Claim 9 is rejected for similar reasons as to those described in claim 2.

Claim 10 is rejected for similar reasons as to those described in claim 3.

Claim 11 is rejected for similar reasons as to those described in claim 4.

Claim 16 is rejected for similar reasons as to those described in claim 2.

Claim 17 is rejected for similar reasons as to those described in claim 3.

Claim 18 is rejected for similar reasons as to those described in claim 4.

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Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Rudolph can be reached on (571) 272-8243. 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

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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.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/196,810	11/20/2018	Christen V. Nielsen	80842US05	1069

81905 7590 03/01/2019

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
03/01/2019	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):

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

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Office Action Summary	Application No. 16/196,810	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	AIA Status No

-- 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 MONTHS 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 11/20/2018.

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

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

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

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-20 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-20 is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☑ The drawing(s) filed on 11/20/2018 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

This is cited Non-Patent Literature

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Claim Interpretation

2. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

3. The claims in this application are given their broadest reasonable interpretation using the plain meaning of the claim language in light of the specification as it would be understood by one of ordinary skill in the art. The broadest reasonable interpretation of a claim element (also commonly referred to as a claim limitation) is limited by the description in the specification when 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is invoked.

As explained in MPEP § 2181, subsection I, claim limitations that meet the following three-prong test will be interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph:

(A) the claim limitation uses the term "means" or "step" or a term used as a substitute for "means" that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;

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(B) the term "means" or "step" or the generic placeholder is modified by functional language, typically, but not always linked by the transition word "for" (e.g., "means for") or another linking word or phrase, such as "configured to" or "so that"; and

(C) the term "means" or "step" or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Use of the word "means" (or "step") in a claim with functional language creates a rebuttable presumption that the claim limitation is to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites sufficient structure, material, or acts to entirely perform the recited function.

Absence of the word "means" (or "step") in a claim creates a rebuttable presumption that the claim limitation is not to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is not interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites function without reciting sufficient structure, material or acts to entirely perform the recited function.

Claim limitations in this application that use the word "means" (or "step") are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action. Conversely, claim limitations in this application that do not use the word "means" (or "step") are not being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action.

See claims 8-13 "means for".

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Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the

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form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

5. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1, 8, and 15 of U.S. Patent No. 10,165,117. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims are broader in scope. Claims 2, 3, 9, 10 16, and 17 is similar to claims 3, 10, and 17. Claims 7 and 14 is similar to claims 1. Mobile device is handheld.Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 8, and 14 of U.S. Patent No. 9,843,717. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims are broader in scope.

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Claim Rejections - 35 USC § 101

6. Claims 15-20 are directed to a "tangible computer readable medium" and is not rejected under 35 U.S.C. 101 because upon review of the specification, see [0036], “As used herein, the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals”.

Claim Rejections - 35 USC § 102

7. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

8. The following is a quotation of the appropriate paragraphs of pre-AIA 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 –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim(s) 1, 6-8, 13-15, and 20 is/are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Karakotsios et al. [US 2012/0314914 A1].

Claim 1: A device comprising:

an image sensor to observe a first image of a face; and a logic circuit to:

determine whether the face in the first image is in a first orientation with respect to the image sensor; and ***[Karakotsios, [0012, 0032]] Karakotsios teaches receiving the image frames and the orientation detection process for a person’s head. The orientation of***

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the head is determined such that the person is determined to be substantially facing an image capture element of the device. Information from the orientation detection process corresponds to the current frame of video information.

when the face in the first image is in the first orientation:

trigger the image sensor to capture a second image of the face; and ***[Karakotsios, [0012, 0032]] Karakotsios teaches if it is determined that the user is not substantially facing the device within an acceptable deviation the information can be discarded the device can analyze a subsequent frame.***

perform a facial recognition process on the second image, but not on the first image. ***[Karakotsios, [0012, 0032]] Karakotsios teaches upon determination of the user facing the device is within the allowed range of deviation, facial recognition is performed.***

Claim 6: The device of claim 1, further including an infrared light source to project infrared light on the face when the logic circuit triggers the image sensor to capture the second image. ***[Karakotsios, [0022 and 0032]] Karakotsios teaches the infrared source and claim 6 is rejected for similar reason as to those described in claim 1, wherein the image data is captured using the infrared light.***

Claim 7: The device of claim 1, wherein the device is a handheld device. ***[Karakotsios, Figure 3(a)] Karakotsios teaches the handheld device.***

This is cited Non-Patent Literature

Claim 8 is rejected for similar reasons as to those described in claim 1.

Claim 13 is rejected for similar reasons as to those described in claim 6.

Claim 14 is rejected for similar reasons as to those described in claim 7.

Claim 15 is rejected for similar reasons as to those described in claim 1.

Claim 20 is rejected for similar reasons as to those described in claim 6.

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This is cited Non-Patent Literature

Claim Rejections - 35 USC § 103

10. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

11. The following is a quotation of pre-AIA 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, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claim 5, 12, and 19 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Karakotsios et al. [US 2012/0314914 A1].

Claim 5: The device of claim 1, wherein the device is in an environment and the image sensor is to change a contrast between the face and the environment before capturing the second image.

Karakotsios teaches the method of claim 1, however, the prior art of record does not explicitly teach the limitation wherein the image sensor is to change a contrast between the face and the environment before capturing the second image. However, official notice is taken to note that the uses and benefits of using contrast adjustment dependent upon the environment in the system are known and expected within the image processing arts. It would have been obvious

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to the ordinarily-skilled artisan at the time the invention was made to adjust the contrast dependent upon the environment in which the sensor is present, to achieve the known and expected uses and benefits of image acquisition settings adjustment.

Claim 12 is rejected for similar reasons as to those described in claim 5.

Claim 19 is rejected for similar reasons as to those described in claim 5.

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This is cited Non-Patent Literature

14. Claims 2-4, 9-11, and 16-18 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Karakotsios et al. [US 2012/0314914 A1] as applied to claim 1 above, and further in view of Hanna et al. [US 6,714,665 B1].

Claim 2: The device of claim 1, wherein the first image has a first resolution and the second image has a second resolution. ***[Hanna, Claim 16] Hanna teaches the second image is a resolution different than the first resolution. It would have been obvious at the time the invention was made to combine the method of Karakotsios, as described in claim 1, with the method of Hanna to include the first image and second image at different variations of resolution. The determination of obviousness is predicated upon the following findings: one skilled in the art would have been motivated to modify Karakotsios in this manner because/in order to acquire images at different resolutions, as done by Hanna. Furthermore, the prior art collectively includes each element claimed (though not all in the same reference), and one of ordinary skill in the art could have combined the elements in the manner explained above using known engineering design, interface and/or programming techniques, without changing a 'fundamental' operating principle of Karakotsios, while the teaching of Hanna continues to perform the same function as originally taught prior to being combined, in order to produce the repeatable and predictable result of acquiring images at different resolutions. It is for at least the aforementioned reasons that the examiner has reached a conclusion of obviousness with respect to the claim in question.***

Claim 3: The device of claim 2, wherein the second resolution is higher than the first resolution. ***[Hanna, Claim 16] Hanna teaches the second image is a resolution higher than the first resolution.***

This is cited Non-Patent Literature

Claim 4: The device of claim 2, wherein the logic circuit is to determine the first resolution and change a mode of the image sensor to capture the second image with the second resolution based on the determination of the first resolution. ***[Hanna, Claim 16] Hanna teaches processing the second image at a second resolution greater than the first resolution to capture a high resolution image of the object. The determination is done by using a higher resolution and narrower field of view compared to the first image.***

Claim 9 is rejected for similar reasons as to those described in claim 2.

Claim 10 is rejected for similar reasons as to those described in claim 3.

Claim 11 is rejected for similar reasons as to those described in claim 4.

Claim 16 is rejected for similar reasons as to those described in claim 2.

Claim 17 is rejected for similar reasons as to those described in claim 3.

Claim 18 is rejected for similar reasons as to those described in claim 4.

< Remainder of Page Left Intentionally Blank >

This is cited Non-Patent Literature

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Koziol can be reached on (303)297-4332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/878,935	05/20/2020	Christen V. Nielsen	20004/80842US06	9279

81905 7590 06/10/2021

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EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
06/10/2021	ELECTRONIC

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

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

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

This is cited Non-Patent Literature

Office Action Summary	Application No. 16/878,935	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	AIA (FITF) Status No

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

Period for Reply

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Status

1)☑ Responsive to communication(s) filed on 05/20/20.

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

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

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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) 1-3,8-10 and 15-17 is/are rejected.

8) ☑ Claim(s) 4-7,11-14 and 18-20 is/are objected to.

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

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12)☐ 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. _____.

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3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor

This is cited Non-Patent Literature

to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 1, 8, and 15 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 8 and 14 of U.S. Patent No. 9,843,717. Further, Claims 1, 8, and 16 of the immediate application are rejected on the grounds of nonstatutory double patenting as being unpatentable over claims 1, 8, and 15 of U.S. Patent No. 10,165,177. Although the claims at issue are not identical, they are not patentably distinct from each other because the claims of the immediate application are broader in scope of that of the U.S. Patent. In view of U.S. Patent No. 10,165,177: Claim 2, 9, and 16 is similar to 3, 10, 17; Claims 7 and 14 are similar to 1, 8, and 15 in which the handheld device is the mobile device.

This is cited Non-Patent Literature

Claim Rejections - 35 USC § 101

4. 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.

5. Claims 8-14 are directed to a "tangible computer readable medium" and is not rejected under 35 U.S.C. 101 because upon review of the specification, see [0036], “As used herein, the term tangible computer readable medium is expressly defined to include any type of computer readable storage and to exclude propagating signals”.

This is cited Non-Patent Literature

Claim Interpretation

6. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

7. Use of the word "means" (or "step for") in a claim with functional language creates a rebuttable presumption that the claim element is to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is invoked is rebutted when the function is recited with sufficient structure, material, or acts within the claim itself to entirely perform the recited function.

Absence of the word "means" (or "step for") in a claim creates a rebuttable presumption that the claim element **is not** to be treated in accordance with 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph). The presumption that 35 U.S.C. 112(f) (pre-AIA 35 U.S.C. 112, sixth paragraph) is not invoked is rebutted when the claim element recites function but fails to recite sufficiently definite structure, material or acts to perform that function.

Claim elements in this application that use the word "means" (or "step for") are presumed to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action. Similarly, claim elements that do not use the word "means" (or "step for") are presumed not to invoke 35 U.S.C. 112(f) except as otherwise indicated in an Office action.

This is cited Non-Patent Literature

This application includes one or more claim limitations that do not use the word "means," but are nonetheless being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because the claim limitation(s) uses a generic placeholder that is coupled with functional language without reciting sufficient structure to perform the recited function and the generic placeholder is not preceded by a structural modifier. Such claim limitation(s) is/are: means for capturing images, means for determining , means for performing, means for changing, and means for projecting in claims 8, 11-13

Because this/these claim limitation(s) is/are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, it/they is/are being interpreted to cover the corresponding structure described in the specification as performing the claimed function, and equivalents thereof.

If applicant does not intend to have this/these limitation(s) interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may: (1) amend the claim limitation(s) to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph (e.g., by reciting sufficient structure to perform the claimed function); or (2) present a sufficient showing that the claim limitation(s) recite(s) sufficient structure to perform the claimed function so as to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

This is cited Non-Patent Literature

Allowable Subject Matter

11. Although the prior art of record is not used to reject the claims as presented, the reasons for allowance are withheld upon resolution of the 101 and double patenting issues are overcome. Claims 4-7, 11-14, and 18-20 are objected to as being dependent upon a rejected claim.

This is cited Non-Patent Literature

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Rudolph can be reached on (571) 272-8243. 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.

/Amandeep Saini/
Primary Examiner, Art Unit 2665

This is cited Non-Patent Literature

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

81905 7590 09/27/2021

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	
ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 09/27/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/878,935	05/20/2020	Christen V. Nielsen	20004/80842US06	9279

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	12/27/2021

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

TVision Insights, Inc. – Ex. 1002, Page 000268

This is cited Non-Patent Literature

PART B - FEE(S) TRANSMITTAL

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

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

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence 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)

81905 7590 09/27/2021

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/878,935	05/20/2020	Christen V. Nielsen	20004/80842US06	9279

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	12/27/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAINI, AMANDEEP SINGH	2661	348-077000

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 03-09 or more recent) attached. **Use of a Customer Number is required.**

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

1_____
2_____
3_____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

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

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

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ 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. _____

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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This is cited Non-Patent Literature

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.
16/878,935	05/20/2020	Christen V. Nielsen	20004/80842US06	9279

81905 7590 09/27/2021

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	
ART UNIT	**PAPER NUMBER**
2661	

DATE MAILED: 09/27/2021

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.

TVision Insights, Inc. – Ex. 1002, Page 000270

This is cited Non-Patent Literature

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

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

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

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

This is cited Non-Patent Literature

Notice of Allowability	Application No. 16/878,935	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	AIA (FITF) 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 09/10/21.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3. ☑ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

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 _____.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

This is cited Non-Patent Literature

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Arguments

Double Patenting

2. With regards to the double patenting rejection of claim(s) 1, 8, 15 and the respective dependent claims as described on page 3 of the Non-Final Office Action dated 06/10/21, the terminal disclaimer filed on 09/10/21 has been reviewed, accepted, and recorded. The double patenting rejection is withdrawn.

Claim Interpretation

3. With regards to the claim interpretation of claim(s) 8 and 11-13, applicant agrees the claimed interpretation should be completed with respect to the means plus function elements. Applicant's remarks and amendments have been fully considered. The claim interpretation with regards to claim(s) 8 and 11-13 is maintained.

Allowable Subject Matter

4. Claim(s) 1-20 is/are allowed.

5. The following is an examiner's statement of reasons for allowance: the prior art of record, either alone or in combination, fails to teach or suggest the performing facial recognition on a second image, but not the first image, dependent upon the face orientation in the first image.

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."

This is cited Non-Patent Literature

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached on M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rudolph Vincent can be reached on (571)272-8243. 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.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/751,283	05/23/2022	2425	3200	20004/80842US08	29	4

CONFIRMATION NO. 7234

81905
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

FILING RECEIPT

OC000000134203400

Date Mailed: 06/01/2022

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Christen V. Nielsen, Palm Harbor, FL;

Applicant(s)

The Nielsen Company (US), LLC, New York, NY;

Power of Attorney: The patent practitioners associated with Customer Number 81905

Domestic Priority data as claimed by applicant

This application is a CON of 17/666,322 02/07/2022
which is a CON of 16/878,935 05/20/2020 PAT 11245839
which is a CON of 16/196,810 11/20/2018 ABN
which is a CON of 15/793,108 10/25/2017 PAT 10165177
which is a CON of 15/419,120 01/30/2017 PAT 9843717
which is a CON of 14/732,175 06/05/2015 PAT 9560267
which is a CON of 13/327,227 12/15/2011 PAT 9082004

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 05/31/2022
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/751,283**
Projected Publication Date: 09/08/2022
Non-Publication Request: No
Early Publication Request: No
Title

METHODS AND APPARATUS TO CAPTURE IMAGES

Preliminary Class

725

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

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countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/751,283

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	29 minus 20 =	* 9			OR	x 100 =	900
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1				x 480 =	480
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	3200

APPLICATION AS AMENDED - PART II

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

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

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

To: jflight@hfzlaw.com,mhanley@hfzlaw.com,docketing@hfzlaw.com
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 81905

Jun 01, 2022 05:06:31 AM

Dear PAIR Customer:

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 81905 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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Application	Document	Mailroom Date	Attorney Docket No.
17751283	APP.FILE.REC	06/01/2022	20004/80842US08

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

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Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit Not yet assigned

U.S. PATENT DOCUMENTS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.						

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.	20050117783	2005-06-02	Sung et al.			
	2.	20130129159	2013-05-23	Huijgens et al.			

FOREIGN PATENT DOCUMENTS

*Examiner Initials	Cite No.	Document Number	Publication Date	Country	Class	Subclass	Translation Yes	Translation No
	1.							

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	1.	

EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit Not yet assigned

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 §1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

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

☒ A certification statement is not submitted herewith.

The Commissioner is hereby authorized to charge any fees which may be required to Deposit Account No. 50-2455.

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.

Respectfully submitted,

June 6, 2022 By: **/James A Flight/**
James A. Flight
Registration No.: 37,622
Attorney for Applicant

TVision Insights, Inc. – Ex. 1002, Page 000282

Electronic Acknowledgement Receipt	
EFS ID:	45886894
Application Number:	17751283
International Application Number:	
Confirmation Number:	7234
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES
First Named Inventor/Applicant Name:	Christen V. Nielsen
Customer Number:	81905
Filer:	James A. Flight/Janet Liu
Filer Authorized By:	James A. Flight
Attorney Docket Number:	20004/80842US08
Receipt Date:	06-JUN-2022
Filing Date:	23-MAY-2022
Time Stamp:	18:56:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	80842US08_IDS-Signed.pdf	188614 1b6ef1ea3ea604f11d70869de2983654a51b036c	no	2
Warnings:					

Information:	
This is not an USPTO supplied IDS fillable form	
Total Files Size (in bytes):	188614

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/751,283	05/23/2022	Christen V. Nielsen	20004/80842US08	7234

81905 7590 06/27/2022

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
CENTRAL, DOCKET

ART UNIT	PAPER NUMBER
OPAP	

NOTIFICATION DATE	DELIVERY MODE
06/27/2022	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):

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 17/751,283	**Applicant(s)** Nielsen, Christen V.	
	Examiner james W tunstall	**Art Unit** OMBL	**AIA (FITF) Status** No

1. THE REQUEST FILED 23 May 2022 IS **GRANTED** .

The above-identified application has met the requirements for prioritized examination

A. ☑ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination**. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;

B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims** , or a multiple dependent claim;

C. filing a **request for continued examination** ;

D. filing a notice of appeal;

E. filing a request for suspension of action;

F. mailing of a notice of allowance;

G. mailing of a final Office action;

H. completion of examination as defined in 37 CFR 41.102; or

I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to james tunstall at (703)756-1733. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/CHERYL GIBSON BAYLOR/ Paralegal Specialist, OPET	

To: jflight@hfzlaw.com,mhanley@hfzlaw.com,docketing@hfzlaw.com
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 81905

Jun 28, 2022 05:08:07 AM

Dear PAIR Customer:

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 81905 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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Application	Document	Mailroom Date	Attorney Docket No.
17751283	TRACK1.GRANT	06/27/2022	20004/80842US08

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

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Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

81905 7590 07/20/2022

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	
ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 07/20/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/751,283	05/23/2022	Christen V. Nielsen	20004/80842US08	7234

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	10/20/2022

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. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

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

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

TVision Insights, Inc. – Ex. 1002, Page 000288

PART B - FEE(S) TRANSMITTAL

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

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

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence 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)

81905 7590 07/20/2022

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/751,283	05/23/2022	Christen V. Nielsen	20004/80842US08	7234

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	10/20/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAINI, AMANDEEP SINGH	2661	725-080000

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

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

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

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

1 _____
2 _____
3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

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

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

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ 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. _____

TVision Insights, Inc. – Ex. 1002, Page 000289

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/751,283	05/23/2022	Christen V. Nielsen	20004/80842US08	7234

81905 7590 07/20/2022

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	
ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 07/20/2022

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.

TVision Insights, Inc. – Ex. 1002, Page 000290

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 17/751,283	Applicant(s) Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	AIA (FITF) 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 the application filed on 05/23/22.
   ☐ 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 1-29 . 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 _____.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

2. Claims 1-29 are allowed.

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

Claim 1: An audience measurement system to obtain exposure data for a media exposure environment, the audience measurement system comprising:

memory; machine readable instructions; and processor circuitry to execute the machine readable instructions to: generate an audio signature of media content presented by a television within the media exposure environment; obtain content identifying data corresponding to the presented media content, the content identifying data based on the audio signature of the media content presented by the television within the media exposure environment; analyze a sequence of images of the media exposure environment to detect a head appearing in one or more of the images, the sequence of images obtained by a camera while the media content corresponding to the content identifying data is presented by the television; determine an orientation of the head with respect to the camera; and determine audience identification information based on a match of the head to a known person associated with the media exposure environment; and network interface circuitry to output a signal indicative of the content identifying data and the audience identification information to a data collection facility.

In view of claim 1, D1 [US 2011/0164188 A1] D1, see 0107, teaches the camera is configured to capture images of the viewing environment of viewer in order to enable a location of viewer to be ascertained. The image processor may process such images to determine a current estimated location and/or head orientation of viewer. For example, the image processor may compare such images to one or more reference images in order to determine a current estimated location and/or

head orientation of viewer. The reference images may comprise, for example, images of adaptable screen assembly or other objects or points of interest normally viewable by a viewer of audio visual system captured from one or more locations and at one or more orientations within the viewing area. As another example, the image processor may calculate measurements associated with representations of objects or points of interest captured in such images and then compare those measurements to known measurements associated with the objects or points of interest to determine a current estimated location and/or head orientation of viewer. The prior art of record, either alone or in combination, fails to teach or suggest the determination of audience identification information based on a match of the head to a known person associated with the media exposure environment wherein the media exposure environment consists of media content presented on the television screen. Although the prior art teaches the utilization of other objects or points of interest, even if a prior art document was found to utilize the media exposure environment, it would not have been obvious to one of ordinary skill in the art to substitute that object or point of interest of D1 with the media exposure environment as described within the recited claim. Claims 9, 16, and 22 are allowable for similar reasons as to those noted above. Accordingly, claims 1-29 are allowed.

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

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amandeep Saini whose telephone number is (571)272-3382. The examiner can normally be reached M-F (8AM-4PM).

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Rudolph can be reached on (571) 272-8243. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

Notice of References Cited	Application/Control No. 17/751,283	Applicant(s)/Patent Under Reexamination Nielsen, Christen V.	
	Examiner Amandeep Saini	Art Unit 2661	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20110164188-A1	07-2011	Karaoguz; Jeyhan	H04N21/4122	348/734
*	B	US-20130152113-A1	06-2013	Conrad; Michael J.	H04N21/42201	725/12
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/751,283	Nielsen, Christen V.
	Examiner	**Art Unit**
	Amandeep Saini	2661

CPC						
Symbol					**Type**	**Version**
H04N	/	5	/	23219	F	2013-01-01
G06V	/	40	/	161	I	2022-01-01
H04N	/	21	/	4223	I	2013-01-01
H04N	/	21	/	44218	I	2013-01-01
G06V	/	40	/	103	I	2022-01-01
G06V	/	20	/	53	I	2022-01-01
H04N	/	21	/	4415	I	2013-01-01
H04H	/	60	/	45	I	2013-01-01
G06V	/	10	/	141	I	2022-01-01
G06V	/	40	/	172	I	2022-01-01
H04N	/	5	/	347	I	2013-01-01
H04N	/	5	/	33	I	2013-01-01
H04N	/	5	/	2256	I	2013-01-01

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	29	
/AMANDEEP SAINI/ Primary Examiner, Art Unit 2661	13 July 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20220713

TVision Insights, Inc. – Ex. 1002, Page 000297

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/751,283	Nielsen, Christen V.
	Examiner	**Art Unit**
	Amandeep Saini	2661

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04N5/232	/	5	/	232
G06V40/16	/	40	/	16
H04N21/4223	/	21	/	4223
H04N21/442	/	21	/	442
G06V40/10	/	40	/	10
G06V20/52	/	20	/	52
H04N21/4415	/	21	/	4415
H04H60/45	/	60	/	45
G06V10/141	/	10	/	141
H04N5/347	/	5	/	347
H04N5/33	/	5	/	33
H04N5/225	/	5	/	225

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

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

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	29	
/AMANDEEP SAINI/ Primary Examiner, Art Unit 2661	13 July 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20220713

TVision Insights, Inc. – Ex. 1002, Page 000298

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/751,283	Nielsen, Christen V.
	Examiner	**Art Unit**
	Amandeep Saini	2661

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28								
	2		11		20		29								
	3		12		21										
	4		13		22										
	5		14		23										
	6		15		24										
	7		16		25										
	8		17		26										
	9		18		27										

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	29	
/AMANDEEP SAINI/ Primary Examiner, Art Unit 2661	13 July 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20220713

TVision Insights, Inc. – Ex. 1002, Page 000299

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/751,283	Nielsen, Christen V.
	Examiner	Art Unit
	Amandeep Saini	2661

CPC - Searched*		
Symbol	**Date**	**Examiner**
(H04N5/23219 OR G06V10/141 OR G06V20/53 OR G06V40/103 OR G06V40/161 OR G06V40/172 OR H04H60/45 OR H04N5/2256 OR H04N5/33 OR H04N5/347 OR H04N21/4223 OR H04N21/4415 OR H04N21/44218).cpc.	07/13/2022	AS

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

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

Search Notes		
Search Notes	**Date**	**Examiner**
Inventor and assignee text limited claim search.Text limited search within the above referenced "searched" CPC subgroups and US subclasses.Text limited search within the following online resources: Google Patents, Google Scholar, and/or IP.com.	07/13/2022	AS

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	Within all EAST databases, text limited claim search within the above referenced "searched" CPC subgroups and US subclasses.	07/13/2022	AS

/AMANDEEP SAINI/ Primary Examiner, Art Unit 2661	

TVision Insights, Inc. – Ex. 1002, Page 000300

Bibliographic Data

Application No: 17/751,283

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /AMANDEEP SAINI/ (Examiner's Signature) | (Initials)

Title: METHODS AND APPARATUS TO CAPTURE IMAGES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/23/2022	725	2661	20004/80842US08
RULE			

APPLICANTS

The Nielsen Company (US), LLC, New York, NY, UNITED STATES

INVENTORS

Christen V. Nielsen, Palm Harbor, FL, UNITED STATES

CONTINUING DATA

This application is a CON of 17666322 02/07/2022

17666322 is a CON of 16878935 05/20/2020 PAT 11245839

16878935 is a CON of 16196810 11/20/2018ABN

16196810 is a CON of 15793108 10/25/2017 PAT 10165177

15793108 is a CON of 15419120 01/30/2017 PAT 9843717

15419120 is a CON of 14732175 06/05/2015 PAT 9560267

14732175 is a CON of 13327227 12/15/2011 PAT 9082004

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

05/31/2022

STATE OR COUNTRY

UNITED STATES

ADDRESS

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

FILING FEE RECEIVED

$7,540

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	1435	((("THE") near3 ("NIELSEN") near3 ("COMPANY") near3 ("(US)") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	ON	ON	2022/07/13 08:49 AM
L2	130	((("NIELSEN") near3 ("Christen"))).INV.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 08:49 AM
L3	2868	1 2	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 08:49 AM
L4	0	3 AND (Head$2 AND Orientation$2 AND Audience$2).CLM.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 08:50 AM
L5	7	3 AND (Head$2 AND Orientation$2).CLM.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 08:50 AM
L6	88193	(H04N5/23219 OR G06V10/141 OR G06V20/53 OR G06V40/103 OR G06V40/161 OR G06V40/172 OR H04H60/45 OR H04N5/2256 OR H04N5/33 OR H04N5/347 OR H04N21/4223 OR H04N21/4415 OR H04N21/44218).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 08:50 AM
L7	1458	6 AND (Head$2) SAME (Orientation$2) SAME (Camera)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 09:08 AM
L8	150	6 AND (Head$2) SAME (Orientation$2) SAME (Camera) SAME (Audio$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 09:08 AM
L9	795	6 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Camera$2 Camcorder$2 Polaroid$2 Imager$2) SAME (Audio$2 Acoustic$2 Audil$2 Auditory$2 Phonic$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:11 AM
L10	10335	6 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:17 AM

TVision Insights, Inc. – Ex. 1002, Page 000302

		Direction$2 Location$2) SAME (Camera$2 Camcorder$2 Polaroid$2 Imager$2)					
L11	0	6 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Audience$2) SAME (Match$2) SAME (Known$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:17 AM
L12	16	6 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Audience$2 Congregation$2 Crowd Gallery$2 Gathering$2 Market$2) SAME (Match$2 Counterpart$2 Equal$2 Double$2) SAME (Known$2 Accepted$2 Common$2 Familiar$2 Obvious$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:18 AM
L13	1	6 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Audience$2 Congregation$2 Crowd Gallery$2 Gathering$2 Market$2) SAME (Match$2 Counterpart$2 Equal$2 Double$2) SAME (Known$2 Accepted$2 Common$2 Familiar$2 Obvious$2) SAME (Audio$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:18 AM
L14	50	(Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Audience$2 Congregation$2 Crowd Gallery$2 Gathering$2 Market$2) SAME (Match$2 Counterpart$2 Equal$2 Double$2) SAME (Known$2 Accepted$2 Common$2 Familiar$2 Obvious$2) SAME (Audio$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:19 AM
L15	50	(Head$2 Skull$2	(US-PGPUB; USPAT;	OR	ON	ON	2022/07/13

TVision Insights, Inc. – Ex. 1002, Page 000303

		Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Audience$2 Congregation$2 Crowd Gallery$2 Gathering$2 Market$2) SAME (Match$2 Counterpart$2 Equal$2 Double$2) SAME (Known$2 Accepted$2 Common$2 Familiar$2 Obvious$2) SAME (Audio$2)	USOCR; EPO; JPO; DERWENT)				10:19 AM
L16	7	(Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Audience$2) SAME (Match$2) SAME (Known$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:19 AM
L17	138468	(Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Camera$2 Camcorder$2 Polaroid$2 Imager$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:19 AM
L18	9801	(Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Camera$2 Camcorder$2 Polaroid$2 Imager$2) SAME (Audio$2 Acoustic$2 Audil$2 Auditory$2 Phonic$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:19 AM
L19	1604	(Head$2) SAME (Orientation$2) SAME (Camera) SAME (Audio$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 10:19 AM
L20	49	("20050000006" OR "20130000005" OR "0000024" OR "0200001" OR "10165177" OR "11245839" OR "20030081834" OR "20030093784" OR "20060000003" OR "20060133699" OR "20070000006" OR "20070000011" OR "20070000012" OR "20070154063" OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/07/13 12:21 PM

		"20080000010" OR "20080232650" OR "20080243590" OR "20080271065" OR "20090000012" OR "20090091650" OR "20090177528" OR "20090310829" OR "20100245567" OR "20110000001" OR "20110000003" OR "20110137721" OR "20110169953" OR "20110265110" OR "20110285845" OR "20120081392" OR "20120151079" OR "20130013396" OR "20130156273" OR "20150271390" OR "20170142330" OR "20180048807" OR "20190089894" OR "20200351436" OR "5987154" OR "7043056" OR "7602524" OR "7636456" OR "7676065" OR "7697735" OR "7796154" OR "8620088" OR "9082004" OR "9560267" OR "9843717").pn.					
L21	8107	"49" AND (Head$2) SAME (Orientation$2) SAME (Camera)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 12:21 PM
L22	17	20 AND (Head$2) SAME (Orientation$2) SAME (Camera)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 12:21 PM
L23	0	20 AND (Head$2) SAME (Orientation$2) SAME (Camera) SAME (Audio$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 12:21 PM
L24	0	20 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Audience$2 Congregation$2 Crowd Gallery$2 Gathering$2 Market$2) SAME (Match$2 Counterpart$2 Equal$2 Double$2) SAME	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 12:22 PM

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		(Known$2 Accepted$2 Common$2 Familiar$2 Obvious$2)					
L25	25	20 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Camera$2 Camcorder$2 Polaroid$2 Imager$2)	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 12:22 PM
L26	1	20 AND (Head$2 Skull$2 Brain$2 Face$2) SAME (Orientation$2 Direction$2 Location$2) SAME (Camera$2 Camcorder$2 Polaroid$2 Imager$2) SAME Audio$2	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 12:22 PM
L27	0	1 AND (Head$2 AND Orientation$2 AND Audience$2).CLM.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT)	OR	ON	ON	2022/07/13 01:35 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	58044	(H04N5/23219 OR G06V10/141 OR G06V20/53 OR G06V40/103 OR G06V40/161 OR G06V40/172 OR H04H60/45 OR H04N5/2256 OR H04N5/33 OR H04N5/347 OR H04N21/4223 OR H04N21/4415 OR H04N21/44218).cpc.	(US-PGPUB; USPAT)	OR	ON	ON	2022/07/13 01:34 PM
N2	601	1 AND (Head$2 AND Orientation$2).CLM.	(US-PGPUB; USPAT)	OR	ON	ON	2022/07/13 01:34 PM
N3	9	1 AND (Head$2 AND Orientation$2 AND Audience$2).CLM.	(US-PGPUB; USPAT)	OR	ON	ON	2022/07/13 01:35 PM

Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit Not yet assigned

U.S. PATENT DOCUMENTS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.						

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.	20050117783	2005-06-02	Sung et al.			
	2.	20130129159	2013-05-23	Huijgens et al.			

FOREIGN PATENT DOCUMENTS

*Examiner Initials	Cite No.	Document Number	Publication Date	Country	Class	Subclass	Translation Yes	Translation No
	1.							

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	1.	

EXAMINER /AMANDEEP SAINI/	DATE CONSIDERED 07/13/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.S./

TVision Insights, Inc. – Ex. 1002, Page 000307

Form PTO-1449 (Modified) U.S. Department of Commerce Patent and Trademark Office INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
	First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
	Filing Date May 23, 2022	Group Art Unit Not yet assigned

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 §1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

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

☒ A certification statement is not submitted herewith.

The Commissioner is hereby authorized to charge any fees which may be required to Deposit Account No. 50-2455.

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.

Respectfully submitted,

June 6, 2022 By: **/James A Flight/**
James A. Flight
Registration No.: 37,622
Attorney for Applicant

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.S./

TVision Insights, Inc. – Ex. 1002, Page 000308

Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

U.S. PATENT DOCUMENTS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.	6014461	2000-01-11	Hennessey et al.			
	2.	7440593	2008-10-21	Steinberg et al.			
	3.	7602524	2009-10-13	Eichhorn et al.			
	4.	7636456	2009-12-22	Collins et al.			
	5.	7676065	2010-03-09	Wiedemann et al.			
	6.	7697735	2010-04-13	Adam et al.			
	7.	7796154	2010-09-14	Senior et al.			
	8.	7899209	2011-03-01	Greiffenhagen et al.			
	9.	8620088	2013-12-31	Lee			
	10.	9082004	2015-07-14	Nielsen			
	11.	9560267	2017-01-31	Nielsen			
	12.	9843717	2017-12-12	Nielsen			
	13.	10165177	2018-12-25	Nielsen			
	14.	11245839	2022-02-08	Nielsen			
	15.	5987154	1999-11-16	Gibbon et al.			
	16.	7043056	2006-05-09	Edwards et al.			

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1.	20030093784	2003-05-15	Dimitrova et al.			

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TVision Insights, Inc. – Ex. 1002, Page 000309

Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	2.	20060062429	2006-03-23	Ramaswamy et al.			
	3.	20060133699	2006-06-22	Widrow et al.			
	4.	20070150916	2007-06-28	Begole et al.			
	5.	20070154063	2007-07-05	Breed			
	6.	20070263934	2007-11-15	Ojima et al.			
	7.	20080232650	2008-09-25	Suzuki et al.			
	8.	20080271065	2008-10-30	Buonasera et al.			
	9.	20090091650	2009-04-09	Kodama			
	10.	20090177528	2009-07-09	Wu et al.			
	11.	20090310829	2009-12-17	Baba et al.			
	12.	20100245567	2010-09-30	Krahnstoever et al.			
	13.	20110019924	2011-01-27	Elgersma et al.			
	14.	20110169953	2011-07-14	Sandler et al.			
	15.	20110265110	2011-10-27	Weinblatt			
	16.	20110285845	2011-11-24	Bedros et al.			
	17.	20130156273	2013-06-20	Nielsen			
	18.	20150271390	2015-09-24	Nielsen			
	19.	20170142330	2017-05-18	Nielsen			
	20.	20180048807	2018-02-15	Nielsen			
	21.	20190089894	2019-03-21	Nielsen			
	22.	20200351436	2020-11-05	Nielsen			
	23.	20030081834	2003-05-01	Philomin et al.			

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Form PTO-1449 (Modified)	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)		First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
		Filing Date May 23, 2022	Group Art Unit 2425

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIALS	CITE NO.	DOCUMENT NUMBER	ISSUE DATE	INVENTOR(S)	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	24.	20040122679	2004-06-24	Neuhauser et al.			
	25.	20070294126	2007-12-20	Maggio			
	26.	20080243590	2008-10-02	Rich			
	27.	20090307084	2009-12-10	Monighetti et al.			
	28.	20110137721	2011-06-09	Bansal			
	29.	20120081392	2012-04-05	Arthur			
	30.	20120151079	2012-06-14	Besehanic et al.			
	31.	20130013396	2013-01-10	Vinson et al.			

FOREIGN PATENT DOCUMENTS

*Examiner Initials	Cite No.	Document Number	Publication Date	Country	Class	Subclass	Translation Yes	Translation No
	1.							

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	1.	Wikipedia. (December 2010) "Kinect." http://en.wikipedia.org/wiki/Kinect, 15 pages.
	2.	Fellers et al. (August 2004) "Nikon MicroscopyU: Interactive Java Tutorials- CCD Signal-to-Noise Ratio." http://www.microscopyu.com/tutorials/java/digitalimaging/signaltonoise/index.html as archived by The Internet Archive, www.archive.org., 4 pages.
	3.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office Action," issued in connection with Application No. 13/327,227, May 20, 2014, 15 pages.
	4.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Final Office Action," issued in connection with Application No. 13/327,227, September 18, 2014, 20 pages.
	5.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 13/327,227, March 6, 2015, 9 pages.
	6.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Requirement for Restriction/Election," issued in connection with Application No. 14/732,175, July 8, 2016, 6 pages.

EXAMINER /AMANDEEP SAINI/	DATE CONSIDERED 07/13/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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TVision Insights, Inc. – Ex. 1002, Page 000311

Form PTO-1449 (Modified) U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)	First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
	Filing Date May 23, 2022	Group Art Unit 2425

	7.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 14/732,175, September 23, 2016, 10 pages.
	8.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 15/419,120, August 2, 2017, 10 pages.
	9.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 15/793,108, August 23, 2018, 10 pages.
	10.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 15/793,108, March 2, 2018, 11 pages.
	11.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Advisory action," issued in connection with Application No. 16/196,810, May 13, 2020, 2 pages.
	12.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Final Office action," issued in connection with Application No. 16/196,810, February 26, 2020, 23 pages.
	13.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 16/196,810, November 7, 2019, 15 pages.
	14.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Advisory action," issued in connection with Application No. 16/196,810, August 22, 2019, 2 pages.
	15.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Final Office action," issued in connection with Application No. 16/196,810, June 13, 2019, 16 pages.
	16.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 16/196,810, March 1, 2019, 14 pages.
	17.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Non-Final Office action," issued in connection with Application No. 16/878,935, June 10, 2021, 9 pages.
	18.	UNITED STATES PATENT AND TRADEMARK OFFICE, "Notice of Allowance and Fee(s) Due," issued in connection with Application No. 16/878,935, September 27, 2021, 7 pages.

EXAMINER /AMANDEEP SAINI/	DATE CONSIDERED 07/13/2022
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

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TVision Insights, Inc. – Ex. 1002, Page 000312

Form PTO-1449 (Modified) U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 20004/80842US08	Serial No. 17/751,283
INFORMATION DISCLOSURE STATEMENT (*Use several sheets if necessary*)	First Named Inventor Christen V. Nielsen	Examiner Not yet assigned
	Filing Date May 23, 2022	Group Art Unit 2425

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 §1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

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

☒ A certification statement is not submitted herewith.

The Commissioner is hereby authorized to charge any fees which may be required to Deposit Account No. 50-2455.

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.

Respectfully submitted,

May 27, 2022 By: **/James A Flight /**
James A. Flight
Registration No.: 37,622
Attorney for Applicant

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /A.S./

TVision Insights, Inc. – Ex. 1002, Page 000313

Patents (image) (audio signature) (head) (match) (audience) before:priority:20111215

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Intelligent electronic appliance system and method



US · US7974714B2 · Steven Mark Hoffberg · Steven Mark Hoffberg

Priority 1999-10-05 · Filed 2006-08-29 · Granted 2011-07-05 · Published 2011-07-05

wherein the acoustic emission source is configured to respond to the control system to defer a **head** seek operation of the actuator during periods of ... , "Pyramidal Algorithms", Computer Vision, Graphics and **Images** Processing, 1990, pp. 26-56. Gautama, S., D'Haeyer, J. P. F., "Context Driven **Matching** ...

Audio and video program recording, editing and playback systems using metadata

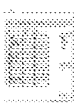


US · US8230343B2 · James D. Logan · Digitalsmiths, Inc.

Priority 1999-03-29 · Filed 2007-08-20 · Granted 2012-07-24 · Published 2012-07-24

... detect that the **game** was still showing. If it is a news show, there may not be a talking **head** in the picture. A database of newscaster facial **images** ... Once deduced bookmarks were distributed to **viewers**, the system would monitor their usage. If some minimal number of **viewers** jumped to the given ...

Enhanced syndication



US · US8214747B2 · James F. Moore · Newslike Media Group, Inc.

Priority 2005-02-01 · Filed 2005-09-10 · Granted 2012-06-12 · Published 2012-06-12

The receipt of return messages that do not **match** the list of expected messages may be used to determine that fraudulent message are being sent to ... example, a publicly available registry may provide, among other things, a number of **viewers** for graphical **images**. An RSS item may refer to an **image** ...

Methods, systems and computer program products for data gathering in a digital ...

WO KR US KR · US7483923B2 · Martin T. King · Exbiblio B.V.

Priority 2004-02-15 · Filed 2005-08-18 · Granted 2008-10-14 · Published 2008-10-14

For example, a certain magazines target **audience** is 18-25 year old males. The publisher/editor wants add a new syndicated article, but to do so an ... 306 , typically a lens, an aperture or an **image** conduit to convey the **image** from the rendered document to the scanning **head**. The scanning **head** 308 may ...

Personal emergency response (PER) system



US · US9351649B2 · Bao Tran · Koninklijke Philips N.V.

Priority 2006-06-30 · Filed 2013-11-04 · Granted 2016-05-31 · Published 2016-05-31

The server 200 stores and caches the video data so that multiple **viewers** can view the **images** at once since the server 200 is connected to a network ... **matching** the acceleration signature with at least one of a plurality of stored acceleration signatures, wherein each stored acceleration signatures ...

Methods and systems for content processing

US · US9104915B2 · William Y. Conwell · Digimarc Corporation

Priority 2008-08-19 · Filed 2013-12-10 · Granted 2015-08-11 · Published 2015-08-11

The user (or the contacts) provides facial **images** that are easily recognized—iconic. These iconic facial **images** can be scaled to **match** the **head** of ... FIG. 15 **image** with the identifiers "soccer ball" and "dog." These are the consensus terms from one or several **viewers**. Disregarded, however, may be ...

Event analysis and tagging system

US · US9633083B2 · Bhaskar Bose · Blast Motion Inc.

Priority 2010-08-26 · Filed 2015-06-16 · Granted 2017-04-11 · Published 2017-04-11

b to the left or right to **match** the frame of the video to the actual point in time where the velocity of the club **head** is zero for example to more ... 105 and any **image** processing required may be performed on computer 105 and broadcast to a television **audience** for example. In other embodiments of ...

Multi-source event correlation system



US · US11355116B2 · Bhaskar Bose · Blast Motion Inc.

Priority 2010-08-26 · Filed 2020-08-18 · Granted 2022-06-07 · Published 2022-06-07

b to the left or right to **match** the frame of the video to the actual point in time where the velocity of the club **head** is zero for example to more ... 105 and any **image** processing required may be performed on computer 105 and broadcast to a television **audience** for example. In other embodiments of ...

Multi-sensor event detection system

US · US9406336B2 · Bhaskar Bose · Blast Motion Inc.

Priority 2010-08-26 · Filed 2015-07-16 · Granted 2016-08-02 · Published 2016-08-02

b to the left or right to **match** the frame of the video to the actual point in time where the velocity of the club **head** is zero for example to more ... 105 and any **image** processing required may be performed on computer 105 and broadcast to a television **audience** for example. In other embodiments of ...

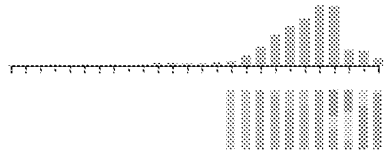
Event analysis system



US • US9401178B2 • Michael Bentley • Blast Motion Inc.
Priority 2010-08-26 • Filed 2015-07-16 • Granted 2016-07-26 • Published 2016-07-26
195 and any **image** processing required may be performed on computer 195 and broadcast to a television **audience** for example. In other embodiments of .. b to the left or right to **match** the frame of the video to the actual point in time where the velocity of the club **head** is zero for example to more ...

Next > >> About 84,672 results

Top 1000 results by filing date



Relative count of top 5 values

Assignees	Inventors	CPCs
Digimarc Corporation		3.6%
Affectiva, Inc.		3.1%
Blast Motion Inc.		1.7%
Security First Corp.		0.9%
Nielsen Media Research, Inc.		0.9%

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match

head

audio signature

Cancel | Search

1 - 50

Methods and apparatus to capture images

Methods and apparatus to capture images are disclosed. An example determine that a first frame of image data is to undergo processing a data is to undergo processing at a second resolution lower than...

TNC US HLDG INC

US20130155273 | US Applications | 2013-06-20 | 4

Methods and apparatus to capture images

Methods and apparatus to capture images are disclosed. An example apparatus includes an image capturing device to operate in a first illumination mode or a second illumination mode; and a logic circuit to determine whether a head detected in a first frame captured at a first time is oriented such...

TNC US HLDG INC

US20150271390 | US Applications | 2015-09-24 | 4

Methods and apparatus to capture images

Methods and apparatus to capture images are disclosed. An example apparatus includes an image capturing device to operate in a first illumination mode or a second illumination mode; and a logic circuit to determine whether a head detected in a first frame captured at a first time is oriented such...

TNC US HLDG INC

US9560267 | US Patents | 2017-01-31 | 4

Methods and apparatus to capture images

Methods and apparatus to capture images are disclosed. An example device disclosed herein includes an image sensor to observe a first image of a face and a logic circuit. The logic circuit is to determine whether the face in the first image is in a first orientation with respect to the image sensor....

TNC US HLDG INC

US20190089894 | US Applications | 2019-03-21 | 4

Methods and apparatus to capture images

Methods and apparatus to operate a mobile phone are disclosed. An example mobile phone disclosed herein includes an illumination source and an image sensor to capture a first image of a face. The disclosed example mobile phone also includes a logic circuit to determine whether the face in the first...

TNC US HLDG INC

US10165177 | US Patents | 2018-12-25 | 4

Methods and apparatus to capture images

Methods and apparatus to capture images are disclosed. An example device disclosed herein includes an image sensor to observe a first image of a face and a logic circuit. The logic circuit is to determine whether the face in the first image is in a first orientation with respect to the image sensor...

TNC US HLDG INC

US20200351436 | US Applications | 2020-11-05 | 4

Methods and apparatus to capture images

Methods and apparatus to operate a mobile phone are disclosed. An example mobile phone disclosed herein includes an illumination source and an image sensor to capture a first image of a face. The disclosed example mobile phone also includes a logic circuit to determine whether the face in the first...

TNC US HLDG INC

US20180048807 | US Applications | 2018-02-15 | 4

Methods and apparatus to capture images

Methods and apparatus to capture images are disclosed. An example method includes determining whether a face detected in a first frame captured at a first time with an image capturing device in a first illumination mode is in a first

1996

First Cur Assignees by Relevanc

TNC US HLDG INC (87)
DIGIMARC CORP (368)
GOOGLE LLC (59)
LORD JOHN D (1)
MINE ONE GMBH (5)
EYEFLUENCE INC (5)
FACETEC INC (33)
TVISION INSIGHTS INC (8)

Charts based on top 1500 results

More V

Result 1

To: jflight@hfzlaw.com,mhanley@hfzlaw.com,docketing@hfzlaw.com
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 81905

Jul 20, 2022 05:09:39 AM

Dear PAIR Customer:

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 81905 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17751283	NOA	07/20/2022	20004/80842US08
	892	07/20/2022	20004/80842US08
	1449	07/20/2022	20004/80842US08
	1449	07/20/2022	20004/80842US08

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

Doc Code: MFEE.C.AD
Document Description: Maintenance Fee Address Change

PTO/AIA/47 (12-20)
Approved for use through 09/30/2021. OMB 0651-0016
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number.

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Address to:
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-OR-

Fax to:
571-273-6500

INSTRUCTIONS: The issue fee must have been paid for the application(s) listed on this form. In addition, only an address represented by a Customer Number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application.

When to check the first box below: If you have a Customer Number to represent the fee address.

When to check the second box below: If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:

☑ Customer Number: 85717

OR

☐ The attached Request for Customer Number form (PTO/SB/125)

PATENT NUMBER (if known)	APPLICATION NUMBER
	17/751,283

Completed by (check one):

☐ Applicant/Inventor

☑ Attorney or Agent of record 37,622 (Reg. No.)

☐ Assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) is enclosed or was filed on _____ (Date)

/James A Flight/
Signature

James A. Flight
Typed or printed name

312-580-1020
Requester's telephone number

2022-07-21
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. If the assignee is a juristic entity, this form must be signed by a patent practitioner (attorney or agent) of record. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 forms are submitted

This collection of information is required by 37 CFR 1.363. The information is required to obtain or retain a benefit by the public, which is to indicate (and for the USPTO to process) a fee address. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 5 minutes to complete, including gathering, preparing, and submitting the completed 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 COMPLETED FORMS TO THE PREVIOUS ADDRESS. **SEND COMPLETED FORMS TO: Mail Stop Maintenance Fee, Director of the United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Privacy Act Statement

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence 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)

81905 7590 07/20/2022
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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

Certificate of Mailing or Transmission

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

Janet Liu	(Typed or printed name)
/Janet Liu/	(Signature)
July 21, 2022	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/751,283	05/23/2022	Christen V. Nielsen	20004/80842US08	7234

TITLE OF INVENTION: METHODS AND APPARATUS TO CAPTURE IMAGES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	10/20/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAINI, AMANDEEP SINGH	2661	725-080000

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

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

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

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

1 Hanley, Flight & Zimmerman, 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: The Nielsen Company (US), LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): New York, New York

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

4a. Fees submitted: ☑ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

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

☑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-2455

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 /James A Flight/ Date 2022-07-21

Typed or printed name James A. Flight Registration No. 37,622

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TVision Insights, Inc. – Ex. 1002, Page 000320

Electronic Patent Application Fee Transmittal

Application Number:	17751283
Filing Date:	23-May-2022
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES
First Named Inventor/Applicant Name:	Christen V. Nielsen
Filer:	James A. Flight/Janet Liu
Attorney Docket Number:	20004/80842US08

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

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

Electronic Acknowledgement Receipt	
EFS ID:	46241721
Application Number:	17751283
International Application Number:	
Confirmation Number:	7234
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES
First Named Inventor/Applicant Name:	Christen V. Nielsen
Customer Number:	81905
Filer:	James A. Flight/Janet Liu
Filer Authorized By:	James A. Flight
Attorney Docket Number:	20004/80842US08
Receipt Date:	21-JUL-2022
Filing Date:	23-MAY-2022
Time Stamp:	17:00:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$1200
RAM confirmation Number	E20227KH00542931
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Maintenance Fee Address Change	80842US08_Fee_Address-Signed.pdf	231227 ae83a5fb438fa3fa27ed4146089623508838 9a33	no	2
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	80842US08_Issue_fee-Signed.pdf	126847 5e9d415533c42f3d81ceaf1c666ed32fb5cb a8aa	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	37616 8ccccf641327d749c5816ad7c088cb47e975 1086	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	395690		

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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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.
17/751,283	05/23 2022	Christen V. Nielsen	20004 80842US08	7234

81905 7590 08 02/2022
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
SAINI, AMANDEEP SINGH

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
08/02/2022	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):

jflight@hfzlaw.com
mhanley@hfzlaw.com
docketing@hfzlaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 17751283
Applicant : Nielsen
Filing Date : 05/23/2022
Date Mailed : 08/02/2022

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Naran Hem/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 17751283

IDENTIFICATION OF APPLICATION DEFICIENCIES IN APPLICATION FILED ON OR AFTER SEPTEMBER 16, 2012

☐ Applicant must provide legible text for the following item(s).

- ☐ Specification filed , page(s) .
- ☐ Claims filed , claim(s) .
- ☐ Other: .

☒ Applicant must provide missing information on the following page(s) of the specification by amending the specification to add the missing text. No new matter may be added.
Page/line no(s). page 1, paragraph [0001]

☐ The specification refers to one or more applications by attorney docket number and does not show the U.S. application number(s). Applicant must supply the U.S. application number in place of each attorney docket number.
Page/line no(s).

☐ Applicant must provide an Abstract of the Disclosure.

☐ The Application Data Sheet (ADS dated) does not supply the inventor's city and/or does not supply the inventor's U.S. state and/or does not supply the inventor's country. Applicant must submit a signed, in accordance with 37 CFR 1.76(e) and 1.33(b), application data sheet that corrects this deficiency. To be in compliance with 37 CFR 1.76, the corrected application data sheet must identify the information being changed by using underlining for additions and strikethroughs or brackets for deletions.

☐ Other:

The response to this notice should contain only amended papers, as the waiver of 37 CFR 1.312 is limited to corrections of documents specifically requested in the notice.

To: jflight@hfzlaw.com,mhanley@hfzlaw.com,docketing@hfzlaw.com
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 81905

Aug 02, 2022 07:25:23 AM

Dear PAIR Customer:

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 81905 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17751283	M327	08/02/2022	20004/80842US08

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

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Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

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.
17/751,283	05/23 2022	Christen V. Nielsen	20004 80842US08	7234

81905 7590 08 02/2022
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER
SAINI, AMANDEEP SINGH

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
08/02/2022	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):

jflight@hfzlaw.com
mhanley@hfzlaw.com
docketing@hfzlaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 17751283
Applicant : Nielsen
Filing Date : 05/23/2022
Date Mailed : 08/02/2022

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Naran Hem/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 17751283

IDENTIFICATION OF APPLICATION DEFICIENCIES IN APPLICATION FILED ON OR AFTER SEPTEMBER 16, 2012

☐ Applicant must provide legible text for the following item(s).

- ☐ Specification filed , page(s) .
- ☐ Claims filed , claim(s) .
- ☐ Other: .

☒ Applicant must provide missing information on the following page(s) of the specification by amending the specification to add the missing text. No new matter may be added.
Page/line no(s). page 1, paragraph [0001]

☐ The specification refers to one or more applications by attorney docket number and does not show the U.S. application number(s). Applicant must supply the U.S. application number in place of each attorney docket number.
Page/line no(s).

☐ Applicant must provide an Abstract of the Disclosure.

☐ The Application Data Sheet (ADS dated) does not supply the inventor's city and/or does not supply the inventor's U.S. state and/or does not supply the inventor's country. Applicant must submit a signed, in accordance with 37 CFR 1.76(e) and 1.33(b), application data sheet that corrects this deficiency. To be in compliance with 37 CFR 1.76, the corrected application data sheet must identify the information being changed by using underlining for additions and strikethroughs or brackets for deletions.

☐ Other:

The response to this notice should contain only amended papers, as the waiver of 37 CFR 1.312 is limited to corrections of documents specifically requested in the notice.

Electronic Acknowledgement Receipt	
EFS ID:	46327714
Application Number:	17751283
International Application Number:	
Confirmation Number:	7234
Title of Invention:	METHODS AND APPARATUS TO CAPTURE IMAGES
First Named Inventor/Applicant Name:	Christen V. Nielsen
Customer Number:	81905
Filer:	James A. Flight/Janet Liu
Filer Authorized By:	James A. Flight
Attorney Docket Number:	20004/80842US08
Receipt Date:	02-AUG-2022
Filing Date:	23-MAY-2022
Time Stamp:	19:07:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	80842US08_NTFCAP_08-02-2022.pdf	103061 eef62134af8c8cadb8f4b1d5941c1bc11b3d2dab	no	3
Warnings:					

Information:					
2	Miscellaneous Incoming Letter	80842US08_Response_to_Notice_Corrected_Papers.pdf	156085 9b74c3d903e77531525150f396fc6b8f94688e5a	no	3
Warnings:					
Information:					
			Total Files Size (in bytes):	259146	

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.

PATENT
20004/80842US08

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Christen V. Nielsen

Serial No.: 17/751,283

For: METHODS AND APPARATUS TO CAPTURE IMAGES

Filed: May 23, 2022

Group Art Unit: 2661

Examiner: SAINI, AMANDEEP SINGH

I hereby certify that this paper is being deposited electronically with the United States Patent and Trademark Office, on this date:

August 2, 2022

/ Janet Liu/
Janet Liu

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

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS
MAILED ON AUGUST 2, 2022

Dear Commissioner for Patents:

In response to the Notice to File Corrected Application Papers mailed on August 2, 2022, please enter the following amendments and consider the following remarks:

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

Remarks begin on page 3 of this paper.

In the Specification

Please amend paragraph [0001] as follows:

[0001] This patent arises from a continuation of U.S. Patent Application Serial No. 17/666,322, filed February 7, 2022, ~~now U.S. Patent No. _____~~, which is a continuation of U.S. Patent Application Serial No. 16/878,935, filed May 20, 2020, now U.S. Patent No. 11,245,839, which is a continuation of U.S. Patent Application Serial No. 16/196,810, filed November 20, 2018, which is a continuation of U.S. Patent Application Serial No. 15/793,108, filed October 25, 2017, now U.S. Patent No. 10,165,177, which is a continuation of U.S. Patent Application Serial No. 15/419,120, filed January 30, 2017, now U.S. Patent No. 9,843,717, which is a continuation of U.S. Patent Application Serial No. 14/732,175, filed June 5, 2015, now U.S. Patent No. 9,560,267, which is a continuation of U.S. Patent Application Serial No. 13/327,227, filed December 15, 2011, now U.S. Patent No. 9,082,004. U.S. Patent Application Serial No. 17/666,322, U.S. Patent Application Serial No. 16/878,935, U.S. Patent Application Serial No. 16/196,810, U.S. Patent Application Serial No. 15/793,108, U.S. Patent Application Serial No. 15/419,120, U.S. Patent Application Serial No. 14/732,175, and U.S. Patent Application Serial No. 13/327,227 are hereby incorporated herein by reference in their entirety. Priority to U.S. Patent Application Serial No. 17/666,322, U.S. Patent Application Serial No. 16/878,935, U.S. Patent Application Serial No. 16/196,810, U.S. Patent Application Serial No. 15/793,108, U.S. Patent Application Serial No. 15/419,120, U.S. Patent Application Serial No. 14/732,175 and U.S. Patent Application Serial No. 13/327,227 is claimed.

No new matter has been entered.

TVision Insights, Inc. – Ex. 1002, Page 000335

REMARKS

The Applicant has carefully considered the Notice to File Corrected Application Papers mailed August 2, 2022. By way of this response, paragraph [0001] of the specification has been amended to remove the phrase "now U.S. Patent No. _____". The Notice requested the Applicant to fill in the missing information (i.e., fill in the blank). However, that missing information does not yet exist. The parent application is still pending and has not yet been assigned a patent number. Therefore, the objected-to phrase is superfluous and has been removed. No new matter has been added.

If the Examiner is of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is invited to contact the undersigned at the number identified below.

Respectfully submitted,

HANLEY, FLIGHT & ZIMMERMAN, LLC.
USPTO Customer No. 81905
150 S. Wacker Dr., Suite 2200
Chicago, Illinois 60606
(312) 580-1020

August 2, 2022

By: **/James A Flight/**
James A. Flight
Registration No. 37,622

TVision Insights, Inc. – Ex. 1002, Page 000336

PRINTER RUSH
(PTO ASSISTANCE)

Application: 17751283	**Examiner:** Saini	**GAU:** 2661
From:	**Location:** RTFM	**Creation Date:** 08/25/2022

Week Date: 7/18/2022

DOC CODE	DOC DATE	MISCELLANEOUS
☐ 1449		☐ Continuing Data
☐ IDS		☐ Foreign Priority
☐ CLM		☐ Document Legibility
☐ IIFW/FWCLM		☐ Fees
☐ SRFW		☐ Petition (TC)
☐ DRW		☐ Other
☐ OATH		
☒ 312	08/02/2022	
☐ SPEC		

[RUSH] Message:

Please respond to the 8-2-22 A.NA.

Thank you

[XRUSH] Response:

Initials: _____

Examiner: PUBS contact - James Leija, (703) 756-1197
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: AUG 16

TVision Insights, Inc. – Ex. 1002, Page 000337

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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.
17/751,283	05/23/2022	Christen V. Nielsen	20004/80842US08	7234

81905 7590 09/07/2022

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

EXAMINER	
SAINI, AMANDEEP SINGH	

ART UNIT	PAPER NUMBER
2661	

NOTIFICATION DATE	DELIVERY MODE
09/07/2022	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):

docketing@hfzlaw.com
jflight@hfzlaw.com
mhanley@hfzlaw.com

Response to Rule 312 Communication	Application No.	Applicant(s)	
	17/751,283	Nielsen, Christen V.	
	Examiner	Art Unit	AIA (FITF) Status
	Amandeep Saini	2661	No

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

1. ☑ The amendment filed on 02 August 2022 under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☑ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.

Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

f) ☐ not entered because the supplemental or corrected Application Data sheet (ADS)

☐ was not accompanied by a petition to accept an unintentionally delayed claim under 37 CFR 1.55 or 27 CFR 1.78;

☐ did not identify the information being changed in accordance with 37 CFR 1.76(c)(2);

☐ was not properly signed in accordance with 37 CFR 1.76(e) (or 37 CFR 1.33(b) for applications filed prior to September 16, 2012).

/AMANDEEP SAINI/
Primary Examiner, Art Unit 2661

OK TO ENTER: /A.S./

PATENT
20004/80842US08

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Christen V. Nielsen

Serial No.: 17/751,283

For: METHODS AND APPARATUS TO CAPTURE IMAGES

Filed: May 23, 2022

Group Art Unit: 2661

Examiner: SAINI, AMANDEEP SINGH

I hereby certify that this paper is being deposited electronically with the United States Patent and Trademark Office, on this date:

August 2, 2022

/ Janet Liu/
Janet Liu

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

RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS
MAILED ON AUGUST 2, 2022

Dear Commissioner for Patents:

In response to the Notice to File Corrected Application Papers mailed on August 2, 2022, please enter the following amendments and consider the following remarks:

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

Remarks begin on page 3 of this paper.

OK TO ENTER: /A.S./

PRINTER RUSH
(PTO ASSISTANCE)

Application: 17751283	**Examiner:** Saini	**GAU:** 2661
From:	**Location:** RTFM	**Creation Date:** 08/25/2022

Week Date: 7/18/2022

DOC CODE	DOC DATE	MISCELLANEOUS
☐ 1449		☐ Continuing Data
☐ IDS		☐ Foreign Priority
☐ CLM		☐ Document Legibility
☐ IIFW/FWCLM		☐ Fees
☐ SRFW		☐ Petition (TC)
☐ DRW		☐ Other
☐ OATH		
☒ 312	08/02/2022	
☐ SPEC		

[RUSH] Message:

Please respond to the 8-2-22 A.NA.

Thank you

[XRUSH] Response:

OK TO ENTER: /A.S./

Initials: _____

Examiner: PUBS contact - James Leija, (703) 756-1197
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: AUG 16

TVision Insights, Inc. – Ex. 1002, Page 000341

To: jflight@hfzlaw.com,mhanley@hfzlaw.com,docketing@hfzlaw.com
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 81905

Sep 07, 2022 03:27:48 AM

Dear PAIR Customer:

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

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Application	Document	Mailroom Date	Attorney Docket No.
17751283	N271	09/07/2022	20004/80842US08

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/751,283	05/23/2022	Christen V. Nielsen	20004/80842US08

CONFIRMATION NO. 7234

81905
Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

PUBLICATION NOTICE



Title:METHODS AND APPARATUS TO CAPTURE IMAGES

Publication No.US-2022-0286601-A1
Publication Date:09/08/2022

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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

TVision Insights, Inc. – Ex. 1002, Page 000343

To: jflight@hfzlaw.com,mhanley@hfzlaw.com,docketing@hfzlaw.com
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 81905

Sep 09, 2022 03:32:29 AM

Dear PAIR Customer:

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 81905 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

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Application	Document	Mailroom Date	Attorney Docket No.
17751283	NTC.PUB	09/08/2022	20004/80842US08

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/751,283	10/11/2022	11470243	20004/80842US08	7234

81905 7590 09/21/2022

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606

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 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

Applicant will be able to obtain more detailed information by accessing the Patent 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 Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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

Christen V. Nielsen, Palm Harbor, FL;

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

The Nielsen Company (US), LLC, New York, NY;

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.

To: jflight@hfzlaw.com,mhanley@hfzlaw.com,docketing@hfzlaw.com
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 81905

Sep 22, 2022 05:49:53 AM

Dear PAIR Customer:

Hanley, Flight & Zimmerman, LLC (Nielsen)
150 S. Wacker Dr. Suite 2200
Chicago, IL 60606
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 81905 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:
The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
17751283	ISSUE.NTF	09/21/2022	20004/80842US08

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

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Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court FOR THE DISTRICT OF DELAWARE on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	10/12/2022	FOR THE DISTRICT OF DELAWARE

PLAINTIFF	DEFENDANT
THE NIELSEN COMPANY (US), LLC	TVISION INSIGHTS, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 11,470,243 B2	10/11/2022	The Nielsen Company (US), LLC
2			
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy