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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/845,891	12/18/2017	Filip Piekniewski	BRAIN.052C1/BC201416C1

CONFIRMATION NO. 1010

132059
Gazdzinski & Associates, PC
16644 West Bernardo Drive
Suite 201
San Diego, CA 92127

POA ACCEPTANCE LETTER

OC000000100240569

Date Mailed: 06/15/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/11/2018.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ytdemisse/

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

PTO/AIA/82A (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
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.

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	15/845,891
Filing Date	12/18/2017
First Named Inventor	Filip Piekniewski
Title	OPTICAL DETECTION APPARATUS AND METHODS
Art Unit	
Examiner Name	
Attorney Docket Number	P23333US01

SIGNATURE of Applicant or Patent Practitioner

Signature	/Sidharth Kapoor/	Date (Optional)	09-21-2018
Name	Sidharth Kapoor	Registration Number	68159
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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)
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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: 26418

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):

Brain Corp

☐ 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)	
Name	Andy Ng		
Title	General Counsel		

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 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.

Electronic Acknowledgement Receipt

EFS ID:	33791219
Application Number:	15845891
International Application Number:	
Confirmation Number:	1010
Title of Invention:	OPTICAL DETECTION APPARATUS AND METHODS
First Named Inventor/Applicant Name:	Filip Piekniewski
Customer Number:	132059
Filer:	Sidharth Kapoor/Cody Nye
Filer Authorized By:	Sidharth Kapoor
Attorney Docket Number:	BRAIN.052C1/BC201416C1
Receipt Date:	21-SEP-2018
Filing Date:	18-DEC-2017
Time Stamp:	12:57:48
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	Power of Attorney	P23333US01_-_2018-09-21_-_POA_15845891.PDF	764237 92aad9cc4a424c0be9920ada53a21bd4bbc53e4b	no	2

Warnings:

Information:	
Total Files Size (in bytes):	764237

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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/845,891	12/18/2017	Filip Piekniewski	BRAIN.052C1/BC201416C1

CONFIRMATION NO. 1010

132059
Gazdzinski & Associates, PC
16644 West Bernardo Drive
Suite 201
San Diego, CA 92127

POWER OF ATTORNEY NOTICE

OC000000102574184

Date Mailed: 09/26/2018

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/21/2018.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ngfissha/

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/845,891	12/18/2017	Filip Piekniewski	P23333US01

CONFIRMATION NO. 1010

26418
REED SMITH LLP
P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488

POA ACCEPTANCE LETTER

OC000000102574268

Date Mailed: 09/26/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/21/2018.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/ngfissha/

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/845,891	12/18/2017	Filip Piekniewski	P23333US01

CONFIRMATION NO. 1010

26418
REED SMITH LLP
P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488

PUBLICATION NOTICE

OC000000102644305

Title:OPTICAL DETECTION APPARATUS AND METHODS

Publication No.US-2018-0278820-A1
Publication Date:09/27/2018

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

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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.
15/845,891	12/18/2017	Filip Piekniewski	P23333US01	1010

26418 7590 03/21/2019

REED SMITH LLP
P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488

EXAMINER	
YODER III, CHRISS S	

ART UNIT	PAPER NUMBER
2699	

NOTIFICATION DATE	DELIVERY MODE
03/21/2019	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):

nycipdocketing@reedsmith.com
ptoipinbox@reedsmith.com

Office Action Summary	Application No. 15/845,891	Applicant(s) Piekniewski et al.	
	Examiner CHRISS S YODER III	Art Unit 2699	AIA (FITF) Status Yes

-- 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 06/12/2018.

☐ 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) 25-39 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) 25-39 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: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

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.

Election/Restrictions

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

Species 1A: Figures 4A, 5A, 6A, 7A-7B, 11A.

Species 1B: Figures 4B, 5A, 6A, 7A-7B, 11A.

Species 1C: Figures 4C, 5A, 6A, 7A-7B, 11A.

Species 1D: Figures 4D, 5A, 6A, 7A-7B, 11A.

Species 2A: Figures 4A, 5B, 6B, 8A-8B, 11B.

Species 2B: Figures 4B, 5B, 6B, 8A-8B, 11B.

Species 2C: Figures 4C, 5B, 6B, 8A-8B, 11B.

Species 2D: Figures 4D, 5B, 6B, 8A-8B, 11B.

The species are independent or distinct because as disclosed the different species have mutually exclusive characteristics for each identified species, such as a

different image detector (see figures 4A-4D) and a different method of performing image analysis using one of image domain based analysis or image spectrum-domain analysis to detect/determine the presence of an object within the image (see figures 11A-11B). In addition, these species are not obvious variants of each other based on the current record.

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, claims 25, 30, and 35 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 species require a different field of search (e.g., searching different classification or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not necessarily be applicable to another species.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or a grouping of patentably indistinct 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.

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(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.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISS S YODER III whose telephone number is (571)272-7323. The examiner can normally be reached on M-F 9:00-5:00 PM.

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, Lin Ye can be reached on (571) 272-7372. 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.

/CHRISS S YODER III/
Examiner, Art Unit 2699

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	Art Unit
	CHRISS S YODER III	2699

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

CLAIMS											
☐ Claims renumbered in the same order as presented by applicant						☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE									
Final	Original	03/18/2019									
	1	-									
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	39	÷									

Bibliographic Data

Application No: 15/845,891

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /CHRISS S YODER III/ (Examiner's Signature) | (Initials)

Title: OPTICAL DETECTION APPARATUS AND METHODS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/18/2017	348	2699	P23333US01
RULE			

APPLICANTS

Brain Corporation, San Diego, CA, UNITED STATES

INVENTORS

Filip Piekniewski San Diego, CA, UNITED STATES

Vadim Polonichko San Diego, CA, UNITED STATES

Eugene Izhikevich San Diego, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 14321736 07/01/2014 PAT 9848112

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/10/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

REED SMITH LLP
P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488
UNITED STATES

FILING FEE RECEIVED

$1,565

Electronic Acknowledgement Receipt

EFS ID:	35913822
Application Number:	15845891
International Application Number:	
Confirmation Number:	1010
Title of Invention:	OPTICAL DETECTION APPARATUS AND METHODS
First Named Inventor/Applicant Name:	Filip Piekniewski
Customer Number:	26418
Filer:	Sidharth Kapoor/Cody Nye
Filer Authorized By:	Sidharth Kapoor
Attorney Docket Number:	P23333US01
Receipt Date:	03-MAY-2019
Filing Date:	18-DEC-2017
Time Stamp:	15:02:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Response to Election / Restriction Filed	P23333US01_-_2019-05-03_-_Response.pdf	512468 6679a51525cef5dd7cfbd16f628bab4b8eb5392e	no	3
Warnings:					

Information:	
Total Files Size (in bytes):	512468

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Piekniewski, F., et al.	Examiner: YODER III, CHISS S
Serial No.: 15/845,891	Art Unit: 2699
Attorney Docket No.: P23333US01	For: OPTICAL DETECTION APPARATUS AND METHODS
	Filing Date: **December 18, 2017**

RESPONSE TO RESTRICTION REQUIREMENT

In response to the Office Action dated March 21, 2019, Applicant respectfully requests entry of this Response. This Response is being timely filed by the statutory time period set forth in the Office Action. The Commissioner is hereby authorized to charge any additional fees, which may be required by this paper, to Deposit Account No. 18-0582.

Remarks begin on page 2.

REMARKS

In the outstanding action, mailed March 21, 2019, Examiner has identified eight different sets of species as they are allegedly directed to "mutually exclusive characteristics" according to the Examiner. These exclusive characteristics being, "different image detector" and "different methods of performing image analysis" according to the Examiner, which allegedly will result in a "search and/or examination burden" on the Examiner.

While Applicants do not concede with the Examiner's characterization of the figures and the related disclosure, in an effort to further prosecution, Applicants elect **Species 1A without traverse.** In light of this election, claims 25-39 are pending in the present application for Examiner's review. Applicants do not disclaim or disavow the non-elected species, and reserve the right to pursue the non-elected species in subsequent applications.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience. If the Examiner believes an Examiner's Amendment would place the application in condition for allowance, Examiner is welcome to contact Applicants' undersigned counsel to discuss the potential Examiner's Amendment. Please apply any necessary charges or credits to Deposit Account 18-0582, referencing the above attorney docket number.

Date: May 3, 2019

Respectfully submitted,

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/845,891	12/18/2017	Filip Piekniewski	P23333US01	1010

26418 7590 08/21/2019
REED SMITH LLP
P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488

EXAMINER	
YODER III, CHRISS S	

ART UNIT	PAPER NUMBER
2699	

NOTIFICATION DATE	DELIVERY MODE
08/21/2019	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):

nycipdocketing@reedsmith.com
ptoipinbox@reedsmith.com

Office Action Summary	Application No. 15/845,891	Applicant(s) Piekniewski et al.	
	Examiner CHRISS S YODER III	Art Unit 2699	AIA (FITF) Status Yes

-- 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 05/03/2019.

☐ 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) 25-39 is/are pending in the application.

5a) Of the above claim(s) 33-34 and 36-37 is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 25-32,35 and 38-39 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 12/18/2017 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: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

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.

Election/Restrictions

1. Applicant's election without traverse of claims 26-39 directed to Species 1A in the reply filed on May 3, 2019 is acknowledged.

2. Additionally, the Examiner notes that **claims 33-34 and 36-37** are included in the claims which Applicant elected as readable on Species 1A. However, the Examiner believes that these claims are directed to non-elected Species 2A-2D. Specifically, claims 33 and 36 are directed to a partitioning an image into sub images, and applying a filter to at least one of the sub-images, which is found in the description of Species 2A-2D (see paragraphs 0096 & 0126, and figures 6B & 8A-8B of the specification, as filed on June 11, 2018), and claims 34 and 37 are directed to applying an asymmetrical filter to the image to facilitate the detection of an object at a target orientation, which is found

in the description of Species 2A-2D (see paragraphs 0126, and figure 11B of the specification, as filed on June 11, 2018).

Therefore, claims 33-34 and 36-37 have been withdrawn from consideration by the Examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 26-29 and 38-39** are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 26, the specification does not provide any description of a first and second mode, or the selection and activation thereof.

Regarding claims 27-28, the specification does not provide any description of 1) analysis of plural static objects to calibrate the actuator and sensor, 2) measurement/determination of any velocity vector(s), or 3) calculation of a discrepancy between an ideal velocity vector and a measure velocity vector.

Regarding claim 29, the specification does not provide any description of the use of velocity vectors of surrounding objects and the apparatus to adapt movement of the apparatus.

Regarding claim 38-39, the specification does not provide any description of 1) a determination of any velocity vector(s), or 2) detecting a plurality of distinguishable objects.

4. **Claims 26 and 31** are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 26, the claim recites the limitation "activating the apparatus between a first mode and a second mode upon detection of the object, the object comprising at least one obstacle or target; activating the first mode upon detection that the object is an obstacle, the first mode corresponds to increasing distance between the object and the apparatus; and activating the second mode upon detection that the object is a target, the second mode corresponds to navigating the apparatus towards the object". However, the Examiner notes that while the specification does disclose

implementation of obstacle avoidance and target approach functionality, it does not disclose any activation/selection between the modes based on the detected object type (i.e., target/obstacle). That is, while the specification discloses the implementation of functionality related to the approach and/or avoidance of an object, it does not disclose the active selection between target approach and obstacle avoidance based on the type of object detected.

Regarding claim 31, the claim recites the limitation "receive data from the at least one sensor, the data comprising dynamic lighting parameters of the environment; and adjust the prescribed contrast parameter threshold for object detection based on the data from the at least one sensor". However, the Examiner notes that while the specification does disclose that "the threshold value may be selected and/or configured dynamically based on, e.g., ambient light conditions, time of day, and/or other parameters", it does not disclose the reception of data from the at least one sensor being used to adjust the threshold. That is, while specification does disclose the adjusting of the threshold based on the ambient lighting of the environment, it does not disclose the use of sensor/image data to determine the ambient light level.

Double Patenting

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 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. **Claim 25** is rejected on the ground of nonstatutory double patenting as being unpatentable over claims 9 of U.S. Patent No. 9,848,112. Although the claims at issue are not identical, they are not patentably distinct from each other because claim 25 is generic to all that is recited in claim 9 of the patent. That is, claim 25 is anticipated by claim 9 of the patent.

As such, Claim 9 of U.S. Patent No. 9,848,112, as shown in the table below, contains every element of claim 25 of the instant application.

Instant Application Claims	Claims of US Patent 9,848,112
25. A method of navigating an apparatus comprising:	**9.** A method of navigating a robotic apparatus comprising a controller, an actuator and a sensor, the method comprising:
obtaining at least one image associated with surroundings of the apparatus using a sensor, the apparatus comprising a controller, an actuator and the sensor;	obtaining, through a lens, at least one image associated with surroundings of the apparatus using the sensor, the sensor comprising a plurality of image detectors disposed at an angle with respect to a plane of the lens, each of the plurality of image detectors being associated with an extent located in the surroundings;
analyzing the at least one image to detect a presence of an object in the at least one image;	analyzing the at least one image to detect a presence of one or more objects in the at least one image;
	during the navigating of the robotic apparatus, detecting a distance to the one or more objects based on the presence of at least one of the one or more objects within the extent located in the surroundings;

determining whether the object comprises one of either a target or an obstacle; and	determining that the detected object comprises one of either a target or an obstacle; and
causing the controller to selectively activate the actuator based on the determination.	causing the controller to selectively activate the actuator based on the determination.

Claim Rejections - 35 USC § 102

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

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

6. **Claims 25-26 and 29 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Clarke et al. (US Patent 9,150,220).**

7. In regard to **claim 25**, note Clarke discloses a method of navigating an apparatus comprising obtaining at least one image associated with surroundings of the apparatus using a sensor, the apparatus comprising a controller, an actuator and the sensor (column 24, lines 21-32, and figure 5A: 510), analyzing the at least one image to detect a presence of an object in the at least one image (column 24, lines 32-53, and figure 5A: 520), determining whether the object comprises one of either a target or an obstacle (column 24, lines 32-53, column 51, line 41 – column 52, line 21, column 68, line 20 –

column 69, line 21, and figure 5A: 520; targets can be determined in order to perform target approach operations, and obstacles are determined in order to perform collision avoidance operations), causing the controller to selectively activate the actuator based on the determination (column 24, line 54 – column 25, line 5, column 51, line 41 – column 52, line 21, column 68, line 20 – column 69, line 21, and figure 5A: 530).

8. In regard to **claim 26**, note Clarke discloses activating the apparatus between a first mode and a second mode upon detection of the object, the object comprising at least one obstacle or target, activating the first mode upon detection that the object is an obstacle, the first mode corresponds to increasing distance between the object and the apparatus, and activating the second mode upon detection that the object is a target, the second mode corresponds to navigating the apparatus towards the object (column 24, lines 32-53, column 51, line 41 – column 52, line 21, column 68, line 20 – column 69, line 21, and figure 5A: 520; when a target is determined, target approach operations are perform target approach operations in order to decrease the distance between the apparatus and the object, and when obstacles are determined, collision avoidance operations are performed in order to increase the distance between the apparatus and the object).

9. In regard to **claim 29**, note Clarke discloses adapting movement of the apparatus based on the velocity vectors of surrounding objects and the apparatus, causing the controller to activate or deactivate the actuator (column 49, line 66 – column 52, line 21, and figure 18; based on the detected velocity vectors of the apparatus and the object, the actuators are controlled to adjust the trajectory of the apparatus).

Claim Rejections - 35 USC § 103

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

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 30-32 and 35 are rejected under 35 U.S.C. 103 as being unpatentable over Clarke et al. (US Patent 9,150,220) in view of Eswara (US Patent 8,542,875).**

11. In regard to claim 30, note Clarke discloses a non-transitory computer-readable storage medium having computer readable instructions stored thereon (column 72, lines 4-41), that when executed by at least one processor configure the at least one processor to receive data from at least one sensor, the data comprising at least one image of an environment (column 24, lines 21-32, and figure 5A: 510), analyze an image, from data generated by the at least one sensor, to detect whether an object is present in the image (column 24, lines 32-53, and figure 5A: 520), and determine a location of the detected object (column 25, line 5-16).

Therefore, it can be seen that the primary reference of Clarke fails to explicitly disclose that analyzing the image includes determining contrast parameter criterion comprising a deviation parameter, a reference value, and/or threshold associated with object detection, that detecting the presence of the object is based at least in part on the contrast parameter meeting or exceeding a predetermined threshold, and that the location is determined to be present from the contrast at the location meeting or exceeding the prescribed threshold.

In analogous art, Eswara discloses the use of image analysis to determine a contrast parameter criterion comprising a deviation parameter, a reference value, and/or threshold associated with object detection (column 1, lines 24-25, column 2, lines 49-64, column 4, lines 8-33, and column 4, line 58 – column 5, line 29, and figure 1: 12, 22, 23; contrast is used to indicate where an object is present), wherein the detection of the presence is based on the contrast meeting or exceeding a predetermined threshold (column 2, lines 49-64, and figure 1: 23; the contrast threshold is used to indicate image regions where an object is present). Eswara teaches that the use of use of image analysis to detect the presence of an object using contrast is preferred in order to reduce the computations needed to perform real time image processing for object detection in applications such as autonomous navigation (column 2, lines 19-45, and column 5, lines 21-23). Therefore, it would have been obvious to one of ordinary skill in the art before the effective filing date of the claimed invention, to modify the primary reference such that analyzing the image includes determining contrast parameter criterion comprising a deviation parameter, a reference value, and/or threshold associated with object detection, and that detecting the presence of the object is based at least in part on the contrast parameter meeting or exceeding a predetermined threshold, in order to reduce the computations needed to perform real time image processing for object detection in applications such as autonomous navigation, as suggested by Eswara. And based on the combination of Clarke and Eswara, the location of the object is determined from the contrast parameter meeting or exceeding the prescribed threshold at the location of the object.

12. In regard to **claim 31**, note Eswara discloses receiving data from the at least one sensor, the data comprising dynamic lighting parameters of the environment, and adjust the prescribed contrast parameter threshold for object detection based on the data from the at least one sensor (column 4, line 58 – column 5, line 29, and figure 1: 22, 23; the image data is used in step 22, to determine the mean value and standard deviation of the image, i.e., dynamic lighting parameters of the environment, in order to set the threshold used in the comparison of the image data for contrast evaluation in step 23).

13. In regard to **claim 32**, note Clarke discloses the use of multi-frame analysis in order to improve the reliability of detection (column 26, lines 49-61). Eswara discloses determining a contrast parameter criterion comprising a fixed or a dynamic value from statistics of image data gathered by the at least one sensor (column 4, line 58 – column 5, line 29, and figure 1: 22, 23; the image data is used in step 22, to determine the mean value and standard deviation of the image, i.e., dynamic lighting parameters of the environment, in order to set the threshold used in the comparison of the image data for contrast evaluation in step 23). And based on the teachings of Clarke and Eswara, it would have been obvious to one of ordinary skill in the art to perform the contrast parameter criterion determination of Eswara using statistics of multiple images gathered by the at least one sensor in order to improve reliability of the detection, as suggested by Clarke.

14. In regard to **claim 35**, this is a method claim, corresponding to the apparatus in the combination of claims 30-31. Therefore, claim 35 has been analyzed and rejected as previously discussed with respect claims 30-31.

Conclusion

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

US 7016783: note the use of image capture/analysis to control vehicle actuators for obstacle avoidance.

US 7113867: note the use of image capture/analysis to control vehicle actuators for obstacle avoidance.

US 8108147: note the use of image contrast in a vehicle obstacle avoidance.

US 2012/0130566: note the use of image capture/analysis to control vehicle actuators for target approach (i.e., landing).

US 2014/0379179: note the use of image capture/analysis to control vehicle actuators for target approach (i.e., landing).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISS S YODER III whose telephone number is (571)272-7323. The examiner can normally be reached on M-F 9:00-5:00 PM.

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, Lin Ye can be reached on (571) 272-7372. 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.

/CHRISS S YODER III/
Examiner, Art Unit 2699

Notice of References Cited	Application/Control No. 15/845,891	Applicant(s)/Patent Under Reexamination Piekniewski et al.	
	Examiner CHRISS S YODER III	Art Unit 2699	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-9848112-B2	12-2017	Piekniewski; Filip	G02B5/204	1/1
*	B	US-9150220-B2	10-2015	Clarke; Anna	B60W30/00	1/1
*	C	US-8542875-B2	09-2013	Eswara; Lalitha M.	G06K9/3233	382/103
*	D	US-7016783-B2	03-2006	Hac; Aleksander B.	B60K31/0008	701/301
*	E	US-7113867-B1	09-2006	Stein; Gideon P.	G06K9/00805	1/1
*	F	US-8108147-B1	01-2012	Blackburn; Michael	G08G1/166	235/454
*	G	US-20120130566-A1	05-2012	Anderson; Daniel	G05D1/0858	701/16
*	H	US-20140379179-A1	12-2014	Goossen; Emray Rein	G08G5/02	701/18
	I					
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FOREIGN PATENT DOCUMENTS

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	N					
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	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	Art Unit
	CHRISS S YODER III	2699

CPC - Searched*		
Symbol	Date	Examiner
H04N 5/225, 5/2258	08/17/2019	CY
B60W 30/08, 30/09,30/14, 30/16, 30/17	08/17/2019	CY
G01B 11/0026, 11/0691	08/17/2019	CY
G01C 3/00-32	08/17/2019	CY
G02B 3/36, 3/38	08/17/2019	CY
G06K 9/00664, 9/00791, 9/00825, 9/6215	08/17/2019	CY
G06T 7/0051, 7/50-596	08/17/2019	CY

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
East search history included	08/17/2019	CY

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Avidbots Ex1002
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	Art Unit
	CHRISS S YODER III	2699

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

CLAIMS

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

CLAIM		DATE								
Final	Original	03/18/2019	08/17/2019							
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	36	÷	N							
	37	÷	N							
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Bibliographic Data

Application No: 15/845,891

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /CHRISS S YODER III/ (Examiner's Signature) | (Initials)

Title: OPTICAL DETECTION APPARATUS AND METHODS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/18/2017	348	2699	P23333US01
RULE			

APPLICANTS

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Eugene Izhikevich San Diego, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 14321736 07/01/2014 PAT 9848112

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/10/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

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UNITED STATES

FILING FEE RECEIVED

$1,565

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S868	1	("9848112").PN.	US-PGPUB; USPAT	OR	OFF	2019/08/17 14:37
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S743	135	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/05 20:23
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S434	335	chriss near3 yoder	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S435	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S436	1	("20160059962").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S437	1	("20140263823").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S438	1	("20160018822").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S439	1	("7898130").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S440	1	("8378881").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S441	1	("8931730").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S442	2	(("9164506") or ("9280038")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S443	23	("20080054158" | "20090157233" | "20090187299" | "20100004802" | "20100250022" | "20110141287" | "20110304737" | "20120143808" | "20120154579" | "20120200703" | "20120287274" | "20120307042" | "20130085643" | "20130176423" | "20140049643" | "7970507").PN. OR ("9164506").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S444	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S445	1	("20140307117").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S446	2792	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S447	4746	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S448	1684	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/08/04 12:33

			DERWENT; IBM_TDB			
S449	6931	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S450	759	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S451	142	("20050096539" | "20070022068" | "20080174700" | "20100086171" | "20100299296" | "20120011090" | "20120083982" | "20130073492" | "20130325774" | "20140032458" | "20150127154" | "6458157" | "6581046" | "7653255" | "20110063409" | "6678590" | "20050015351" | "20100036457" | "20110206122" | "20120308076" | "20130050574" | "20130073499" | "20140064609" | "20140122399" | "5355435" | "6009418" | "6014653" | "6545708" | "6546291" | "7737933" | "8000967" | "8200593" | "20110170792" | "20110242341" | "20030218919" | "20050283450" | "20070176643" | "20070208678" | "20080199072" | "20110016071" | "20110119214" | "20110137843" | "20130073498" | "20130297539" | "20130325766" | "20130325768" | "5138447" | "5638359" | "6035389" | "8015130" | "8315305" | "20120236114" | "20120330447" | "20140119654" | "20040136439" | "20100100482" | "20100166320" | "20100235310" | "20120308136" | "20130073484" | "20130073491" | "20130073496" | "20130151450" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "5063603" | "7849030" | "8390707" | "8712939" | "20100073371" | "20120256941" | "20160009413" | "7430682" | "20080237446" | "20090287624" | "20130073495" | "20130297541" | "20140032459" | "20140122397" | "5272535" | "5673367" | "6545705" | "6625317" | "8103602" | "8160354" | "20080267458" | "20090028384" | "20130148882" | "20020038294" | "20040193670" | "20050036649" | "20090202114" | "20090205764" | "20090304231" | "20120109866" | "20130218821" | "20140052679" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

		"20140156574" | "5216752" | "5875108" | "6509854" | "8416847" | "8467623" | "20060127042" | "20100271511" | "20120243733" | "20150304634" | "20040054964" | "20040170330" | "20060094001" | "20060129728" | "20060161218" | "20080100482" | "20100081958" | "20110134242" | "20120303091" | "20130051680" | "20130073500" | "20130176430" | "20130297542" | "20130325773" | "20140122398" | "20150077639" | "20150181168" | "7580907" | "8311965" | "20120212579" | "20130022111" | "20150217449" | "20030050903" | "20090043722" | "20110119215" | "20110160741" | "20120084240" | "20130251278" | "20150127155" | "6418424" | "20080152236" | "20090312985" | "20140201126").PN.				
S452	51	((Filip) near2 (Piekniewski)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S453	31	((Vadim) near2 (Polonichko)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S454	135	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S455	1	("5831669").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S456	1	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S457	11	subaru.as.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S458	43	subaru.in.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S459	3	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S460	27	("20040167717" | "20110190972" | "20110251768" | "20120166032" | "20120226392" | "20130226402" | "20130282271" | "20130308828" | "20140005907" | "4970653" | "5684697" | "6370471" | "6744380" | "7231288" | "7257478" | "7260465" | "7831368" | "8170739" | "8355539" | "8504233" | "8543277" | "8593272" | "8676466" | "8706394" | "8788134").PN. OR ("9150220").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S461	154	S452 S453 S454	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S462	3243	S446 S447 S448 S449 S450	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S463	89	S461 and contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S464	40	S461 and contrast and actuator	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S465	8	("20080152236" | "20080267458" |	US-PGPUB;	OR	ON	2017/08/04

		"20090028384" | "20090312985" | "20120330447" | "20140119654" | "20140201126" | "20150304634").PN.	USPAT			12:33
S466	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S467	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S468	7	("2016/0004923").URPN.	USPAT	OR	ON	2017/08/04 12:33
S469	187	("20020038294" | "20020158599" | "20020169733" | "20020198854" | "20030023347" | "20030050903" | "20030144764" | "20040036437" | "20040051493" | "20040136439" | "20040158358" | "20040193670" | "20050004710" | "20050015351" | "20050036649" | "20050049749" | "20050065651" | "20050069207" | "20050283450" | "20060094001" | "20060161218" | "20060181236" | "20060207419" | "20070022068" | "20070176643" | "20070208678" | "20070260356" | "20080040040" | "20080097644" | "20080100482" | "20080112596" | "20080133052" | "20080154428" | "20080319929" | "20090037033" | "20090043722" | "20090234501" | "20090287624" | "20100036457" | "20100081958" | "20100086171" | "20100166320" | "20100169098" | "20100222924" | "20100225824" | "20100286824" | "20100292835" | "20100299101" | "20100312730" | "20110016071" | "20110026770" | "20110035052" | "20110060461" | "20110067479" | "20110119214" | "20110119215" | "20110144802" | "20110158476" | "20110160906" | "20110196199" | "20110231016" | "20110296944" | "20120011090" | "20120045068" | "20120053728" | "20120109866" | "20120143495" | "20120150781" | "20120173021" | "20120197439" | "20120209428" | "20120209432" | "20120303091" | "20120308076" | "20120308136" | "20130019325" | "20130066468" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130096719" | "20130116827" | "20130151448" | "20130151449" | "20130151450" | "20130218821" | "20130251278" | "20130297542").PN. OR ("20130310979" | "20130325244" | "20130325768" | "20130325773" | "20130325775" | "20130325776" | "20130325777" | "20140012788" | "20140016858" | "20140027718" | "20140032458" | "20140032459" | "20140052679" | "20140081895" |	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33

		"20140089232" | "20140122397" | "20140122398" | "20140156574" | "20140163729" | "20140222739" | "20140229411" | "20140244557" | "20140277718" | "20140277744" | "20140358284" | "20140371907" | "20140371912" | "20150032258" | "20150094850" | "20150094852" | "20150127149" | "20150127154" | "20150127155" | "4468617" | "4763276" | "4852018" | "5063603" | "5092343" | "5245672" | "5355435" | "5388186" | "5408588" | "5467428" | "5579440" | "5602761" | "5638359" | "5673367" | "5719480" | "5739811" | "5841959" | "5875108" | "6009418" | "6014653" | "6259988" | "6363369" | "6366293" | "6442451" | "6458157" | "6489741" | "6545705" | "6545708" | "6546291" | "6581046" | "6636781" | "6643627" | "6697711" | "6961060" | "7002585" | "7024276" | "7324870" | "7342589" | "7395251" | "7426501" | "7668605" | "7672920" | "7752544" | "7849030" | "8015130" | "8315305" | "8419804" | "8452448" | "8467623" | "8509951" | "8639644" | "8751042" | "8793205" | "8958912" | "8972315" | "8990133" | "9008840" | "9015092" | "9015093" | "9047568" | "9070039").PN. OR ("9248569").URPN.				
S470	0	("9248569").URPN.	USPAT	OR	ON	2017/08/04 12:33
S471	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" | "20070208678" | "20080100482" | "20080174700" | "20080199072" | "20080237446" | "20090043722" | "20090202114" | "20090205764" | "20090287624" | "20090304231" | "20100036457" | "20100081958" | "20100086171" | "20100100482" | "20100166320" | "20100235310" | "20100299296" | "20110016071" | "20110119214" | "20110119215" | "20110134242" | "20110137843" | "20110160741" | "20110206122" | "20120011090" | "20120083982" | "20120084240" | "20120109866" | "20120303091" | "20120308076" | "20120308136" | "20130050574" | "20130051680" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130151450" | "20130176430" | "20130218821" | "20130251278" | "20130297539" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

		"20130297541" | "20130297542" | "20130325766" | "20130325768" | "20130325773" | "20130325774" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "20140032458" | "20140032459" | "20140052679" | "20140064609" | "20140122397" | "20140122398" | "20140122399" | "20140156574" | "20150077639" | "20150127154" | "20150127155" | "20150181168" | "5063603" | "5138447" | "5216752" | "5272535" | "5355435" | "5638359" | "5673367" | "5875108" | "6009418" | "6014653" | "6035389" | "6418424" | "6458157" | "6509854" | "6545705" | "6545708" | "6546291" | "6581046" | "6625317" | "7580907" | "7653255" | "7737933" | "7849030" | "8000967" | "8015130" | "8103602" | "8160354" | "8200593" | "8311965" | "8315305" | "8390707" | "8416847" | "8467623" | "8712939").PN.				
S472	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" | "20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S473	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S474	1	("20030216919").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S475	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S476	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S477	3092	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S478	2	S462 and S477	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S479	1058	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S480	3751	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33

S481	2	S462 and S480	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S482	14814	S446 S447 S448 S449 S450	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S483	2	S480 and S482	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S484	17	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S485	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S486	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S487	7051	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S488	143	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S489	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S490	2260	382/104-105.ccls.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S491	816	S490 and contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S492	201	S490 and contrast with (object obstacle)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S493	3	S490 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S494	7	("20100027863" | "5410250" | "5760902" | "6389169" | "6801655" | "6934415").PN. OR ("8542875").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33

S495	38	("20020056806" | "20040179099" | "20040264763" | "20060023074" | "20060028542" | "20060072020" | "20060081778" | "20070064976" | "20070165910" | "20080027591" | "20080071492" | "20090140887" | "20090226033" | "20090271054" | "20090276105" | "20100039110" | "20100045666" | "20100172542" | "3781111" | "5317689" | "5467072" | "5793310" | "5867536" | "6859731" | "6889786" | "7016783" | "7337650" | "7647180" | "7703679").PN. OR ("8108147").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S496	4	(("20150338204") or ("20150339826") or ("20140277718") or ("20150350614")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S497	2	(("8095313") or ("8244458")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S498	706	uav and ((auto automatic$4 autonomous) with (land landing))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S499	67	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S500	90	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S501	68	mobileye and distance and landing	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S502	68	mobileye and distance and landing and contrast	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S503	1	("7113867").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S504	1	("20080266396").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S505	1	("6704621").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S506	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S507	2	(("20120143808") or ("20090157233")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S508	875	image and (high adj pass adj filter$4) with contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S509	194	image and (high adj pass adj filter$4) with contrast with (detect$4	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

		calculat$4)				
S510	462	"348".clas. and rocket	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S511	55	"348".clas. and rocket and guidance	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S512	2	"US 20160044257"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S513	335	chriss near3 yoder	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S514	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S515	1	("20160059962").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S516	1	("20140263823").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S517	1	("20160018822").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S518	1	("7898130").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S519	1	("8378881").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S520	1	("8931730").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S521	2	(("9164506") or ("9280038")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S522	23	("20080054158" | "20090157233" | "20090187299" | "20100004802" | "20100250022" | "20110141287" | "20110304737" | "20120143808" | "20120154579" | "20120200703" | "20120287274" | "20120307042" | "20130085643" | "20130176423" | "20140049643" | "7970507").PN. OR ("9164506").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S523	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S524	1	("20140307117").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S525	2792	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S526	4746	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR;	OR	ON	2017/08/04 12:33

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S527	1684	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S528	6931	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S529	759	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S530	142	("20050096539" | "20070022068" | "20080174700" | "20100086171" | "20100299296" | "20120011090" | "20120083982" | "20130073492" | "20130325774" | "20140032458" | "20150127154" | "6458157" | "6581046" | "7653255" | "20110063409" | "6678590" | "20050015351" | "20100036457" | "20110206122" | "20120308076" | "20130050574" | "20130073499" | "20140064609" | "20140122399" | "5355435" | "6009418" | "6014653" | "6545708" | "6546291" | "7737933" | "8000967" | "8200593" | "20110170792" | "20110242341" | "20030218919" | "20050283450" | "20070176643" | "20070208678" | "20080199072" | "20110016071" | "20110119214" | "20110137843" | "20130073498" | "20130297539" | "20130325766" | "20130325768" | "5138447" | "5638359" | "6035389" | "8015130" | "8315305" | "20120236114" | "20120330447" | "20140119654" | "20040136439" | "20100100482" | "20100166320" | "20100235310" | "20120308136" | "20130073484" | "20130073491" | "20130073496" | "20130151450" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "5063603" | "7849030" | "8390707" | "8712939" | "20100073371" | "20120256941" | "20160009413" | "7430682" | "20080237446" | "20090287624" | "20130073495" | "20130297541" | "20140032459" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

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S531	51	((Filip) near2 (Piekniewski)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S532	31	((Vadim) near2 (Polonichko)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S533	135	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S534	1	("5831669").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S535	1	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S536	11	subaru.as.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S537	43	subaru.in.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S538	3	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S539	8	("20080152236" | "20080267458" | "20090028384" | "20090312985" | "20120330447" | "20140119654" | "20140201126" | "20150304634").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S540	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S541	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S542	7	("2016/0004923").URPN.	USPAT	OR	ON	2017/08/04 12:33
S543	187	("20020038294" | "20020158599" |	US-PGPUB;	OR	ON	2017/08/04

		"20020169733" | "20020198854" | "20030023347" | "20030050903" | "20030144764" | "20040036437" | "20040051493" | "20040136439" | "20040158358" | "20040193670" | "20050004710" | "20050015351" | "20050036649" | "20050049749" | "20050065651" | "20050069207" | "20050283450" | "20060094001" | "20060161218" | "20060181236" | "20060207419" | "20070022068" | "20070176643" | "20070208678" | "20070260356" | "20080040040" | "20080097644" | "20080100482" | "20080112596" | "20080133052" | "20080154428" | "20080319929" | "20090037033" | "20090043722" | "20090234501" | "20090287624" | "20100036457" | "20100081958" | "20100086171" | "20100166320" | "20100169098" | "20100222924" | "20100225824" | "20100286824" | "20100292835" | "20100299101" | "20100312730" | "20110016071" | "20110026770" | "20110035052" | "20110060461" | "20110067479" | "20110119214" | "20110119215" | "20110144802" | "20110158476" | "20110160906" | "20110196199" | "20110231016" | "20110296944" | "20120011090" | "20120045068" | "20120053728" | "20120109866" | "20120143495" | "20120150781" | "20120173021" | "20120197439" | "20120209428" | "20120209432" | "20120303091" | "20120308076" | "20120308136" | "20130019325" | "20130066468" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130096719" | "20130116827" | "20130151448" | "20130151449" | "20130151450" | "20130218821" | "20130251278" | "20130297542").PN. OR ("20130310979" | "20130325244" | "20130325768" | "20130325773" | "20130325775" | "20130325776" | "20130325777" | "20140012788" | "20140016858" | "20140027718" | "20140032458" | "20140032459" | "20140052679" | "20140081895" | "20140089232" | "20140122397" | "20140122398" | "20140156574" | "20140163729" | "20140222739" | "20140229411" | "20140244557" | "20140277718" | "20140277744" | "20140358284" | "20140371907" | "20140371912" | "20150032258" | "20150094850" | "20150094852" | "20150127149" | "20150127154" | "20150127155" | "4468617" | "4763276" | "4852018" | "5063603" |	USPAT; USOCR			12:33	

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S544	0	("9248569").URPN.	USPAT	OR	ON	2017/08/04 12:33
S545	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" | "20070208678" | "20080100482" | "20080174700" | "20080199072" | "20080237446" | "20090043722" | "20090202114" | "20090205764" | "20090287624" | "20090304231" | "20100036457" | "20100081958" | "20100086171" | "20100100482" | "20100166320" | "20100235310" | "20100299296" | "20110016071" | "20110119214" | "20110119215" | "20110134242" | "20110137843" | "20110160741" | "20110206122" | "20120011090" | "20120083982" | "20120084240" | "20120109866" | "20120303091" | "20120308076" | "20120308136" | "20130050574" | "20130051680" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130151450" | "20130176430" | "20130218821" | "20130251278" | "20130297539" | "20130297541" | "20130297542" | "20130325766" | "20130325768" | "20130325773" | "20130325774" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "20140032458" | "20140032459" | "20140052679" | "20140064609" | "20140122397" | "20140122398" | "20140122399" | "20140156574" | "20150077639" | "20150127154" | "20150127155" | "20150181168" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

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S546	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" | "20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S547	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S548	1	("20030216919").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S549	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S550	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S551	3092	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S552	1058	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S553	14814	S525 S526 S527 S528 S529	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S554	17	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S555	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S556	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S557	7051	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

S558	143	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S559	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S560	2792	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S561	4746	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S562	1684	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S563	6931	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S564	759	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S565	3243	S560 S561 S562 S563 S564	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S566	4	S565 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S567	3751	(object subject target) with distance with image with (contrast sharpness	US-PGPUB; USPAT;	OR	ON	2017/08/04 12:33

		((disk circle) near3 (blur confusion indistinctness)))	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S568	40	(object subject target) with (present presence) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S569	8	("20060188168" | "20120130566" | "20140379179" | "7016783" | "7113867" | "8108147" | "8542875" | "9150220").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S570	462	"348".clas. and rocket	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S571	55	"348".clas. and rocket and guidance	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S572	2	"US 20160044257"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S573	335	chriss near3 yoder	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S574	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S575	2	(("9164506") or ("9280038")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S576	23	("20080054158" | "20090157233" | "20090187299" | "20100004802" | "20100250022" | "20110141287" | "20110304737" | "20120143808" | "20120154579" | "20120200703" | "20120287274" | "20120307042" | "20130085643" | "20130176423" | "20140049643" | "7970507").PN. OR ("9164506").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S577	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S578	2792	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S579	4746	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2017/08/04 12:33

			EPO; JPO; DERWENT; IBM_TDB			
S580	1684	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S581	6931	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S582	759	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S583	142	("20050096539" | "20070022068" | "20080174700" | "20100086171" | "20100299296" | "20120011090" | "20120083982" | "20130073492" | "20130325774" | "20140032458" | "20150127154" | "6458157" | "6581046" | "7653255" | "20110063409" | "6678590" | "20050015351" | "20100036457" | "20110206122" | "20120308076" | "20130050574" | "20130073499" | "20140064609" | "20140122399" | "5355435" | "6009418" | "6014653" | "6545708" | "6546291" | "7737933" | "8000967" | "8200593" | "20110170792" | "20110242341" | "20030218919" | "20050283450" | "20070176643" | "20070208678" | "20080199072" | "20110016071" | "20110119214" | "20110137843" | "20130073498" | "20130297539" | "20130325766" | "20130325768" | "5138447" | "5638359" | "6035389" | "8015130" | "8315305" | "20120236114" | "20120330447" | "20140119654" | "20040136439" | "20100100482" | "20100166320" | "20100235310" | "20120308136" | "20130073484" | "20130073491" | "20130073496" | "20130151450" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "5063603" | "7849030" | "8390707" | "8712939" | "20100073371" | "20120256941" | "20160009413" | "7430682" | "20080237446" | "20090287624" | "20130073495" | "20130297541" | "20140032459" | "20140122397" | "5272535" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

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S584	51	((Filip) near2 (Piekniewski)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S585	31	((Vadim) near2 (Polonichko)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S586	135	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S587	1	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S588	11	subaru.as.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S589	43	subaru.in.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S590	3	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S591	27	("20040167717" | "20110190972" | "20110251768" | "20120166032" | "20120226392" | "20130226402" | "20130282271" | "20130308828" | "20140005907" | "4970653" | "5684697" | "6370471" | "6744380" | "7231288" | "7257478" | "7260465" | "7831368" | "8170739" | "8355539" | "8504233" | "8543277" | "8593272" | "8676466" | "8706394" | "8788134").PN. OR ("9150220").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S592	154	S584 S585 S586	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S593	3243	S578 S579 S580 S581 S582	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

S594	89	S592 and contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S595	40	S592 and contrast and actuator	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S596	8	("20080152236" | "20080267458" | "20090028384" | "20090312985" | "20120330447" | "20140119654" | "20140201126" | "20150304634").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S597	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S598	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S599	7	("2016/0004923").URPN.	USPAT	OR	ON	2017/08/04 12:33
S600	187	("20020038294" | "20020158599" | "20020169733" | "20020198854" | "20030023347" | "20030050903" | "20030144764" | "20040036437" | "20040051493" | "20040136439" | "20040158358" | "20040193670" | "20050004710" | "20050015351" | "20050036649" | "20050049749" | "20050065651" | "20050069207" | "20050283450" | "20060094001" | "20060161218" | "20060181236" | "20060207419" | "20070022068" | "20070176643" | "20070208678" | "20070260356" | "20080040040" | "20080097644" | "20080100482" | "20080112596" | "20080133052" | "20080154428" | "20080319929" | "20090037033" | "20090043722" | "20090234501" | "20090287624" | "20100036457" | "20100081958" | "20100086171" | "20100166320" | "20100169098" | "20100222924" | "20100225824" | "20100286824" | "20100292835" | "20100299101" | "20100312730" | "20110016071" | "20110026770" | "20110035052" | "20110060461" | "20110067479" | "20110119214" | "20110119215" | "20110144802" | "20110158476" | "20110160906" | "20110196199" | "20110231016" | "20110296944" | "20120011090" | "20120045068" | "20120053728" | "20120109866" | "20120143495" | "20120150781" | "20120173021" | "20120197439" | "20120209428" | "20120209432" | "20120303091" | "20120308076" | "20120308136" | "20130019325" | "20130066468" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130096719" | "20130116827" | "20130151448" | "20130151449" | "20130151450" | "20130218821" | "20130251278" | "20130297542").PN. OR ("20130310979" | "20130325244" |	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33

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S601	0	("9248569").URPN.	USPAT	OR	ON	2017/08/04 12:33
S602	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" | "20070208678" | "20080100482" | "20080174700" | "20080199072" | "20080237446" | "20090043722" | "20090202114" | "20090205764" | "20090287624" | "20090304231" | "20100036457" | "20100081958" | "20100086171" | "20100100482" | "20100166320" | "20100235310" | "20100299296" | "20110016071" | "20110119214" | "20110119215" | "20110134242" | "20110137843" | "20110160741" | "20110206122" | "20120011090" | "20120083982" | "20120084240" | "20120109866" | "20120303091" | "20120308076" | "20120308136" | "20130050574" | "20130051680" | "20130073484" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

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S603	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" | "20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S604	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S605	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S606	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S607	3092	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S608	2	S593 and S607	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S609	1058	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S610	3751	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2017/08/04 12:33

			EPO; JPO; DERWENT; IBM_TDB			
S611	2	S593 and S610	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S612	14814	S578 S579 S580 S581 S582	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S613	2	S610 and S612	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S614	17	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S615	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S616	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S617	7051	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S618	143	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S619	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S620	2260	382/104-105.ccls.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S621	816	S620 and contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S622	201	S620 and contrast with (object obstacle)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S623	3	S620 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

S624	7	("20100027863" | "5410250" | "5760902" | "6389169" | "6801655" | "6934415").PN. OR ("8542875").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S625	38	("20020056806" | "20040179099" | "20040264763" | "20060023074" | "20060028542" | "20060072020" | "20060081778" | "20070064976" | "20070165910" | "20080027591" | "20080071492" | "20090140887" | "20090226033" | "20090271054" | "20090276105" | "20100039110" | "20100045666" | "20100172542" | "3781111" | "5317689" | "5467072" | "5793310" | "5867536" | "6859731" | "6889786" | "7016783" | "7337650" | "7647180" | "7703679").PN. OR ("8108147").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S626	4	(("20150338204") or ("20150339826") or ("20140277718") or ("20150350614")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S627	2	(("8095313") or ("8244458")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S628	706	uav and ((auto automatic$4 autonomous) with (land landing))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S629	67	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S630	90	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S631	68	mobileye and distance and landing	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S632	68	mobileye and distance and landing and contrast	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S633	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S634	2	(("20120143808") or ("20090157233")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S635	875	image and (high adj pass adj filter$4) with contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S636	194	image and (high adj pass adj filter$4) with contrast with (detect$4 calculat$4)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S637	462	"348".clas. and rocket	US-PGPUB; USPAT;	OR	ON	2017/08/04 12:33

			USOCR; DERWENT			
S638	55	"348".clas. and rocket and guidance	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S639	2	"US 20160044257"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S640	335	chriss near3 yoder	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S641	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S642	2	(("9164506") or ("9280038")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S643	23	("20080054158" | "20090157233" | "20090187299" | "20100004802" | "20100250022" | "20110141287" | "20110304737" | "20120143808" | "20120154579" | "20120200703" | "20120287274" | "20120307042" | "20130085643" | "20130176423" | "20140049643" | "7970507").PN. OR ("9164506").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S644	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/08/04 12:33
S645	2792	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S646	4746	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S647	1684	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S648	6931	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S649	759	B60W30/17.cpc.	US-PGPUB;	OR	ON	2017/08/04

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			12:33
S650	142	("20050096539" | "20070022068" | "20080174700" | "20100086171" | "20100299296" | "20120011090" | "20120083982" | "20130073492" | "20130325774" | "20140032458" | "20150127154" | "6458157" | "6581046" | "7653255" | "20110063409" | "6678590" | "20050015351" | "20100036457" | "20110206122" | "20120308076" | "20130050574" | "20130073499" | "20140064609" | "20140122399" | "5355435" | "6009418" | "6014653" | "6545708" | "6546291" | "7737933" | "8000967" | "8200593" | "20110170792" | "20110242341" | "20030218919" | "20050283450" | "20070176643" | "20070208678" | "20080199072" | "20110016071" | "20110119214" | "20110137843" | "20130073498" | "20130297539" | "20130325766" | "20130325768" | "5138447" | "5638359" | "6035389" | "8015130" | "8315305" | "20120236114" | "20120330447" | "20140119654" | "20040136439" | "20100100482" | "20100166320" | "20100235310" | "20120308136" | "20130073484" | "20130073491" | "20130073496" | "20130151450" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "5063603" | "7849030" | "8390707" | "8712939" | "20100073371" | "20120256941" | "20160009413" | "7430682" | "20080237446" | "20090287624" | "20130073495" | "20130297541" | "20140032459" | "20140122397" | "5272535" | "5673367" | "6545705" | "6625317" | "8103602" | "8160354" | "20080267458" | "20090028384" | "20130148882" | "20020038294" | "20040193670" | "20050036649" | "20090202114" | "20090205764" | "20090304231" | "20120109866" | "20130218821" | "20140052679" | "20140156574" | "5216752" | "5875108" | "6509854" | "8416847" | "8467623" | "20060127042" | "20100271511" | "20120243733" | "20150304634" | "20040054964" | "20040170330" | "20060094001" | "20060129728" | "20060161218" | "20080100482" | "20100081958" | "20110134242" | "20120303091" | "20130051680" | "20130073500" | "20130176430" | "20130297542" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

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S651	51	((Filip) near2 (Piekniewski)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S652	31	((Vadim) near2 (Polonichko)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S653	135	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S654	1	("5831669").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S655	1	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S656	11	subaru.as.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S657	43	subaru.in.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S658	3	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S659	8	("20080152236" | "20080267458" | "20090028384" | "20090312985" | "20120330447" | "20140119654" | "20140201126" | "20150304634").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S660	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S661	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S662	7	("2016/0004923").URPN.	USPAT	OR	ON	2017/08/04 12:33
S663	187	("20020038294" | "20020158599" | "20020169733" | "20020198854" | "20030023347" | "20030050903" | "20030144764" | "20040036437" | "20040051493" | "20040136439" | "20040158358" | "20040193670" | "20050004710" | "20050015351" | "20050036649" | "20050049749" | "20050065651" | "20050069207" | "20050283450" | "20060094001" | "20060161218" | "20060181236" | "20060207419" | "20070022068" | "20070176643" | "20070208678" | "20070260356" | "20080040040" | "20080097644" | "20080100482" | "20080112596" | "20080133052" | "20080154428" | "20080319929" | "20090037033" | "20090043722" | "20090234501" | "20090287624" | "20100036457" | "20100081958" | "20100086171" | "20100166320" |	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33

		"20100169098" | "20100222924" | "20100225824" | "20100286824" | "20100292835" | "20100299101" | "20100312730" | "20110016071" | "20110026770" | "20110035052" | "20110060461" | "20110067479" | "20110119214" | "20110119215" | "20110144802" | "20110158476" | "20110160906" | "20110196199" | "20110231016" | "20110296944" | "20120011090" | "20120045068" | "20120053728" | "20120109866" | "20120143495" | "20120150781" | "20120173021" | "20120197439" | "20120209428" | "20120209432" | "20120303091" | "20120308076" | "20120308136" | "20130019325" | "20130066468" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130096719" | "20130116827" | "20130151448" | "20130151449" | "20130151450" | "20130218821" | "20130251278" | "20130297542").PN. OR ("20130310979" | "20130325244" | "20130325768" | "20130325773" | "20130325775" | "20130325776" | "20130325777" | "20140012788" | "20140016858" | "20140027718" | "20140032458" | "20140032459" | "20140052679" | "20140081895" | "20140089232" | "20140122397" | "20140122398" | "20140156574" | "20140163729" | "20140222739" | "20140229411" | "20140244557" | "20140277718" | "20140277744" | "20140358284" | "20140371907" | "20140371912" | "20150032258" | "20150094850" | "20150094852" | "20150127149" | "20150127154" | "20150127155" | "4468617" | "4763276" | "4852018" | "5063603" | "5092343" | "5245672" | "5355435" | "5388186" | "5408588" | "5467428" | "5579440" | "5602761" | "5638359" | "5673367" | "5719480" | "5739811" | "5841959" | "5875108" | "6009418" | "6014653" | "6259988" | "6363369" | "6366293" | "6442451" | "6458157" | "6489741" | "6545705" | "6545708" | "6546291" | "6581046" | "6636781" | "6643627" | "6697711" | "6961060" | "7002585" | "7024276" | "7324870" | "7342589" | "7395251" | "7426501" | "7668605" | "7672920" | "7752544" | "7849030" | "8015130" | "8315305" | "8419804" | "8452448" | "8467623" | "8509951" | "8639644" | "8751042" | "8793205" | "8958912" | "8972315" | "8990133" | "9008840" | "9015092" | "9015093" | "9047568" | "9070039").PN. OR ("9248569").URPN.				

S664	0	("9248569").URPN.	USPAT	OR	ON	2017/08/04 12:33
S665	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" | "20070208678" | "20080100482" | "20080174700" | "20080199072" | "20080237446" | "20090043722" | "20090202114" | "20090205764" | "20090287624" | "20090304231" | "20100036457" | "20100081958" | "20100086171" | "20100100482" | "20100166320" | "20100235310" | "20100299296" | "20110016071" | "20110119214" | "20110119215" | "20110134242" | "20110137843" | "20110160741" | "20110206122" | "20120011090" | "20120083982" | "20120084240" | "20120109866" | "20120303091" | "20120308076" | "20120308136" | "20130050574" | "20130051680" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130151450" | "20130176430" | "20130218821" | "20130251278" | "20130297539" | "20130297541" | "20130297542" | "20130325766" | "20130325768" | "20130325773" | "20130325774" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "20140032458" | "20140032459" | "20140052679" | "20140064609" | "20140122397" | "20140122398" | "20140122399" | "20140156574" | "20150077639" | "20150127154" | "20150127155" | "20150181168" | "5063603" | "5138447" | "5216752" | "5272535" | "5355435" | "5638359" | "5673367" | "5875108" | "6009418" | "6014653" | "6035389" | "6418424" | "6458157" | "6509854" | "6545705" | "6545708" | "6546291" | "6581046" | "6625317" | "7580907" | "7653255" | "7737933" | "7849030" | "8000967" | "8015130" | "8103602" | "8160354" | "8200593" | "8311965" | "8315305" | "8390707" | "8416847" | "8467623" | "8712939").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S666	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" | "20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

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S667	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S668	1	("20030216919").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S669	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S670	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S671	3092	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S672	1058	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S673	14814	S645 S646 S647 S648 S649	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S674	17	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S675	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S676	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S677	7051	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S678	143	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S679	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S680	2792	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/08/04 12:33

			DERWENT; IBM_TDB			
S681	4746	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S682	1684	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S683	6931	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S684	759	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S685	3243	S680 S681 S682 S683 S684	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S686	4	S685 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S687	3751	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S688	40	(object subject target) with (present presence) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/08/04 12:33
S689	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" |	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

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S690	1	("7430682").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S691	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" | "20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S692	64	(US-20130038788-$ or US-20120224031-$ or US-20120162453-$ or US-20120147151-$ or US-	US-PGPUB; USPAT; JPO	OR	ON	2017/08/04 12:33

		20120070141-$ or US-20120062781-$ or US-20110176035-$ or US-20110019294-$ or US-20110001868-$ or US-20100259670-$ or US-20100245882-$ or US-20100209097-$ or US-20100150541-$ or US-20100103311-$ or US-20100060748-$ or US-20090201595-$ or US-20090015704-$ or US-20080309815-$ or US-20070273782-$ or US-20070024740-$ or US-20060082657-$ or US-20020197070-$ or US-20020118292-$ or US-20020080242-$ or US-20080079849-$ or US-20070172230-$).did. or (US-20070035656-$ or US-20040042782-$ or US-20120113288-$).did. or (US-8289436-$ or US-8075201-$ or US-7918614-$ or US-7898594-$ or US-7885022-$ or US-7880797-$ or US-7800680-$ or US-7760266-$ or US-7605860-$ or US-6963365-$ or US-6603930-$ or US-6567126-$ or US-6318912-$ or US-6285400-$ or US-6072529-$ or US-5701205-$ or US-5698841-$ or US-5642223-$ or US-5592331-$ or US-5194988-$ or US-5044728-$ or US-4229094-$ or US-4081812-$ or US-7268805-$ or US-8400724-$ or US-8287197-$).did. or (US-7864242-$ or US-6985177-$ or US-5640630-$).did. or (JP-07170433-$ or JP-04253042-$ or JP-04253041-$ or JP-61153626-$ or JP-59214836-$ or JP-58028729-$).did.				
S693	1	("7433128").PN.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S694	534	(382/153).CCLS.	US-PGPUB; USPAT	OR	OFF	2017/08/04 12:33
S695	73	S694 and tilt	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S696	1470	B25J9/1697.cpc.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S697	451	B25J9/1676.cpc.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S698	1463	G06K9/00664.cpc.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S699	1755	G06K9/00791.cpc.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S700	515	G06T7/004.cpc.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S701	32	S694 and ((tilt$4 angle angled angling) with (lens))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S702	14	("20040204792" | "20040244138" | "20070239315" | "20080039974" | "20090118890" | "20120083982" | "20130245937" | "20140240492" | "20150157182" | "20150168954" | "20150362919" | "20160104044" | "6338013" | "9002511").PN.	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33

S703	4	S702 and ((tilt$4 angle angled angling) with (lens))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S704	5417	S696 S697 S698 S699 S700	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S705	111	S704 and ((tilt$4) with (optic$4 lens))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S706	3	S685 and ((tilt$4) with (optic$4 lens))	US-PGPUB; USPAT	OR	ON	2017/08/04 12:33
S707	86	("4476419" | "4595866" | "4636643" | "4652745" | "4676638" | "4703237" | "4798956" | "4859867" | "4867561" | "4871917" | "4960996" | "4973844" | "5262640" | "5278425" | "5313072" | "5386111" | "5414257" | "5537003" | "5661303" | "5898183" | "5923027" | "6078056" | "6097024").PN. OR ("6207967").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S708	62	("20020056805" | "20020121972" | "4355271" | "4481450" | "4620141" | "4652745" | "4798956" | "4859867" | "4867561" | "4871917" | "4916307" | "4916374" | "4930742" | "4956591" | "4960996" | "4973844" | "4987354" | "5059877" | "5276389" | "5306992" | "5313072" | "5336980" | "5386111" | "5483346" | "5498866" | "5581240" | "5598146" | "5659294" | "5661303" | "5663542" | "5703568" | "5796094" | "5796106" | "5811793" | "5818600" | "5821863" | "5872437" | "5877897" | "5923027" | "6008486" | "6097024" | "6118383" | "6130421" | "6207967" | "6302545" | "6313454" | "6320176" | "6323477" | "6326613" | "6349782" | "6353392" | "6396397" | "6573490" | "RE35762").PN. OR ("6861636").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S709	132	("20010042822" | "4355271" | "4620141" | "4652745" | "4798956" | "4859867" | "4867561" | "4871917" | "4916307" | "4916374" | "4930742" | "4956591" | "4960996" | "4973844" | "4987354" | "5276389" | "5306992" | "5313072" | "5336980" | "5386111" | "5483346" | "5498866" | "5581240" | "5598146" | "5659294" | "5661303" | "5663542" | "5703568" | "5796094" | "5796106" | "5811793" | "5818600" | "5821863" | "5872437" | "5923027" | "6008486" | "6097024" | "6118383" | "6207967" | "6313454" | "6320176" | "6323477" | "6326613" | "6353392" | "6396397" | "RE35762").PN. OR ("6617564").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S710	84	S709 not S708	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S711	1	(13/382405).APP.	US-PGPUB; USOCR	OR	ON	2017/08/04 12:33
S712	4	("2012/0153154").URPN.	USPAT	OR	ON	2017/08/04 12:33

S713	17	("20030066955" | "20050063071" | "20070075220" | "20080265134" | "20080296577" | "20090085755" | "20090128629" | "20120153154" | "4515443" | "4741605" | "6452148" | "6617564" | "7863568").PN. OR ("8541732").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S714	45	("20030066955" | "20030201380" | "20040004456" | "20040164981" | "20050035926" | "20050063071" | "20050231725" | "20060163458" | "20060191215" | "20070075220" | "20070216768" | "20070268470" | "20080027607" | "20080185603" | "20080265134" | "20080296577" | "20090085755" | "20090128629" | "20090201366" | "20100208060" | "20110043624" | "20110253917" | "20110273564" | "20120026318" | "20120026330" | "20130235381" | "4515443" | "4741605" | "5987152" | "6331819" | "6376824" | "6392218" | "6452148" | "6555804" | "6614015" | "6617564" | "6841767" | "7208962" | "7259367" | "7612356" | "7855353" | "7863568" | "8274562" | "8541732" | "8913132").PN. OR ("9040915").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S715	8	("20050041123" | "20050109918" | "5438414" | "5837994" | "6320618" | "6455831" | "6563101" | "6617564").PN. OR ("7506421").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/04 12:33
S430	8	("20050041123" | "20050109918" | "5438414" | "5837994" | "6320618" | "6455831" | "6563101" | "6617564").PN. OR ("7506421").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 20:58
S429	45	("20030066955" | "20030201380" | "20040004456" | "20040164981" | "20050035926" | "20050063071" | "20050231725" | "20060163458" | "20060191215" | "20070075220" | "20070216768" | "20070268470" | "20080027607" | "20080185603" | "20080265134" | "20080296577" | "20090085755" | "20090128629" | "20090201366" | "20100208060" | "20110043624" | "20110253917" | "20110273564" | "20120026318" | "20120026330" | "20130235381" | "4515443" | "4741605" | "5987152" | "6331819" | "6376824" | "6392218" | "6452148" | "6555804" | "6614015" | "6617564" | "6841767" | "7208962" | "7259367" | "7612356" | "7855353" | "7863568" | "8274562" | "8541732" | "8913132").PN. OR ("9040915").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 20:49
S428	16	("20030066955" | "20050063071" | "20070075220" | "20080265134" | "20080296577" | "20090085755" | "20090128629" | "20120153154" | "4515443" | "4741605" | "6452148" | "6617564" | "7863568").PN. OR ("8541732").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 20:46

S427	3	("2012/0153154").URPN.	USPAT	OR	ON	2017/06/22 20:44
S426	1	(13/382405).APP.	US-PGPUB; USOCR	OR	ON	2017/06/22 20:43
S425	79	S423 not S422	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 20:36
S423	127	("20010042822" | "4355271" | "4620141" | "4652745" | "4798956" | "4859867" | "4867561" | "4871917" | "4916307" | "4916374" | "4930742" | "4956591" | "4960996" | "4973844" | "4987354" | "5276389" | "5306992" | "5313072" | "5336980" | "5386111" | "5483346" | "5498866" | "5581240" | "5598146" | "5659294" | "5661303" | "5663542" | "5703568" | "5796094" | "5796106" | "5811793" | "5818600" | "5821863" | "5872437" | "5923027" | "6008486" | "6097024" | "6118383" | "6207967" | "6313454" | "6320176" | "6323477" | "6326613" | "6353392" | "6396397" | "RE35762").PN. OR ("6617564").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 20:24
S422	62	("20020056805" | "20020121972" | "4355271" | "4481450" | "4620141" | "4652745" | "4798956" | "4859867" | "4867561" | "4871917" | "4916307" | "4916374" | "4930742" | "4956591" | "4960996" | "4973844" | "4987354" | "5059877" | "5276389" | "5306992" | "5313072" | "5336980" | "5386111" | "5483346" | "5498866" | "5581240" | "5598146" | "5659294" | "5661303" | "5663542" | "5703568" | "5796094" | "5796106" | "5811793" | "5818600" | "5821863" | "5872437" | "5877897" | "5923027" | "6008486" | "6097024" | "6118383" | "6130421" | "6207967" | "6302545" | "6313454" | "6320176" | "6323477" | "6326613" | "6349782" | "6353392" | "6396397" | "6573490" | "RE35762").PN. OR ("6861636").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 20:23
S421	84	("4476419" | "4595866" | "4636643" | "4652745" | "4676638" | "4703237" | "4798956" | "4859867" | "4867561" | "4871917" | "4960996" | "4973844" | "5262640" | "5278425" | "5313072" | "5386111" | "5414257" | "5537003" | "5661303" | "5898183" | "5923027" | "6078056" | "6097024").PN. OR ("6207967").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 20:09
S419	106	S418 and ((tilt$4) with (optic$4 lens))	US-PGPUB; USPAT	OR	ON	2017/06/22 19:33
S420	3	S398 and ((tilt$4) with (optic$4 lens))	US-PGPUB; USPAT	OR	ON	2017/06/22 19:33
S418	5291	S409 S410 S411 S412 S413	US-PGPUB; USPAT	OR	ON	2017/06/22 19:32
S417	4	S416 and ((tilt$4 angle angled angling) with (lens))	US-PGPUB; USPAT	OR	ON	2017/06/22 19:14

S416	14	("20040204792" | "20040244138" | "20070239315" | "20080039974" | "20090118890" | "20120083982" | "20130245937" | "20140240492" | "20150157182" | "20150168954" | "20150362919" | "20160104044" | "6338013" | "9002511").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 19:12
S415	32	S407 and ((tilt$4 angle angled angling) with (lens))	US-PGPUB; USPAT	OR	ON	2017/06/22 19:10
S413	504	G06T7/004.cpc.	US-PGPUB; USPAT	OR	ON	2017/06/22 19:09
S409	1439	B25J9/1697.cpc.	US-PGPUB; USPAT	OR	ON	2017/06/22 19:08
S410	435	B25J9/1676.cpc.	US-PGPUB; USPAT	OR	ON	2017/06/22 19:08
S411	1434	G06K9/00664.cpc.	US-PGPUB; USPAT	OR	ON	2017/06/22 19:08
S412	1708	G06K9/00791.cpc.	US-PGPUB; USPAT	OR	ON	2017/06/22 19:08
S408	73	S407 and tilt	US-PGPUB; USPAT	OR	ON	2017/06/22 19:06
S407	534	(382/153).CCLS.	US-PGPUB; USPAT	OR	OFF	2017/06/22 19:00
S406	1	("7433128").PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 18:55
S405	64	(US-20130038788-$ or US-20120224031-$ or US-20120162453-$ or US-20120147151-$ or US-20120070141-$ or US-20120062781-$ or US-20110176035-$ or US-20110019294-$ or US-20110001868-$ or US-20100259670-$ or US-20100245882-$ or US-20100209097-$ or US-20100150541-$ or US-20100103311-$ or US-20100060748-$ or US-20090201595-$ or US-20090015704-$ or US-20080309815-$ or US-20070273782-$ or US-20070024740-$ or US-20060082657-$ or US-20020197070-$ or US-20020118292-$ or US-20020080242-$ or US-20080079849-$ or US-20070172230-$).did. or (US-20070035656-$ or US-20040042782-$ or US-20120113288-$).did. or (US-8289436-$ or US-8075201-$ or US-7918614-$ or US-7898594-$ or US-7885022-$ or US-7880797-$ or US-7800680-$ or US-7760266-$ or US-7605860-$ or US-6963365-$ or US-6603930-$ or US-6567126-$ or US-6318912-$ or US-6285400-$ or US-6072529-$ or US-5701205-$ or US-5698841-$ or US-5642223-$ or US-5592331-$ or US-5194988-$ or US-5044728-$ or US-4229094-$ or US-4081812-$ or US-7268805-$ or US-8400724-$ or US-8287197-$).did. or (US-7864242-$ or US-6985177-$ or US-5640630-$).did. or (JP-07170433-$ or	US-PGPUB; USPAT; JPO	OR	ON	2017/06/22 18:40

		JP-04253042-$ or JP-04253041-$ or JP-61153626-$ or JP-59214836-$ or JP-58028729-$).did.				
S402	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" | "20070208678" | "20080100482" | "20080174700" | "20080199072" | "20080237446" | "20090043722" | "20090202114" | "20090205764" | "20090287624" | "20090304231" | "20100036457" | "20100081958" | "20100086171" | "20100100482" | "20100166320" | "20100235310" | "20100299296" | "20110016071" | "20110119214" | "20110119215" | "20110134242" | "20110137843" | "20110160741" | "20110206122" | "20120011090" | "20120083982" | "20120084240" | "20120109866" | "20120303091" | "20120308076" | "20120308136" | "20130050574" | "20130051680" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130151450" | "20130176430" | "20130218821" | "20130251278" | "20130297539" | "20130297541" | "20130297542" | "20130325766" | "20130325768" | "20130325773" | "20130325774" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "20140032458" | "20140032459" | "20140052679" | "20140064609" | "20140122397" | "20140122398" | "20140122399" | "20140156574" | "20150077639" | "20150127154" | "20150127155" | "20150181168" | "5063603" | "5138447" | "5216752" | "5272535" | "5355435" | "5638359" | "5673367" | "5875108" | "6009418" | "6014653" | "6035389" | "6418424" | "6458157" | "6509854" | "6545705" | "6545708" | "6546291" | "6581046" | "6625317" | "7580907" | "7653255" | "7737933" | "7849030" | "8000967" | "8015130" | "8103602" | "8160354" | "8200593" | "8311965" | "8315305" | "8390707" | "8416847" | "8467623" | "8712939").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 17:10
S403	1	("7430682").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 17:10
S404	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" |	US-PGPUB; USPAT	OR	ON	2017/06/22 17:10

		"20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.				
S263	8	("20060188168" | "20120130566" | "20140379179" | "7016783" | "7113867" | "8108147" | "8542875" | "9150220").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S264	462	"348".clas. and rocket	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
S265	55	"348".clas. and rocket and guidance	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
S266	2	"US 20160044257"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
S267	330	chriss near3 yoder	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S268	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
S275	2	(("9164506") or ("9280038")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S276	23	("20080054158" | "20090157233" | "20090187299" | "20100004802" | "20100250022" | "20110141287" | "20110304737" | "20120143808" | "20120154579" | "20120200703" | "20120287274" | "20120307042" | "20130085643" | "20130176423" | "20140049643" | "7970507").PN. OR ("9164506").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 16:56
S277	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
S279	2669	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S280	4603	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S281	1615	B60W30/14.cpc.	US-PGPUB;	OR	ON	2017/06/22

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			16:56
S282	6802	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S283	749	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S284	142	("20050096539" | "20070022068" | "20080174700" | "20100086171" | "20100299296" | "20120011090" | "20120083982" | "20130073492" | "20130325774" | "20140032458" | "20150127154" | "6458157" | "6581046" | "7653255" | "20110063409" | "6678590" | "20050015351" | "20100036457" | "20110206122" | "20120308076" | "20130050574" | "20130073499" | "20140064609" | "20140122399" | "5355435" | "6009418" | "6014653" | "6545708" | "6546291" | "7737933" | "8000967" | "8200593" | "20110170792" | "20110242341" | "20030218919" | "20050283450" | "20070176643" | "20070208678" | "20080199072" | "20110016071" | "20110119214" | "20110137843" | "20130073498" | "20130297539" | "20130325766" | "20130325768" | "5138447" | "5638359" | "6035389" | "8015130" | "8315305" | "20120236114" | "20120330447" | "20140119654" | "20040136439" | "20100100482" | "20100166320" | "20100235310" | "20120308136" | "20130073484" | "20130073491" | "20130073496" | "20130151450" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "5063603" | "7849030" | "8390707" | "8712939" | "20100073371" | "20120256941" | "20160009413" | "7430682" | "20080237446" | "20090287624" | "20130073495" | "20130297541" | "20140032459" | "20140122397" | "5272535" | "5673367" | "6545705" | "6625317" | "8103602" | "8160354" | "20080267458" | "20090028384" | "20130148882" | "20020038294"	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56

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S285	51	((Filip) near2 (Piekniewski)).INV.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S286	29	((Vadim) near2 (Polonichko)).INV.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S287	134	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S289	1	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S290	6	subaru.as.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S291	41	subaru.in.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S292	3	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S293	26	("20040167717" | "20110190972" | "20110251768" | "20120166032" | "20120226392" | "20130226402" | "20130282271" | "20130308828" | "20140005907" | "4970653" | "5684697" | "6370471" | "6744380" | "7231288" | "7257478" | "7260465" | "7831368" | "8170739" | "8355539" | "8504233" | "8543277" | "8593272" | "8676466" | "8706394" | "8788134").PN. OR ("9150220").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 16:56
S294	151	S285 S286 S287	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S295	3153	S279 S280 S281 S282 S283	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S296	88	S294 and contrast	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S297	39	S294 and contrast and actuator	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56

S298	8	("20080152236" | "20080267458" | "20090028384" | "20090312985" | "20120330447" | "20140119654" | "20140201126" | "20150304634").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S299	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S300	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S301	5	("2016/0004923").URPN.	USPAT	OR	ON	2017/06/22 16:56
S302	187	("20020038294" | "20020158599" | "20020169733" | "20020198854" | "20030023347" | "20030050903" | "20030144764" | "20040036437" | "20040051493" | "20040136439" | "20040158358" | "20040193670" | "20050004710" | "20050015351" | "20050036649" | "20050049749" | "20050065651" | "20050069207" | "20050283450" | "20060094001" | "20060161218" | "20060181236" | "20060207419" | "20070022068" | "20070176643" | "20070208678" | "20070260356" | "20080040040" | "20080097644" | "20080100482" | "20080112596" | "20080133052" | "20080154428" | "20080319929" | "20090037033" | "20090043722" | "20090234501" | "20090287624" | "20100036457" | "20100081958" | "20100086171" | "20100166320" | "20100169098" | "20100222924" | "20100225824" | "20100286824" | "20100292835" | "20100299101" | "20100312730" | "20110016071" | "20110026770" | "20110035052" | "20110060461" | "20110067479" | "20110119214" | "20110119215" | "20110144802" | "20110158476" | "20110160906" | "20110196199" | "20110231016" | "20110296944" | "20120011090" | "20120045068" | "20120053728" | "20120109866" | "20120143495" | "20120150781" | "20120173021" | "20120197439" | "20120209428" | "20120209432" | "20120303091" | "20120308076" | "20120308136" | "20130019325" | "20130066468" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130096719" | "20130116827" | "20130151448" | "20130151449" | "20130151450" | "20130218821" | "20130251278" | "20130297542").PN. OR ("20130310979" | "20130325244" | "20130325768" | "20130325773" | "20130325775" | "20130325776" | "20130325777" | "20140012788" | "20140016858" | "20140027718" |	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 16:56

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S306	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S308	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S309	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S310	3054	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S311	2	S295 and S310	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S312	1044	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S313	3700	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S314	2	S295 and S313	US-PGPUB;	OR	ON	2017/06/22

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			16:56
S315	14391	S279 S280 S281 S282 S283	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S316	2	S313 and S315	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S317	17	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S318	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S319	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S320	6982	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S321	140	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S322	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S323	2259	382/104-105.ccls.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S324	816	S323 and contrast	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S325	201	S323 and contrast with (object obstacle)	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S326	3	S323 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S327	6	("20100027863" | "5410250" | "5760902" | "6389169" | "6801655" | "6934415").PN. OR ("8542875").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/06/22 16:56
S328	37	("20020056806" | "20040179099" |	US-PGPUB;	OR	ON	2017/06/22

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		"20040264763" | "20060023074" | "20060028542" | "20060072020" | "20060081778" | "20070064976" | "20070165910" | "20080027591" | "20080071492" | "20090140887" | "20090226033" | "20090271054" | "20090276105" | "20100039110" | "20100045666" | "20100172542" | "3781111" | "5317689" | "5467072" | "5793310" | "5867536" | "6859731" | "6889786" | "7016783" | "7337650" | "7647180" | "7703679").PN. OR ("8108147").URPN.	USPAT; USOCR			16:56
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S330	2	(("8095313") or ("8244458")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S331	680	uav and ((auto automatic$4 autonomous) with (land landing))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S332	65	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S333	88	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S334	68	mobileye and distance and landing	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S335	68	mobileye and distance and landing and contrast	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S339	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S340	2	(("20120143808") or ("20090157233")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S341	864	image and (high adj pass adj filter$4) with contrast	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S342	192	image and (high adj pass adj filter$4) with contrast with (detect$4 calculat$4)	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S343	462	"348".clas. and rocket	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
S344	55	"348".clas. and rocket and guidance	US-PGPUB; USPAT;	OR	ON	2017/06/22 16:56

			USOCR; DERWENT			
S345	2	"US 20160044257"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
S346	330	chriss near3 yoder	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S347	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2017/06/22 16:56
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S358	2669	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S359	4603	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S360	1615	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S361	6802	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S362	749	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2017/06/22 16:56

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S366	134	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S367	1	("5831669").PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S368	1	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S369	6	subaru.as.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S370	41	subaru.in.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S371	3	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
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S373	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S374	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
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S379	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" | "20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56

S380	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S381	1	("20030216919").PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S382	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S383	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2017/06/22 16:56
S384	3054	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S385	1044	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S386	14391	S358 S359 S360 S361 S362	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S387	17	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S388	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S389	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S390	6982	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S391	140	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S392	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S393	2669	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S394	4603	B60W30/09.cpc.	US-PGPUB; USPAT;	OR	ON	2017/06/22 16:56

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S395	1615	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S396	6802	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S397	749	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S398	3153	S393 S394 S395 S396 S397	US-PGPUB; USPAT	OR	ON	2017/06/22 16:56
S399	4	S398 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S400	3700	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S401	39	(object subject target) with (present presence) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/22 16:56
S261	3484	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 13:08
S262	35	(object subject target) with (present presence) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2016/09/18 13:08

			DERWENT; IBM_TDB			
S254	1982	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 13:06
S255	3504	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 13:06
S256	1186	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 13:06
S257	5744	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 13:06
S258	629	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 13:06
S259	2595	S254 S255 S256 S257 S258	US-PGPUB; USPAT	OR	ON	2016/09/18 13:06
S260	4	S259 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 13:06
S204	457	"348".clas. and rocket	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2016/09/18 02:25
S205	54	"348".clas. and rocket and guidance	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2016/09/18 02:25
S206	2	"US 20160044257"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2016/09/18 02:25
S207	300	chriss near3 yoder	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25

S208	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2016/09/18 02:25
S209	1	("20160059962").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S210	1	("20140263823").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S211	1	("20160018822").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S212	1	("7898130").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S213	1	("8378881").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S214	1	("8931730").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S215	2	(("9164506") or ("9280038")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S216	17	("20080054158" | "20090157233" | "20090187299" | "20100004802" | "20100250022" | "20110141287" | "20110304737" | "20120143808" | "20120154579" | "20120200703" | "20120287274" | "20120307042" | "20130085643" | "20130176423" | "20140049643" | "7970507").PN. OR ("9164506").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/18 02:25
S217	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2016/09/18 02:25
S218	1	("20140307117").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S219	1982	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 02:25
S220	3504	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 02:25
S221	1186	B60W30/14.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 02:25
S222	5744	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	ON	2016/09/18 02:25

			DERWENT; IBM_TDB			
S223	629	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 02:25
S224	142	("20050096539" | "20070022068" | "20080174700" | "20100086171" | "20100299296" | "20120011090" | "20120083982" | "20130073492" | "20130325774" | "20140032458" | "20150127154" | "6458157" | "6581046" | "7653255" | "20110063409" | "6678590" | "20050015351" | "20100036457" | "20110206122" | "20120308076" | "20130050574" | "20130073499" | "20140064609" | "20140122399" | "5355435" | "6009418" | "6014653" | "6545708" | "6546291" | "7737933" | "8000967" | "8200593" | "20110170792" | "20110242341" | "20030218919" | "20050283450" | "20070176643" | "20070208678" | "20080199072" | "20110016071" | "20110119214" | "20110137843" | "20130073498" | "20130297539" | "20130325766" | "20130325768" | "5138447" | "5638359" | "6035389" | "8015130" | "8315305" | "20120236114" | "20120330447" | "20140119654" | "20040136439" | "20100100482" | "20100166320" | "20100235310" | "20120308136" | "20130073484" | "20130073491" | "20130073496" | "20130151450" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "5063603" | "7849030" | "8390707" | "8712939" | "20100073371" | "20120256941" | "20160009413" | "7430682" | "20080237446" | "20090287624" | "20130073495" | "20130297541" | "20140032459" | "20140122397" | "5272535" | "5673367" | "6545705" | "6625317" | "8103602" | "8160354" | "20080267458" | "20090028384" | "20130148882" | "20020038294" | "20040193670" | "20050036649" | "20090202114" | "20090205764" | "20090304231" | "20120109866" | "20130218821" | "20140052679" | "20140156574" | "5216752" | "5875108" | "6509854" | "8416847" | "8467623" | "20060127042" | "20100271511" | "20120243733" | "20150304634" | "20040054964" | "20040170330" | "20060094001" | "20060129728" | "20060161218" | "20080100482" | "20100081958"	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25

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S225	49	((Filip) near2 (Piekniewski)).INV.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S226	24	((Vadim) near2 (Polonichko)).INV.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S227	118	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S228	1	("5831669").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S229	0	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S230	4	subaru.as.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S231	41	subaru.in.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S232	1	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S233	8	("20080152236" | "20080267458" | "20090028384" | "20090312985" | "20120330447" | "20140119654" | "20140201126" | "20150304634").PN.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S234	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S235	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S236	0	("2016/0004923").URPN.	USPAT	OR	ON	2016/09/18 02:25
S237	187	("20020038294" | "20020158599" | "20020169733" | "20020198854" | "20030023347" | "20030050903" | "20030144764" | "20040036437" | "20040051493" | "20040136439" | "20040158358" | "20040193670" | "20050004710" | "20050015351" | "20050036649" | "20050049749" | "20050065651" | "20050069207" | "20050283450" | "20060094001" | "20060161218" | "20060181236" | "20060207419" | "20070022068" | "20070176643" | "20070208678" | "20070260356" | "20080040040" | "20080097644" | "20080100482" | "20080112596" | "20080133052" | "20080154428" | "20080319929" | "20090037033" | "20090043722" |	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/18 02:25

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S238	0	("9248569").URPN.	USPAT	OR	ON	2016/09/18 02:25
S239	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" | "20070208678" | "20080100482" | "20080174700" | "20080199072" | "20080237446" | "20090043722" | "20090202114" | "20090205764" | "20090287624" | "20090304231" | "20100036457" | "20100081958" | "20100086171" | "20100100482" | "20100166320" | "20100235310" | "20100299296" | "20110016071" | "20110119214" | "20110119215" | "20110134242" | "20110137843" | "20110160741" | "20110206122" | "20120011090" | "20120083982" | "20120084240" | "20120109866" | "20120303091" | "20120308076" | "20120308136" | "20130050574" | "20130051680" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130151450" | "20130176430" | "20130218821" | "20130251278" | "20130297539" | "20130297541" | "20130297542" | "20130325766" | "20130325768" | "20130325773" | "20130325774" | "20130325775" | "20130325777" | "20140012788" | "20140016858" | "20140032458" | "20140032459" | "20140052679" | "20140064609" | "20140122397" | "20140122398" | "20140122399" | "20140156574" | "20150077639" | "20150127154" | "20150127155" | "20150181168" | "5063603" | "5138447" | "5216752" | "5272535" | "5355435" | "5638359" | "5673367" | "5875108" | "6009418" | "6014653" | "6035389" | "6418424" | "6458157" | "6509854" | "6545705" | "6545708" | "6546291" | "6581046" | "6625317" | "7580907" | "7653255" | "7737933" | "7849030" | "8000967" | "8015130" | "8103602" | "8160354" | "8200593" | "8311965" | "8315305" | "8390707" | "8416847" | "8467623" | "8712939").PN.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S240	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" |	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25

		"20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.				
S241	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S242	1	("20030216919").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S243	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S244	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 02:25
S245	2897	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S246	981	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S247	11449	S219 S220 S221 S222 S223	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/18 02:25
S248	16	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S249	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S250	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S251	6521	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S252	132	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S253	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2016/09/18 02:25
S203	178	image and (high adj pass adj filter$4)	US-PGPUB;	OR	ON	2016/09/18

		with contrast with (detect$4 calculat$4)	USPAT			01:49
S202	781	image and (high adj pass adj filter$4) with contrast	US-PGPUB; USPAT	OR	ON	2016/09/18 01:46
S201	2	(("20120143808") or ("20090157233")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/18 00:54
S200	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2016/09/17 23:00
S197	1	("7113867").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/17 22:56
S198	1	("20080266396").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/17 22:56
S199	1	("6704621").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/17 22:56
S192	504	uav and ((auto automatic$4 autonomous) with (land landing))	US-PGPUB; USPAT	OR	ON	2016/09/17 22:55
S193	41	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT	OR	ON	2016/09/17 22:55
S194	55	uav and ((auto automatic$4 autonomous) with (land landing) with (camera image video))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/17 22:55
S195	68	mobileye and distance and landing	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/17 22:55
S196	68	mobileye and distance and landing and contrast	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/17 22:55
S190	4	(("20150338204") or ("20150339826") or ("20140277718") or ("20150350614")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/17 22:54
S191	2	(("8095313") or ("8244458")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/17 22:54
S187	3	S184 and contrast with (object obstacle) with (present presence)	US-PGPUB; USPAT	OR	ON	2016/09/17 22:48
S188	6	("20100027863" | "5410250" | "5760902" | "6389169" | "6801655" | "6934415").PN. OR ("8542875").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/17 22:48
S189	35	("20020056806" | "20040179099" | "20040264763" | "20060023074" | "20060028542" | "20060072020" | "20060081778" | "20070064976" | "20070165910" | "20080027591" | "20080071492" | "20090140887" | "20090226033" | "20090271054" | "20090276105" | "20100039110" |	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/17 22:48

		"20100045666" | "20100172542" | "3781111" | "5317689" | "5467072" | "5793310" | "5867536" | "6859731" | "6889786" | "7016783" | "7337650" | "7647180" | "7703679").PN. OR ("8108147").URPN.				
S184	2256	382/104-105.ccls.	US-PGPUB; USPAT	OR	ON	2016/09/17 22:47
S185	814	S184 and contrast	US-PGPUB; USPAT	OR	ON	2016/09/17 22:47
S186	200	S184 and contrast with (object obstacle)	US-PGPUB; USPAT	OR	ON	2016/09/17 22:47
S183	11	("8536667" | "20150341578" | "6618093" | "20090115875" | "20140098267" | "20110032386" | "3351763" | "20120154624" | "6657378" | "9041851" | "9332201").PN. or ("20090115875" | "20110032386" | "20120154624" | "20140098267" | "3351763" | "6618093" | "6657378" | "9041851").PN.	US-PGPUB; USPAT	OR	ON	2016/09/08 15:15
S181	6510	(object subject target) with detect$3 with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/07 13:33
S182	131	(object subject target) with detect$3 with (present presence) with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/07 13:33
S179	4	("20110170792" | "20150217449" | "20160009413" | "6678590").PN.	US-PGPUB; USPAT	OR	ON	2016/09/06 16:12
S178	4	("20100033619" | "20080055424" | "20040227814" | "20090174809").PN.	US-PGPUB; USPAT	OR	ON	2016/09/06 14:46
S177	15	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness))) and (adaptive near3 (speed velocity cruise))	US-PGPUB; USPAT	OR	ON	2016/09/06 14:43
S174	2	S154 and S173	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 14:42
S175	11137	S138 S139 S140 S141 S142	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 14:42
S176	2	S173 and S175	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 14:42

S172	976	(object subject target) near2 distance with image near3 (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/06 14:41
S173	3463	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 14:41
S170	2886	(object subject target) with distance with image with (contrast sharpness ((disk circle) near3 (blur confusion indistinctness)))	US-PGPUB; USPAT	OR	ON	2016/09/06 14:40
S171	2	S154 and S170	US-PGPUB; USPAT	OR	ON	2016/09/06 14:40
S169	2	(("6396397") or ("7123168")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/06 14:33
S168	3	(("7855755") or ("7720580") or ("7038577")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/06 14:29
S167	1	("20030216919").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/06 14:02
S165	2	(("20080205764") or ("20100225824")).PN.	US-PGPUB; USPAT	OR	OFF	2016/09/06 13:59
S163	118	("20020038294" | "20030050903" | "20030218919" | "20040054964" | "20040136439" | "20040170330" | "20040193670" | "20050015351" | "20050036649" | "20050096539" | "20050283450" | "20060094001" | "20060129728" | "20060161218" | "20070022068" | "20070176643" | "20070208678" | "20080100482" | "20080174700" | "20080199072" | "20080237446" | "20090043722" | "20090202114" | "20090205764" | "20090287624" | "20090304231" | "20100036457" | "20100081958" | "20100086171" | "20100100482" | "20100166320" | "20100235310" | "20100299296" | "20110016071" | "20110119214" | "20110119215" | "20110134242" | "20110137843" | "20110160741" | "20110206122" | "20120011090" | "20120083982" | "20120084240" | "20120109866" | "20120303091" | "20120308076" | "20120308136" | "20130050574" | "20130051680" | "20130073484" | "20130073491" | "20130073492" | "20130073495" | "20130073496" | "20130073498" | "20130073499" | "20130073500" | "20130151450" | "20130176430" | "20130218821" | "20130251278" | "20130297539" | "20130297541" | "20130297542" | "20130325766" | "20130325768" | "20130325773" | "20130325774" | "20130325775" | "20130325777" | "20140012788" | "20140016858" |	US-PGPUB; USPAT	OR	ON	2016/09/06 13:43

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S164	24	("20060127042" | "20080152236" | "20080267458" | "20090028384" | "20090312985" | "20100073371" | "20100271511" | "20110063409" | "20110170792" | "20110242341" | "20120212579" | "20120236114" | "20120243733" | "20120256941" | "20120330447" | "20130022111" | "20130148882" | "20140119654" | "20140201126" | "20150217449" | "20150304634" | "20160009413" | "6678590" | "7430682").PN.	US-PGPUB; USPAT	OR	ON	2016/09/06 13:43
S162	0	("9248569").URPN.	USPAT	OR	ON	2016/09/06 13:15
S161	187	("20020038294" | "20020158599" | "20020169733" | "20020198854" | "20030023347" | "20030050903" | "20030144764" | "20040036437" | "20040051493" | "20040136439" | "20040158358" | "20040193670" | "20050004710" | "20050015351" | "20050036649" | "20050049749" | "20050065651" | "20050069207" | "20050283450" | "20060094001" | "20060161218" | "20060181236" | "20060207419" | "20070022068" | "20070176643" | "20070208678" | "20070260356" | "20080040040" | "20080097644" | "20080100482" | "20080112596" | "20080133052" | "20080154428" | "20080319929" | "20090037033" | "20090043722" | "20090234501" | "20090287624" | "20100036457" | "20100081958" | "20100086171" | "20100166320" | "20100169098" | "20100222924" | "20100225824" | "20100286824" | "20100292835" | "20100299101" | "20100312730" | "20110016071" | "20110026770" | "20110035052" | "20110060461" | "20110067479" | "20110119214" | "20110119215" | "20110144802" | "20110158476" | "20110160906" | "20110196199" | "20110231016" | "20110296944" |	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/06 13:14

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S160	0	("2016/0004923").URPN.	USPAT	OR	ON	2016/09/06 13:09
S158	0	ultrasonic with lidar with IR with contrast	US-PGPUB; USPAT	OR	ON	2016/09/06 13:06
S159	2	ultrasonic with lidar with (contrast sharpness)	US-PGPUB; USPAT	OR	ON	2016/09/06 13:06
S157	8	("20080152236" | "20080267458" | "20090028384" | "20090312985" | "20120330447" | "20140119654" |	US-PGPUB; USPAT	OR	ON	2016/09/06 13:02

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S156	34	S153 and contrast and actuator	US-PGPUB; USPAT	OR	ON	2016/09/06 12:59
S153	133	S144 S145 S146	US-PGPUB; USPAT	OR	ON	2016/09/06 12:58
S154	2562	S138 S139 S140 S141 S142	US-PGPUB; USPAT	OR	ON	2016/09/06 12:58
S155	83	S153 and contrast	US-PGPUB; USPAT	OR	ON	2016/09/06 12:58
S152	25	("20040167717" | "20110190972" | "20110251768" | "20120166032" | "20120226392" | "20130226402" | "20130282271" | "20130308828" | "20140005907" | "4970653" | "5684697" | "6370471" | "6744380" | "7231288" | "7257478" | "7260465" | "7831368" | "8170739" | "8355539" | "8504233" | "8543277" | "8593272" | "8676466" | "8706394" | "8788134").PN. OR ("9150220").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/09/06 12:55
S151	1	subaru and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2016/09/06 12:52
S148	0	subaru.as. and driver near3 assist and (camera imaging (image adj (sensor captur$4)))	US-PGPUB; USPAT	OR	ON	2016/09/06 12:51
S149	4	subaru.as.	US-PGPUB; USPAT	OR	ON	2016/09/06 12:51
S150	41	subaru.in.	US-PGPUB; USPAT	OR	ON	2016/09/06 12:51
S147	1	("5831669").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/06 12:19
S144	49	((Filip) near2 (Piekniewski)).INV.	US-PGPUB; USPAT	OR	ON	2016/09/06 10:31
S145	24	((Vadim) near2 (Polonichko)).INV.	US-PGPUB; USPAT	OR	ON	2016/09/06 10:31
S146	118	((Eugene) near2 (Izhikevich)).INV.	US-PGPUB; USPAT	OR	ON	2016/09/06 10:31
S143	142	("20050096539" | "20070022068" | "20080174700" | "20100086171" | "20100299296" | "20120011090" | "20120083982" | "20130073492" | "20130325774" | "20140032458" | "20150127154" | "6458157" | "6581046" | "7653255" | "20110063409" | "6678590" | "20050015351" | "20100036457" | "20110206122" | "20120308076" | "20130050574" | "20130073499" | "20140064609" | "20140122399" | "5355435" | "6009418" | "6014653" | "6545708" | "6546291" | "7737933" | "8000967" | "8200593" | "20110170792" | "20110242341" | "20030218919" | "20050283450" | "20070176643" | "20070208678" | "20080199072" | "20110016071" | "20110119214" | "20110137843" | "20130073498" | "20130297539" |	US-PGPUB; USPAT	OR	ON	2016/09/06 10:30

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S138	1907	B60W30/08.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 10:29
S139	3366	B60W30/09.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 10:29
S140	1133	B60W30/14.cpc.	US-PGPUB; USPAT;	OR	ON	2016/09/06 10:29

			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S141	5637	B60W30/16.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 10:29
S142	614	B60W30/17.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/09/06 10:29
S132	1	("20140307117").PN.	US-PGPUB; USPAT	OR	OFF	2016/09/06 10:22
S130	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2016/09/06 09:58
S129	16	("20080054158" | "20090157233" | "20090187299" | "20100004802" | "20100250022" | "20110141287" | "20110304737" | "20120143808" | "20120154579" | "20120200703" | "20120287274" | "20120307042" | "20130085643" | "20130176423" | "20140049643" | "7970507").PN. OR ("9164506").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2016/06/08 16:03
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S127	1	("8931730").PN.	US-PGPUB; USPAT	OR	OFF	2016/06/08 15:52
S126	1	("8378881").PN.	US-PGPUB; USPAT	OR	OFF	2016/06/08 15:41
S125	1	("7898130").PN.	US-PGPUB; USPAT	OR	OFF	2016/06/08 15:36
S124	1	("20160018822").PN.	US-PGPUB; USPAT	OR	OFF	2016/06/08 15:32
S123	1	("20140263823").PN.	US-PGPUB; USPAT	OR	OFF	2016/06/08 15:28
S122	1	("20160059962").PN.	US-PGPUB; USPAT	OR	OFF	2016/06/08 15:26
S121	2	"US 20160004923"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2016/06/08 14:32

8/17/2019 6:42:37 PM
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Electronic Acknowledgement Receipt

EFS ID:	37817869
Application Number:	15845891
International Application Number:	
Confirmation Number:	1010
Title of Invention:	OPTICAL DETECTION APPARATUS AND METHODS
First Named Inventor/Applicant Name:	Filip Piekniewski
Customer Number:	26418
Filer:	Sidharth Kapoor/Cody Nye
Filer Authorized By:	Sidharth Kapoor
Attorney Docket Number:	P23333US01
Receipt Date:	21-NOV-2019
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Time Stamp:	14:09:14
Application Type:	Utility under 35 USC 111(a)

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	P23333US01_-_2019-11-21_-_Response_Office_Action.pdf	520530 1c6031fccf5bb362902f4671ced9ccbdc2d3ea71	no	10

Warnings:

Information:	
Total Files Size (in bytes):	520530

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Filip Piekniewski, et al.	Examiner: YODER, CHRIS S.
Serial No.: 15/845,891	Art Unit: 2699
Attorney Docket No.: P23333US01	For: OPTICAL DETECTION APPARATUS AND METHODS
	Date: **August 13, 2018**

AMENDMENT AND RESPONSE

In response to the non-final Office Action dated August 21, 2019, Applicant respectfully requests entry of this Amendment and Response. This Response is being timely filed by the statutory time period set forth in the Office Action. The Commissioner is hereby authorized to charge any additional fees, which may be required by this paper, to Deposit Account No. 18-0582.

Amendments to the Claims begin on page 2; and
Remarks begin on page 8.

AMENDMENTS TO CLAIM

1 — 24. (Previously Canceled).

25. (Currently Amended) A method of navigating an apparatus, comprising:

obtaining at least one image associated with surroundings of the apparatus using a sensor, the apparatus comprising a controller, an actuator and the sensor;

analyzing the at least one image to detect a presence of an object in the at least one image;

determining ~~whether the object comprises one of either a target or an obstacle~~ the presence of the object based on comparing a contrast parameter of the at least one image to a threshold, the contrast parameter corresponding to a maximum absolute deviation of pixels within the at least one image from a reference vale, and the threshold being dynamically configured based on one or more parameters; and

causing the controller to selectively activate the actuator based on the determination that the object is within the range of the apparatus.

26. (Cancelled).

27. (Cancelled).

28. (Cancelled).

29. (Currently Amended) The method of Claim 25, further comprising:

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adapting movement of the apparatus as the object is detected in the surroundings of the apparatus ~~based on the velocity vectors of surrounding objects and the apparatus, causing the controller to activate or deactivate the actuator~~.

30. (Currently Amended) A non-transitory computer-readable storage medium having computer readable instructions stored thereon, that when executed by at least one ~~processor~~ controller device configure the at least one ~~processor~~ controller device to:

receive data from at least one sensor, the data comprising at least one image of an environment;

analyze an image, from the data generated by the at least one sensor, to determine a contrast parameter ~~criterion~~ of the image, the contrast parameter comprising a deviation parameter, a reference value, and/or threshold associated with object detection, the contrast parameter corresponding to a maximum absolute deviation of pixels within the at least one image from a reference vale;

~~detect whether an object is present in the image from the contrast parameter meeting or exceeding a predetermined threshold~~ determine presence of the object based on comparing the contrast parameter of the image to a threshold, the threshold being dynamically configured based on one or more parameters; and

determine a location of the object from the contrast parameter meeting or exceeding the ~~prescribed~~ threshold at the location of the object.

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31. (Currently Amended) The non-transitory computer-readable storage medium of Claim 30, wherein the at least one ~~processor~~ controller device is further ~~configured~~ configurable to execute the computer readable instructions to:

receive data from the at least one sensor, the data comprising dynamic lighting parameters of the environment; and

adjust the ~~prescribed contrast parameter~~ threshold for object detection based on the data from the at least one sensor.

32. (Currently Amended) The non-transitory storage medium of Claim 30, wherein the at least one ~~processor~~ controller device is further ~~configured~~ configurable to execute the computer readable instructions to:

determine a contrast parameter criterion comprising a fixed or a dynamic value from statistics of multiple images gathered by the at least one sensor.

33. (Withdrawn – Currently Amended) The non-transitory storage medium of Claim 30, wherein the at least one ~~processor~~ controller device is further ~~configured~~ configurable to execute the computer readable instructions to:

partition a first image into at least two sub-images, the at least two sub-images comprise different energy spectra or regions of the first image; and

apply filtering operations to the at least one of the two sub-images prior to the determination of a contrast parameter criterion.

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34. (Withdrawn – Currently Amended) The non-transitory storage medium of Claim 30, wherein the at least one ~~processor~~ controller device is further ~~configured~~ configurable to execute the computer readable instructions to:

apply an asymmetrical filter to the at least one image received from the at least one sensor to facilitate the detection of an object at a target orientation.

35. (Currently Amended) A method for detection of objects near an apparatus, comprising:

gathering data from at least one sensor, the data comprising at least one image of an environment surrounding the apparatus;

analyzing the at least one image, to determine a contrast parameter of the at least one image, the contrast parameter comprising a deviation parameter, a reference value, and/or threshold associated with object detection, the contrast parameter corresponding to a maximum absolute deviation of pixels within the at least one image from a reference vale;

~~determining a fixed or dynamic contrast parameter threshold based on dynamic properties of the environment; and~~

determining if an object is present in the image ~~from~~ based on comparing the contrast parameter of the at least one image to a ~~meeting or exceeding a prescribed~~ threshold, the threshold being dynamically configured based on one or parameters.

36. (Withdrawn) The method of Claim 35, further comprising:

partitioning a first image, from the plurality of images, into at least two sub-images comprising two different energy spectra or regions of the first image; and

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applying filtering and/or cropping operations to the at least one of the two sub-images prior to the determination of a contrast parameter criterion.

37. (Withdrawn) The method of Claim 35, further comprising:

applying an asymmetrical filter to the data from the at least one sensor to facilitate detection of objects at a target orientation.

38. (Cancelled).

39. (Cancelled).

40. (New) The method of claim 25, wherein the contrast parameter corresponds to partitioning of the at least one image into a low spatial frequency portion and a high spatial frequency portion.

41. (New) The method of claim 25, wherein the partitioning is configured by selecting a first area and a second area within the at least one image, the first area corresponds to region around zero frequency, and the second area corresponds to the remaining portion of the spectrum.

42. (New) The method of claim 25, wherein the one or more parameters include ambient light conditions surrounding the apparatus and time of day.

43. (New) The method of claim 25, further comprising:

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detecting the object at multiple locations from the apparatus based on the sensor being at a slanted angle; and

determine, based on the detection of the object, whether the apparatus is approaching the object or the object is approaching the apparatus.

44. (New) The method of claim 25, wherein the sensor comprising a linear array of photo sensitive elements.

45. (New) The method of claim 44, wherein the linear array of photo sensitive elements disposed along axial direction of a lens.

46. (New) The method of claim 25, wherein the sensor comprises one or more sensing layers axially displaced from one another, each one of the one or more sensing layers comprise a plurality of photo sensitive elements.

47. (New) The method of claim 46, wherein the axial displacement of the one or more sensing layers is configured to produce an axial distribution of multiple focal planes, and wherein the axial distribution of multiple focal planes is configurable to enable detection of object positioned in front of the apparatus.

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REMARKS

Claims 25, 29, 30, 31, 32, 33, 34, 35, 36, 37 and 40-47 are pending in the present application. Claims 26-28, 38 and 39 are cancelled via present amendment without prejudice and new claims 40-47 are added. Support for claim amendments and new claims set forth herein can be found in at least paragraphs [0066] to [0082], [0093] to [0100] and corresponding figures. No new matter has been introduced via present amendment.

Election/Restrictions

On pages 2-3 of the Office Action, the Examiner has withdrawn from examination claims 33, 34, 36 and 37 as being directed to non-elected species (i.e., Species 2A-2D).

Applicants respectfully disagree with the Examiner's interpretation as such claims being directed to non-elected species. Applicants request the Examiner to reconsider his position and examine the claims 33, 34, 36 and 37.

Claim Rejection Under 35 U.S.C. § 112(b)

On pages 3-5 of the outstanding Office Action, the Examiner has rejected claims 26-29 and 28-39 under 35 USC § 112(a) for failing to comply with the written description requirement.

Without conceding to the Examiner's assertions in the Office Action, Applicants assert that such rejection is rendered moot in view of the claim amendments set forth herein. Applicants request the Examiner to reconsider and with withdraw the aforementioned rejection.

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Double Patenting Rejection

On pages 5-8 of the Office Action, the Examiner has rejected claim 25 on the ground of nonstatutory double patenting as being unpatentable over claim 9 of U.S. Patent 9,848,112.

Without conceding to the Examiner's assertions in the Office Action, Applicants assert that such rejection is rendered moot in view of the claim amendments set forth herein. In particular, claim 9 of U.S. Patent 9,848,112 does not disclose or recite at least the amended features of claim 25.

Accordingly, we request the Examiner to reconsider and withdraw the aforementioned double patenting rejection.

Claim Rejections Under 35 U.S.C. §§ 102, 103

On pages 8-9 of the outstanding Office Action, the Examiner has rejected claims 25-26 and 29 under 35 USC § 102(a)(2) as allegedly being anticipated by U.S. Patent 9,150,220 ("Clarke").

On pages 10-12 of the outstanding Office Action, the Examiner has rejected claims 30-32 and 35 under 35 USC § 103 as allegedly being unpatentable over U.S. Patent 9,150,220 ("Clarke") in view of U.S. Patent 8,542,875 ("Eswara").

Without conceding to the Examiner's assertions in the Office Action, Applicants assert that aforementioned rejections under 35 USC §§ 102(a)(2), 103, are rendered in moot in view of the claim amendments set forth herein. In particular, neither Clarke nor Eswara, either alone or in combination, disclose or fairly suggest a method of navigating an apparatus, comprising, *inter alia*, "determining the presence of the object based on comparing a contrast parameter of the at least one image to a threshold, the contrast parameter corresponding to a maximum absolute deviation of pixels within the at least one image from a reference vale, and the threshold being dynamically

configured based on one or more parameters," as required by amended claim 25. Moreover, Examiner does not rely on or cite to any disclosure of Clarke or Eswara that fairly suggest or teach the aforementioned features.

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the aforementioned rejections.

Similar arguments apply to amended independent claims 30 and 35.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience. If the Examiner believes an Examiner's Amendment would place the application in condition for allowance, Examiner is welcome to contact Applicants' undersigned counsel to discuss the potential Examiner's Amendment. Please apply any necessary charges or credits to Deposit Account 18-0582, referencing the above attorney docket number.

Date: November 21, 2019

Respectfully submitted,

/Sidharth Kapoor/
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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/845,891	Filing Date 12/18/2017	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $210 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/21/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $230 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

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

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

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NOTICE OF ALLOWANCE AND FEE(S) DUE

26418 7590 03/06/2020

REED SMITH LLP
P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488

EXAMINER	
YODER III, CHRISS S	
ART UNIT	PAPER NUMBER
2699	

DATE MAILED: 03/06/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/845,891	12/18/2017	Filip Piekniewski	P23333US01	1010

TITLE OF INVENTION: OPTICAL DETECTION APPARATUS AND METHODS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	06/08/2020

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.

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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.

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being 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.
15/845,891	12/18/2017	Filip Piekniewski	P23333US01	1010

TITLE OF INVENTION: OPTICAL DETECTION APPARATUS AND METHODS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	06/08/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
YODER III, CHRISS S	2699	348-302000

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.

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Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/845,891	12/18/2017	Filip Piekniewski	P23333US01	1010

26418 7590 03/06/2020

REED SMITH LLP
P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488

EXAMINER	
YODER III, CHRISS S	
ART UNIT	**PAPER NUMBER**
2699	

DATE MAILED: 03/06/2020

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

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

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

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

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 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. 15/845,891	Applicant(s) Piekniewski et al.	
	Examiner CHRISS S YODER III	Art Unit 2699	AIA (FITF) Status Yes

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 11/21/2019.
   ☐ 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 25,29-37 and 40-47 . 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 _____.

/LIN YE/
Supervisory Patent Examiner, Art Unit 2699

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

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

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.

Election/Restrictions

Claims 25, 29-37, and 40-47 are allowable. Claims 33, 34, 36, and 37, previously withdrawn from consideration as a result of a restriction requirement, require all the limitations of an allowable claim. Pursuant to the procedures set forth in MPEP § 821.04(a), **the restriction requirement between inventions 1A-2D, as set forth in the Office action mailed on March 21, 2019, is hereby withdrawn** and claims 33, 34, 36, and 37 are hereby rejoined and fully examined for patentability under 37 CFR 1.104. In view of the withdrawal of the restriction requirement, applicant(s) are advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is

withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Allowable Subject Matter

Claims **25, 29-37, and 40-47** are allowed.

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

As for **claim 25**, the reasons for allowance of the claims is clear from the written record of prosecution. Attention is specifically drawn to the amendment and arguments filed by the applicant on November 21, 2019. See pages 9-10 of the amendment.

As for **claim 30**, the reasons for allowance of the claims is clear from the written record of prosecution. Attention is specifically drawn to the amendment and arguments filed by the applicant on November 21, 2019. See pages 9-10 of the amendment.

As for **claim 35**, the reasons for allowance of the claims is clear from the written record of prosecution. Attention is specifically drawn to the amendment and arguments filed by the applicant on November 21, 2019. See pages 9-10 of the amendment.

As for **claims 29, 31-34, 36-37, and 40-47**, the reasons for allowance of these claims is due at least to their dependency upon allowable claims 25, 30, and 35.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISS S YODER III whose telephone number is (571)272-7323. The examiner can normally be reached on M-F 9:00-5:00 PM.

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, Lin Ye can be reached on (571) 272-7372. 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.

/LIN YE/
Supervisory Patent Examiner, Art Unit 2699

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	Art Unit
	CHRISS S YODER III	2699

CPC - Searched*		
Symbol	**Date**	**Examiner**
H04N 5/225, 5/2258	08/17/2019	CY
B60W 30/08, 30/09,30/14, 30/16, 30/17	08/17/2019	CY
G01B 11/0026, 11/0691	08/17/2019	CY
G01C 3/00-32	08/17/2019	CY
G02B 3/36, 3/38	08/17/2019	CY
G06K 9/00664, 9/00791, 9/00825, 9/6215	08/17/2019	CY
G06T 7/0051, 7/50-596	08/17/2019	CY
H04N 5/225, 5/2258	03/01/2020	CY
B60W 30/08, 30/09,30/14, 30/16, 30/17	03/01/2020	CY
G01B 11/0026, 11/0691	03/01/2020	CY
G01C 3/00-32	03/01/2020	CY
G02B 3/36, 3/38	03/01/2020	CY
G06K 9/00664, 9/00791, 9/00825, 9/6215	03/01/2020	CY
G06T 7/0051, 7/50-596	03/01/2020	CY

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.

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	Art Unit
	CHRISS S YODER III	2699

Search Notes		
Search Notes	**Date**	**Examiner**
East search history included	08/17/2019	CY
East search history updated and included	03/01/2020	CY
Spoke with Daniel Pasiewicz	03/01/2020	CY
Performed interference and inventor search (see search history)	03/01/2020	CY

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
H04N	5/225, 5/2258	03/01/2020	CY
B60W	30/08, 30/09,30/14, 30/16, 30/17	03/01/2020	CY
G01B	11/0026, 11/0691	03/01/2020	CY
G01C	3/00-32	03/01/2020	CY
G02B	3/36, 3/38	03/01/2020	CY
G06K	9/00664, 9/00791, 9/00825, 9/6215	03/01/2020	CY
G06T	7/0051, 7/50-596	03/01/2020	CY

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Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	**Art Unit**
	CHRISS S YODER III	2699

CPC								
Symbol							**Type**	**Version**
H04N	/	5	/	2258			F	2013-01-01
G02B	/	5	/	204			I	2013-01-01
G02B	/	13	/	0015			I	2013-01-01
G02B	/	27	/	0075			I	2013-01-01
G06K	/	9	/	00791			I	2013-01-01
G06K	/	9	/	00664			I	2013-01-01
G06K	/	9	/	00825			I	2013-01-01
B60W	/	30	/	16			I	2013-01-01
B60W	/	30	/	14			I	2013-01-01
B60W	/	30	/	09			I	2013-01-01
G01C	/	3	/	08			I	2013-01-01
G02B	/	7	/	38			I	2013-01-01
G06K	/	9	/	00624			I	2013-01-01
G06K	/	9	/	4614			I	2013-01-01
G06K	/	9	/	522			I	2013-01-01
H04N	/	5	/	2253			I	2013-01-01
H01L	/	31	/	02162			I	2013-01-01
H05K	/	999	/	99			I	2013-01-01

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

/CHRISS S YODER III/ Examiner, Art Unit 2699	01 March 2020	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/LIN YE/ Supervisory Patent Examiner, Art Unit 2699	02 March 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20200301

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	Art Unit
	CHRISS S YODER III	2699

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H04N	/	5	/	225
B60W	/	30	/	09
B60W	/	30	/	16
G06K	/	9	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

/CHRISS S YODER III/ Examiner, Art Unit 2699	01 March 2020	Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/LIN YE/ Supervisory Patent Examiner, Art Unit 2699	02 March 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	CHRISS S YODER III	2699

☐ 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	18	37	9	46				
	2		11		20	2	29		38	10	47				
	3		12		21	11	30		39						
	4		13		22	12	31	3	40						
	5		14		23	13	32	4	41						
	6		15		24	14	33	5	42						
	7		16	1	25	15	34	6	43						
	8		17		26	16	35	7	44						
	9		18		27	17	36	8	45						

/CHRISS S YODER III/ Examiner, Art Unit 2699	01 March 2020	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	18	
/LIN YE/ Supervisory Patent Examiner, Art Unit 2699	02 March 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	Art Unit
	CHRISS S YODER III	2699

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

CLAIMS

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

CLAIM		DATE								
Final	Original	03/18/2019	08/17/2019	03/01/2020						
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17	36	÷	N	=						
18	37	÷	N	=						
	38	÷	✓	-						
	39	÷	✓	-						
3	40			=						
4	41			=						
5	42			=						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/845,891	Piekniewski et al.
	Examiner	**Art Unit**
	CHRISS S YODER III	2699

CLAIM		DATE								
Final	Original	03/18/2019	08/17/2019	03/01/2020						
6	43			=						
7	44			=						
8	45			=						
9	46			=						
10	47			=						

Bibliographic Data

Application No: 15/845,891

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /CHRISS S YODER III/ (Examiner's Signature) [ ] (Initials)

Title: OPTICAL DETECTION APPARATUS AND METHODS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/18/2017	348	2699	P23333US01
RULE			

APPLICANTS

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Vadim Polonichko San Diego, CA, UNITED STATES

Eugene Izhikevich San Diego, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 14321736 07/01/2014 PAT 9848112

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/10/2018

**** SMALL ENTITY ****

STATE OR COUNTRY

UNITED STATES

ADDRESS

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P.O. BOX 488 (NYC)
PITTSBURGH, PA 15230-0488
UNITED STATES

FILING FEE RECEIVED

$1,565