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United States Patent and Trademark Office

March 17, 2025

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OF:

APPLICATION NUMBER: 14/437,105
FILING DATE: *April 20, 2015*
PATENT NUMBER: 9338348
ISSUE DATE: *May 10, 2016*



Certified by

Coke Mogan Smeeth

ACTING DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: **Ishay SIVAN**

Serial No: **Not Yet Assigned (National Stage of PCT/IL2013/050856)**

I.A. Filed: **October 22, 2013**

For: **REAL TIME ASSESSMENT OF PICTURE QUALITY**

Attorney Docket Number: SIV001US

PRELIMINARY AMENDMENT

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

Sir:

Amendments to the Specification appear on page 2.

Amendments to the Claims appear in the listing of claims that begins on page 3.

Remarks begin on page 9.

Amendments to the Specification

On page 1, before “FIELD OF THIS DISCLOSURE”,

Delete the following:

~~REFERENCE TO CO-PENDING APPLICATIONS~~

~~——— Priority is claimed from two US provisional applications as per the forms attached hereto.~~

Insert the following:

RELATED APPLICATIONS

This Application is a national phase of, and claims priority from PCT Application No. PCT/IL2013/050856, filed on October 22, 2013, which claims priority from US Provisional Application No. 61/717216, filed October 23, 2012, and US Provisional Application No. 61/759643, filed February 1, 2013, all of which applications are hereby incorporated by reference as is fully set forth herein.

Amendments to the Claims

This listing of claims replaces prior versions:

1. (original) A digital image acquisition system comprising

an image capture component for capturing in a buffer, a current digital image having pixels;

at least one digital processor programmed for real time computation of multiple quality indicators characterizing quality of the current digital image;

automatic image capturing, and storing in user-accessible memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and

a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,

wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.
2. (original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on analyzing said pixels.
3. (original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on comparing said pixels to previous frame data generated by said image capture component.

4. (original) A system according to claim 3 wherein said comparing comprises identifying an object in a current and a previous frame and computing the object's speed.
5. (original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on data received from at least one hardware component operatively associated with the image capture component.
6. (original) A system according to claim 5 wherein said hardware component includes at least one of an accelerometer, gyro, GPS receiver.
7. (original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on 4D device coordinates.
8. (original) A system according to claim 1 wherein said logical criterion comprises whether or not a total quality indicator computed by combining said multiple quality indicators, exceeds a predetermined threshold.
9. (original) A system according to claim 1 wherein said logical criterion comprises whether or not each of said multiple quality indicators, exceeds a predetermined threshold.
10. (original) A system according to claim 1 wherein said logical criterion comprises a logical expression combining with at least one OR, several logical conditions of whether or not certain individual indicators from among said multiple quality indicators, exceeds a predetermined respective threshold.

11. (currently amended) A method for computing photo quality of a captured image in a device image acquisition system, said method comprising:

combining of:

a plurality of quality indicators computed from said captured image and ~~its previous image frames quality indicators and~~

a confidence level for at least one of said quality indicators, based on the probabilities factors P of said quality indicator,

calculated in said captured image and calculated in its same scene previous image frames taken from module 200 continues video frames, and

determining, based on said combining, a photo quality.

12. (original) A method according to claim 11 and also comprising automatically activating the capturing apparatus, after a logical criterion based on at least one said quality indicator is met.

13. (original) A method according to claim 11 and also comprising, based on said combining, at least one appropriate suggestion from a pre-stored table of suggestions on how picture quality can be improved.

14. (original) A system according to claim 1 wherein said pre-stored table of suggestions includes a suggestion of changing at least one characteristic of said image capture component.

15. (original) A method according to claim 11 wherein a stream of frames is saved as video and at least quality indicators are used to quantify quality of said video.

16. (original) A method according to claim 15 and also comprising giving a user suggestions on improvement of the video.

17. (original) A method according to claim 11 wherein at least one lens/sensor module parameter is changed, based on said combining, to achieve better total QI.

18. (original) A method according to claim 11 and also comprising automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button.

19. (original) A method according to claim 11 wherein blur type detection is used for alerting the user of object movement in a region.

20. (original) A method according to claim 11 wherein blur type detection is used for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image.

21. (original) A method according to claim 11 wherein at least one quality indicator is used as a delete-picture indication.

22. (original) A system according to claim 1 wherein said automatic capturing occurs only after a user presses a shutter button.

23. (original) A system according to claim 1 wherein said automatic capturing occurs regardless of whether a user has pressed a shutter button.

24. (original) A system according to claim 1 wherein one quality indicator comprises a quantification of blurriness in the current image and wherein said table includes a "Remove Moving Object From Scene Or Cause Object To Remain Stationary" message and wherein

the message provider is operative, while said logical criterion is still not satisfied, to select same message, based on a condition pre-defined on said blurriness quantification.

25. (original) A system according to claim 5 wherein said logical criterion comprises a criterion predicting based on at least one of an accelerometer and a GPS receiver, a time at which there will be an acceptably low level of image capture component shake, and said automatic image capturing occurs at said time.

26. (original) A system according to claim 14 wherein said at least one characteristic of said image capture component comprises at least one of angle and position thereof.

27. (original) A computer program product, comprising a non-transitory tangible computer readable medium having computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a digital image acquisition method comprising:

real time computation of multiple quality indicators characterizing quality of a current digital image;

automatic image capturing, and storing in memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and

selecting, while said first logical criterion is still not satisfied, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,

wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.

28. (previously added) The method of claim 11 further comprising determining if said photo quality is acceptable and taking differential action depending on whether said photo quality is acceptable or allowing storing said captured image, only if said photo quality is not acceptable.

29. (previously added) A digital image acquisition system comprising

a camera lens module 200 configured for receiving captured digital image; and

a computing module 400 programmed for computing total quality value; wherein said total quality value being for providing photo quality feedback;

wherein said total quality value being computed according to a plurality of quality indicators computed from said digital image and its previous image frames quality indicators or wherein said total quality value being computed according to a confidence level of at least one of quality indicators computed from said digital image.

30. (cancelled)

31. (cancelled)

32. (cancelled)

REMARKS

Via the present Preliminary Amendment, applicant amends the specification as shown above.

If there are any questions regarding this matter, PTO personel are welcome to contact the undersigned.

Respectfully Submitted,
/Eva Taksel/
(301)593-0749
Registration No. 47,985

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY			
First Named Inventor/Applicant Name:	ISHAY SIVAN			
Filer:	Eva Leah Taksel			
Attorney Docket Number:	SIVOO1US			
Filed as Micro Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
National Stage Fee	3631	1	70	70
Natl Stage Search Fee - U.S. was the ISA	3641	1	30	30
National Stage Exam - All Other Cases	3633	1	180	180
Pages:				
Claims:				
Claims In Excess of 20	3615	9	20	180
Independent claims in excess of 3	3614	1	105	105
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				565

Electronic Acknowledgement Receipt

EFS ID:	22112114
Application Number:	14437105
International Application Number:	PCT/IL13/50856
Confirmation Number:	8102
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY
First Named Inventor/Applicant Name:	ISHAY SIVAN
Customer Number:	112864
Filer:	Eva Leah Taksel
Filer Authorized By:	
Attorney Docket Number:	SIVOO1US
Receipt Date:	20-APR-2015
Filing Date:	
Time Stamp:	16:27:23
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$565
RAM confirmation Number	3636
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	WebADS.pdf	106867	no	6
			1c22e2de541fc0a104117c86bdaab707e50891b7		
Warnings:					
Information:					
2	Documents submitted with 371 Applications	request.pdf	150477	no	3
			817e4bfc1ae2f8b7412f64a5a80c2035896cca96		
Warnings:					
Information:					
3	Power of Attorney	poa.pdf	95498	no	1
			2e94da79f546bafb981db6a188ba515920e90807		
Warnings:					
Information:					
4	Oath or Declaration filed	declaration.pdf	894570	no	1
			01e69ff0468e427c7d338aea2ee42d874d023e0d		
Warnings:					
Information:					
5	Certification of Micro Entity (Gross Income Basis)	microentity.pdf	174499	no	1
			8a5e3848ad0a47655b4c953fe0d5daea5fb0f9eb		
Warnings:					
Information:					
6	Preliminary Amendment	preliminaryamendment.pdf	51629	no	9
			7e8c9138e12fc0472fda5bc4c980d34fc36a4318		
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	38290	no	2
			3cbd2ac4816eb2414ac139f4da7485fb34661ac2		
Warnings:					
Information:					
Total Files Size (in bytes):			1511830		

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIV001US
		Application Number	
Title of Invention	REAL TIME ASSESSMENT OF PICTURE QUALITY		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

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

Inventor 1 Remove				
Legal Name				
Prefix	Given Name	Middle Name	Family Name	Suffix
	ISHAY		SIVAN	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	TEL AVIV	Country of Residence	i	IL
Mailing Address of Inventor:				
Address 1		12 DISSENTCHIK STREET		
Address 2				
City	TEL AVIV	State/Province	OT	
Postal Code	6935635	Country	i	IL
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button. Add				

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	112864		
Email Address	espatents@gmail.com	Add Email	Remove Email

Application Information:

Title of the Invention	REAL TIME ASSESSMENT OF PICTURE QUALITY		
Attorney Docket Number	SIV001US	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	1

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIV001US
		Application Number	
Title of Invention	REAL TIME ASSESSMENT OF PICTURE QUALITY		

Filing By Reference

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

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

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

Publication Information:

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

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

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).

Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	112864		
Additional Representative Information blocks may be generated within this form by selecting the Add button.			

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	a 371 of international	PCT/IL2013/050856	2013-10-22
Prior Application Status	Expired	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCT/IL2013/050856	Claims benefit of provisional	61/717216	2012-10-23
Prior Application Status	Expired	Remove	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIV001US
		Application Number	
Title of Invention	REAL TIME ASSESSMENT OF PICTURE QUALITY		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCT/IL2013/050856	Claims benefit of provisional	61/759643	2013-02-01
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

Foreign Priority Information:

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

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

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

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIV001US
		Application Number	
Title of Invention	REAL TIME ASSESSMENT OF PICTURE QUALITY		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.				
Applicant 1				
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.				
Clear				
☐ Assignee	☐ Legal Representative under 35 U.S.C. 117		☐ Joint Inventor	
☐ Person to whom the inventor is obligated to assign.		☐ Person who shows sufficient proprietary interest		
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:				
Name of the Deceased or Legally Incapacitated Inventor :				
If the Applicant is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIV001US
		Application Number	
Title of Invention	REAL TIME ASSESSMENT OF PICTURE QUALITY		

Mailing Address Information:			
Address 1			
Address 2			
City		State/Province	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Assignee Information including Non-Applicant Assignee Information:

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

Assignee 1				
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
If the Assignee or Non-Applicant Assignee is an Organization check here ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1				
Address 2				
City		State/Province		
Country i		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	SIV001US
		Application Number	
Title of Invention	REAL TIME ASSESSMENT OF PICTURE QUALITY		

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/Eva Taksel/				
First Name	Eva	Last Name	Taksel	Registration Number	47985
Additional Signature may be generated within this form by selecting the Add button.					

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371		Attorney Docket No. SIV001US
		U.S. Application No. (if known, see 37 CFR 1.5)
International Application No. PCT/IL2013/050856	International Filing Date 22 October 2013	Priority Date Claimed 23 October 2012
Title of Invention Real Time Assessment of Picture Quality		
First Named Inventor Ishay SIVAN		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information. 1. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). NOTE: The express request under 35 U.S.C. 371(f) will not be effective unless the requirements under 35 U.S.C. 371(c)(1), (2), and (4) for payment of the basic national fee, copy of the International Application and English translation thereof (if required), and the oath or declaration of the inventor(s) have been received. 2. ☐ A copy of the International Application (35 U.S.C. 371(c)(2)) is attached hereto (not required if the International Application was previously communicated by the International Bureau or was filed in the United States Receiving Office (RO/US)). 3. An English language translation of the International Application (35 U.S.C. 371(c)(2)) a. ☐ is attached hereto. b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4). 4. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) a. ☒ is attached. b. ☐ was previously filed in the international phase under PCT Rule 4.17(iv). Items 5 to 8 below concern amendments made in the international phase. <u>PCT Article 19 and 34 amendments</u> 5. ☐ Amendments to the claims under PCT Article 19 are attached (not required if communicated by the International Bureau) (35 U.S.C. 371(c)(3)). 6. ☐ English translation of the PCT Article 19 amendment is attached (35 U.S.C. 371(c)(3)). 7. ☐ English translation of annexes (Article 19 and/or 34 amendments only) of the International Preliminary Examination Report is attached (35 U.S.C. 371(c)(5)). <u>Cancellation of amendments made in the international phase</u> 8a. ☐ Do not enter the amendment made in the international phase under PCT Article 19. 8b. ☐ Do not enter the amendment made in the international phase under PCT Article 34. NOTE: A proper amendment made in English under Article 19 or 34 will be entered in the U.S. national phase application absent a clear instruction from applicant not to enter the amendment(s). The following items 9 to 17 concern a document(s) or information included. 9. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 10. ☒ A preliminary amendment. 11. ☒ An Application Data Sheet under 37 CFR 1.76. 12. ☐ A substitute specification. NOTE: A substitute specification cannot include claims. See 37 CFR 1.125(b). 13. ☒ A power of attorney and/or change of address letter. 14. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.3 and 37 CFR 1.821-1.825. 15. ☐ Assignment papers (cover sheet and document(s)). Name of Assignee: _____ 16. ☐ 37 CFR 3.73(c) Statement (when there is an Assignee).		

This collection of information is required by 37 CFR 1.414 and 1.491-1.492. 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 15 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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.

U.S. APPLN. No. (if known – see 37 CFR 1.5)	INTERNATIONAL APPLICATION No. PCT/IL2013/050856	ATTORNEY DOCKET No. SIV001US
17. ☐ Other items or information:		
The following fees have been submitted.		CALCULATIONS PTO USE ONLY
18. ☒ Basic national fee (37 CFR 1.492(a)) \$280		\$ 280
19. ☒ Examination fee (37 CFR 1.492(c)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) \$0 All other situations \$720		\$ 720
20. ☒ Search fee (37 CFR 1.492(b)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) \$0 Search fee (37 CFR 1.445(a)(2)) has been paid on the international application to the USPTO as an International Searching Authority \$120 International Search Report prepared by an ISA other than the US and provided to the Office or previously communicated to the US by the IB \$480 All other situations \$600		\$ 120
TOTAL OF 18, 19, and 20 =		\$ 1120
☐ Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) in an electronic medium or computer program listing in an electronic medium) (37 CFR 1.492(j)). Fee for each additional 50 sheets of paper or fraction thereof \$400		
Total Sheets	Extra Sheets	Number of each addition 50 or fraction thereof (round up to a whole number)
- 100 =	/ 50 =	x \$400
Surcharge of \$140.00 for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h)).		\$
CLAIMS	NUMBER FILED	NUMBER EXTRA
Total claims	29 - 20 =	9
Independent claims	4 - 3 =	1
MULTIPLE DEPENDENT CLAIM(S) (if applicable)		+ \$780
Processing fee of \$140.00 for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)).		\$
TOTAL OF ABOVE CALCULATIONS =		\$ 2260
☒ Applicant asserts small entity status. See 37 CFR 1.27. Fees above are reduced by ½.		
☒ Applicant certifies micro entity status. See 37 CFR 1.29. Fees above are reduced by ¾. Applicant must attach form PTO/SB/15A or B or equivalent.		
TOTAL NATIONAL FEE =		\$ 565
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property.		\$
TOTAL FEES ENCLOSED =		\$ 565
		Amount to be refunded: \$
		Amount to be charged: \$

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- a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.
- c. ☐ The Director is hereby authorized to charge additional fees which may be required, or credit any overpayment, to Deposit Account No. _____ as follows:
- i. ☐ any required fee.
- ii. ☐ any required fee except for excess claims fees required under 37 CFR 1.492(d) and (e) and multiple dependent claim fee required under 37 CFR 1.492(f).
- d. ☒ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.

ADVISORY: If filing by EFS-Web, do NOT attach the PTO-2038 form as a PDF along with your EFS-Web submission. Please be advised that this is **not** recommended and by doing so your **credit card information may be displayed via PAIR**. To protect your information, it is recommended to pay fees online by using the electronic payment method.

NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.

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

- ☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013, and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE 1: By providing this statement under 37 CFR 1.55 or 1.78, **this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.**

NOTE 2: A U.S. national stage application may not claim priority to the international application of which it is the national phase. The filing date of a U.S. national stage application is the international filing date. See 35 U.S.C. 363.

Correspondence Address

- ☒ The address associated with Customer Number: 112864 **OR** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country				Telephone	
Email					

Signature	/Eva Taksel/	Date	April 19, 2015
Name (Print/Type)	Eva Taksel	Registration No. (Attorney/Agent)	47985

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POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Application Number	
	Filing Date	
	First Named Inventor	Ishay SIVAN
	Title	Real Time Assessment of Picture Quality
	Art Unit	
	Examiner Name	
	Attorney Docket Number	SIV001US

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

112864

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

112864

OR

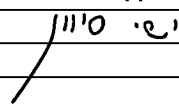
☐ Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone	Email		

I am the:

☒ Applicant/Inventor.

OR

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.
SIGNATURE of Applicant or Assignee of Record

Signature		Date	19 Apr 2015
Name	Ishay Sivan	Telephone	
Title and Company			

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 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.

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

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

**Title of
Invention**

Real Time Assessment of Picture Quality

As the below named inventor, I hereby declare that:

This declaration
is directed to:

☐

The attached application, or

☒

United States application or PCT international application number PCT/IL2013/050856

filed on 22 October 2013.

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

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

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

WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: Ishay Sivan

Date (Optional) : _____

Signature: _____

Ishay Sivan

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

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

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

CERTIFICATION OF MICRO ENTITY STATUS
(GROSS INCOME BASIS)

Application Number or Control Number (if applicable):

Patent Number (if applicable):

First Named Inventor:

Ishay Sivan

Title of Invention:

Real Time Assessment of Picture Quality

The applicant hereby certifies the following—

- (1) **SMALL ENTITY REQUIREMENT** - The applicant qualifies as a small entity as defined in 37 CFR 1.27.
- (2) **APPLICATION FILING LIMIT** - Neither the applicant nor the inventor nor a joint inventor has been named as the inventor or a joint inventor on more than four previously filed U.S. patent applications, excluding provisional applications and international applications under the Patent Cooperation Treaty (PCT) for which the basic national fee under 37 CFR 1.492(a) was not paid, and also excluding patent applications for which the applicant has assigned all ownership rights or is obligated to assign all ownership rights as a result of the applicant's previous employment.
- (3) **GROSS INCOME LIMIT ON APPLICANTS AND INVENTORS** - Neither the applicant nor the inventor nor a joint inventor, in the calendar year preceding the calendar year in which the applicable fee is being paid, had a gross income, as defined in section 61(a) of the Internal Revenue Code of 1986 (26 U.S.C. 61(a)), exceeding the "Maximum Qualifying Gross Income" reported on the USPTO website at http://www.uspto.gov/patents/law/micro_entity.jsp which is equal to three times the median household income for that preceding calendar year, as most recently reported by the Bureau of the Census.
- (4) **GROSS INCOME LIMIT ON PARTIES WITH AN "OWNERSHIP INTEREST"** - Neither the applicant nor the inventor nor a joint inventor has assigned, granted, or conveyed, nor is under an obligation by contract or law to assign, grant, or convey, a license or other ownership interest in the application concerned to an entity that, in the calendar year preceding the calendar year in which the applicable fee is being paid, had a gross income, as defined in section 61(a) of the Internal Revenue Code of 1986, exceeding the "Maximum Qualifying Gross Income" reported on the USPTO website at http://www.uspto.gov/patents/law/micro_entity.jsp which is equal to three times the median household income for that preceding calendar year, as most recently reported by the Bureau of the Census.

SIGNATURE by a party set forth in 37 CFR 1.33(b)

Signature

Name

Ishay Sivan

Date

19 Apr 2015

Telephone

Registration No.

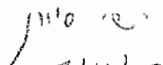


There is more than one inventor and I am one of the inventors who are jointly identified as the applicant. Additional certification form(s) signed by the other joint inventor(s) are included with this form.

1/1

PCT

Print Out (Original in Electronic Form)

VIII-4-1	Declaration: Inventorship (only for the purposes of the designation of the United States of America) Declaration of Inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America:	I hereby declare that I believe I am the original inventor or an original joint inventor of a claimed invention in the application. This declaration is directed to international application No. PCT/IL2013/050856. I hereby declare that the above-identified international application was made or authorized to be made by me. I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.
VIII-4-1-1-1	Name (LAST, First)	SIVAN, Ishay
VIII-4-1-1-2	Residence: (city and either US state, if applicable, or country)	Tel Aviv, Israel
VIII-4-1-1-3	Mailing Address:	12 Dissentchik Street 6935635 Tel Aviv Israel
VIII-4-1-1-4	Inventor's Signature: (The signature must be that of the inventor, not that of the agent)	 27/11/13
VIII-4-1-1-5	Date:	

1111

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

February 24, 2014

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

APPLICATION NUMBER: 61/759,643

FILING DATE: *February 01, 2013*

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US61/759,643*



Certified by

David J. Kappas

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

PROVISIONAL APPLICATION FOR PATENT

System and method for real time assessment of a picture quality, automatically taking the best picture, and ways to indicate quality

Inventor: Ishay Sivan

Date: Feb 1 2013

ABSTRACT

Adding to the provisional patent number 61/717,216 submitted on Oct 23 2012 by applicant Ishay Sivan, titled "System and method for real time assessment of a picture quality".

When the user presses the shutter button the device then goes into "taking picture mode" where it hunts for a minimum quality values for each parameter. Once all these quality indicators reach at least their minimum values, then the device will take the picture automatically without the user pressing again or timing the exact shutter himself.

After the picture is taken the user may be made aware of several quality indicators values or some of their totals.

In another embodiment, the device will take the picture automatically when it reach the minimum values as indicated here, even without the user needing to press the shutter. For example when the device will be standing still in a certain direction for a configured time, the device will assume it should get into "taking picture" mode by itself and may take the best picture it can according to the above.

To the system and method described in provisional patent 61/717,216, we add an indicator to the user about the a total or total of some quality indicators by a colored frame around the live feed of the scene as shown on the screen of the device. This colored frame may be used in the thumbnails view of the list of picture already taken to indicate which picture are good and which are not.

BACKGROUND OF THE INVENTION

Adding to the provisional patent number 61/717,216 submitted on Oct 23 2012 by applicant Ishay Sivan, titled "System and method for real time assessment of a picture quality".

SUMMARY OF THE INVENTION

1. Automatically taking of the best picture

The idea here that the user will not need to hit the shutter button on the exact moment he is indicated the picture is at its best quality as indicated by the device software. He will be needed to pick the scene and composition, indicate he is ready and wait for the device to find the exact moment his hands shake below some threshold or that he leveled the device to the horizon properly. These are only two quality parameters, but more may be used.

"Taking picture" mode can be indicated to the user by a blinking shutter button or changing its color, possibly accompanied with a sound.

In another embodiment the user will not need to indicate he is ready by first pressing the shutter, but the device will assume the user is ready all the time, or may wait for the device to be pointed at some point in space for some configured time. For example, the user pull the device out of his pocket and point it to the desired scene and hold it their for a second. The device accelerometer and gyro can see that the device was in movement and for a few second and then held relatively still in space. It will assume the user pulls the device out of his pocket in order to take a picture, and go into "take picture" mode, waiting for the quality indicator to be above the threshold and then take the picture automatically. The user hear the the sound of a picture been taken and return the device to his pocket. A shake gesture (available in mobile OS like iOS) can mean "delete the picture and start again".

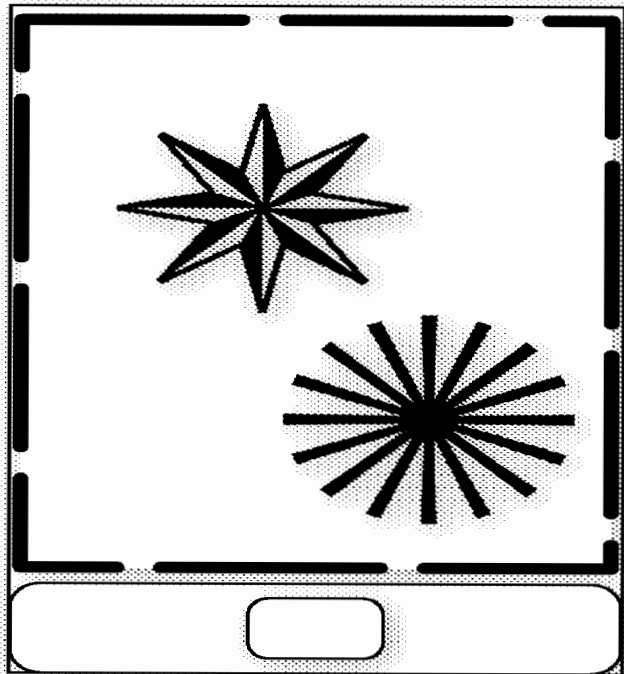


Figure A:
High Quality
(Long Dashed
represent Green)

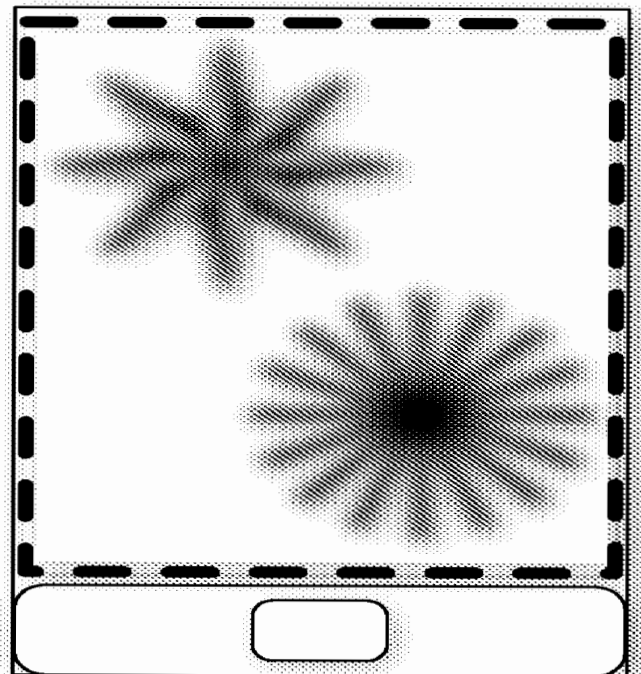


Figure B:
Low Quality
(Dashed lines
represent Red)

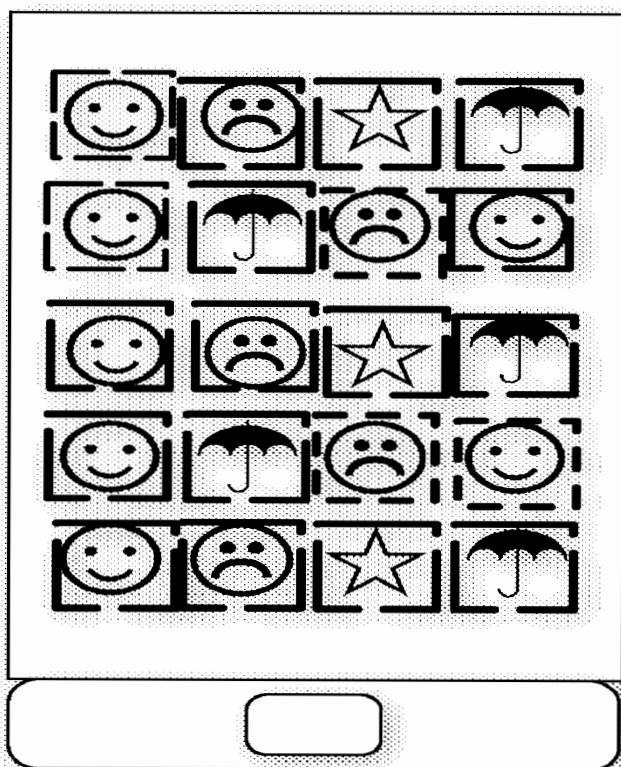


Figure C:
Picture Quality
Indicated By Frame
Color Or Dashed Line
(Different dashed
lines represent
different colour)

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET – Page 1 of 2

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. _____

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
Ishay	Sivan	Tel-Aviv, Israel
Additional inventors are being named on the _____ separately numbered sheets attached hereto.		
TITLE OF THE INVENTION (500 characters max):		
System and method for real time assessment of a picture quality, automatically taking the picture, and ways to indicate quality		
Direct all correspondence to: CORRESPONDENCE ADDRESS		
☐ The address corresponding to Customer Number:		
OR ☒ Firm or Individual Name Ishay Sivan		
Address		
Dissentchik 12		
City Tel Aviv	State	Zip 69353
Country Israel	Telephone 972-54-6549030	Email Ishaysiv@gmail.com
ENCLOSED APPLICATION PARTS (check all that apply)		
☐ Application Data Sheet. See 37 CFR 1.76 ☐ CD(s), Number of CDs _____		
☒ Drawing(s) Number of Sheets <u>1</u> ☐ Other (specify) _____		
☒ Specification (e.g. description of the invention) Number of Pages <u>3</u>		
Fees Due: Filing Fee of \$250 (\$125 for small entity). If the specification and drawings exceed 100 sheets of paper, an application size fee is also due, which 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).		
METHOD OF PAYMENT OF THE FILING FEE AND APPLICATION SIZE FEE FOR THIS PROVISIONAL APPLICATION FOR PATENT		
☒ Applicant claims small entity status. See 37 CFR 1.27.		
☐ A check or money order made payable to the <i>Director of the United States Patent and Trademark Office</i> is enclosed to cover the filing fee and application size fee (if applicable).		\$98 ?
☐ Payment by credit card. Form PTO-2038 is attached.		TOTAL FEE AMOUNT (\$)
☐ The Director is hereby authorized to charge the filing fee and application size fee (if applicable) or credit any overpayment to Deposit Account Number: _____		

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. 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 10 hours 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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PROVISIONAL APPLICATION COVER SHEET
Page 2 of 2

PTO/SB/16 (09-11)

Approved for use through 05/31/2015. OMB 0651-0032

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

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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.



No.



Yes, the name of the U.S. Government agency and the Government contract number are: _____

WARNING:

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

SIGNATURE _____

Date 01/02/13

TYPED or PRINTED NAME _____

Ishay Sivan

REGISTRATION NO. _____

(if appropriate)

TELEPHONE _____

972-54-6549030

Docket 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.

Electronic Acknowledgement Receipt

EFS ID:	14855084
Application Number:	61759643
International Application Number:	
Confirmation Number:	2756
Title of Invention:	System and method for real time assessment of a picture quality, automatically taking the best picture, and ways to indicate quality
First Named Inventor/Applicant Name:	Ishay Sivan
Correspondence Address:	Ishay Sivan - Dissentchik 12 - Tel-Aviv - 69353 IL 972546549030 ishaysiv@gmail.com
Filer:	Ishay Sivan
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	01-FEB-2013
Filing Date:	
Time Stamp:	15:19:46
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$125

RAM confirmation Number		2033			
Deposit Account					
Authorized User					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Provisional Cover Sheet (SB16)	Patent2sb16.pdf	148336	no	3
			2d56c301e3234fffe28b055b0ebe4d57828a896f		
Warnings:					
This is not a USPTO supplied Provisional Cover Sheet SB16 form.					
Information:					
2	Specification	Patent2.pdf	134150	no	3
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Warnings:					
Information:					
3	Drawings-only black and white line drawings	Patent2_Diagrame_1_Black.pdf	394728	no	1
			adb391b4ec82f1505c3502105cd/4b34b2f7a405		
Warnings:					
Information:					
4	Drawings-other than black and white line drawings	Patent2Diagrame1Color.pdf	384539	no	1
			8a805de6515fc994fdd58c93ddddd6e89955cce13		
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	28716	no	2
			01d1e6e00754ed0b1d4e22a0d536bcf018a7e018		
Warnings:					
Information:					
Total Files Size (in bytes):			1090469		

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.



Figure A:
High Quality

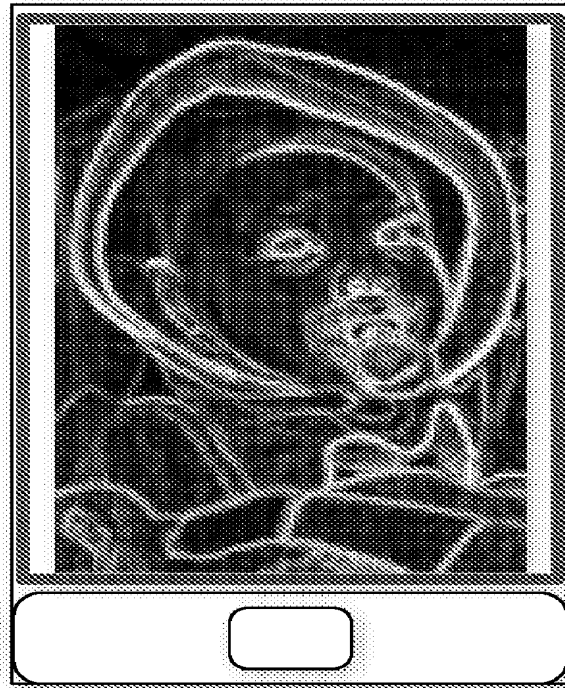


Figure B:
Low Quality

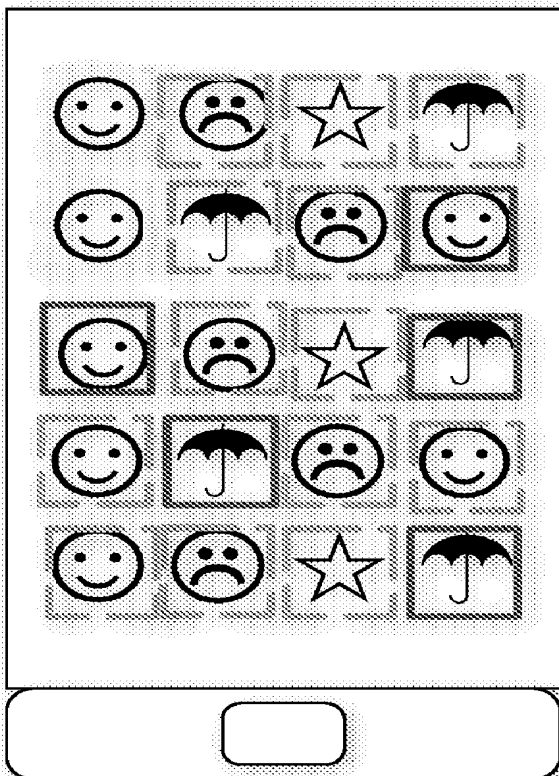


Figure C:
Picture Quality
Indicated By Frame
Color Or Dashed Line



Figure A:
High Quality

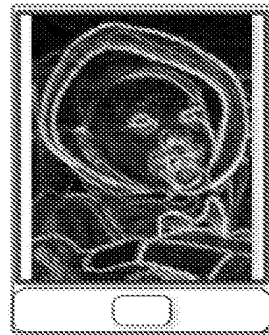


Figure B:
Low Quality

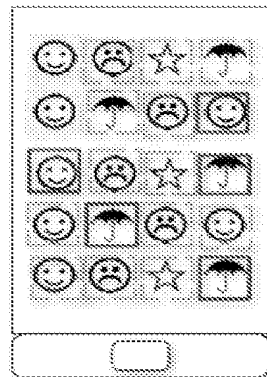


Figure C:
Picture Quality
Indicated By Frame
Color Or Dashed Line

Claims:

What is claimed is:

1. Use of the system and method for real time quality assessment of a picture to take the picture as when a certain quality level is achieved after the user indicated he wants to take a picture by pressing a button
2. Use of the system and method for real time quality assessment of a picture to take the picture as when a certain quality level is achieved after the user indicated he wants to take a picture by holding the device in space without moving it too much
3. indicate the picture to be taken quality by use of a colored frame
4. indicate the picture to be taken quality by use of sound
5. indicate the picture to be taken quality by use of graphic bar
6. indicate a saved picture quality by a colored frame

2. Colored Frames as an indicator of the picture quality.

While the device calculates the quality of each parameter, he is calculating a total and a basic total of these parameters.

A total is calculated as described in provisional patent 61/717,216. A basic total is calculated similarly, but not with all the parameters. A basic total can be the shake, focus, level and details quality indicators for example.

A frame around the live feed of the picture may be shown to indicate quality. For example green is good, yellow not so much and red is bad.

The other indicators as indication for under/over exposed areas (highlights&shadows) may be shown by a indication like an icon or text saying "under/over exposed quality is below a threshold".

There may be a different icon for different quality values. For example a red over exposed icon for really bad (say over 40%) and yellow for between 40% and 20%.

This idea of colored frames may be used after the picture is taken. Either individually or in a list of thumbnails of pictures. This will help the user decide what picture to pick for his needs (delete or share for example)

BRIEF EXPLANATION OF DIAGRAM 1

In Figure A we see a green frame around the picture indicating a high quality. You can see the image is share and clear.

In Figure B we see a red frame around the picture indicating a low quality. You can see the image is blurred and not clear.

In Figure C we see the thumbnails view of picture that where already taken.

The colored frame around each thumbnail indicate the picture quality as it did in figure A and B

DOCUMENT MADE AVAILABLE UNDER THE PATENT COOPERATION TREATY (PCT)

International application number:	PCT/IL2013/050856
International filing date:	22 October 2013 (22.10.2013)
Document type:	Certified copy of priority document
Document details:	Country/Office: US
	Number: 61/759,643
	Filing date: 01 February 2013 (01.02.2013)
Date of receipt at the International Bureau:	24 February 2014 (24.02.2014)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a),(b) or (b-bis)

PCT REQUEST

Print Out (Original in Electronic Form)

0	For receiving Office use only	
0-1	International Application No.	PCT/IL2013/050856
0-2	International Filing Date	22 October 2013 (22.10.2013)
0-3	Name of receiving Office and "PCT International Application"	RO/IL
0-4	Form PCT/RO/101 PCT Request	
0-4-1	Prepared Using	PCT-SAFE Version 3.51.060.236 MT/FOP 20131001/0.20.5.21
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	Israel Patent Office (RO/IL)
0-7	Applicant's or agent's file reference	2247936
I	Title of Invention	SYSTEM AND METHOD FOR REAL TIME ASSESSMENT OF PICTURE QUALITY INCLUDING LEVEL OF CONFIDENCE THEREIN AND AUTOMATIC OPERATIONS E.G. TIMING OF CAPTURE BASED INTER ALIA ON LEVEL OF CONFIDENCE
II	Applicant	
II-1	This person is	Applicant and inventor
II-2	Applicant for	All designated States
II-4	Name (LAST, First)	SIVAN, Ishay
II-5	Address	12 Dissentchik Street 6935635 Tel Aviv Israel
II-6	State of nationality	IL
II-7	State of residence	IL

PCT REQUEST

Print Out (Original in Electronic Form)

IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	Agent
IV-1-1	Name	REINHOLD COHN AND PARTNERS
IV-1-2	Address	P.O.B. 13239 6113102 Tel Aviv Israel
IV-1-3	Telephone No.	+972 3 5672087
IV-1-4	Facsimile No.	+972 3 5606405
IV-1-5	e-mail	emgerhard@rcip.co.il
IV-1-5(a)	E-mail authorization The receiving Office, the International Searching Authority, the International Bureau and the International Preliminary Examining Authority are authorized to use this e-mail address, if the Office or Authority so wishes, to send notifications issued in respect of this international application:	exclusively in electronic form (no paper notifications will be sent)
V	DESIGNATIONS	
V-1	The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.	
VI-1	Priority claim of earlier national application	
VI-1-1	Filing date	23 October 2012 (23.10.2012)
VI-1-2	Number	61/717,216
VI-1-3	Country	US
VI-2	Priority claim of earlier national application	
VI-2-1	Filing date	01 February 2013 (01.02.2013)
VI-2-2	Number	61/759,643
VI-2-3	Country	US
VI-3	Priority document request The International Bureau is requested to obtain from a digital library a certified copy of the earlier application(s) identified above as item(s), using, where applicable, the access code(s) indicated:	VI-1 Access code: 3674 VI-2 Access code: 2756

PCT REQUEST

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VI-4	Incorporation by reference : where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.		
VII-1	International Searching Authority Chosen	United States Patent and Trademark Office (USPTO) (ISA/US)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	—	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	—	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	—	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	—	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	—	
IX	Check list	Number of sheets	Electronic file(s) attached
IX-1	Request (including declaration sheets)	4	✓
IX-2	Description	30	✓
IX-3	Claims	4	✓
IX-4	Abstract	1	✓
IX-5	Drawings	4	✓
IX-7	TOTAL	43	

PCT REQUEST

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	Accompanying Items	Paper document(s) attached	Electronic file(s) attached
IX-8	Fee calculation sheet	–	✓
IX-18	PCT-SAFE physical media	–	–
IX-19	Other	Documents in pre-conversion format Statement (Section 706): This is a complete and accurate copy of the international application prior to its conversion into the electronic document format in which it is filed.	✓
IX-20	Figure of the drawings which should accompany the abstract	1	
IX-21	Language of filing of the international application	English	
X-1	Signature of applicant, agent or common representative	(PKCS7 Digital Signature)	
X-1-1	Name	REINHOLD COHN AND PARTNERS	
X-1-2	Name of signatory	Ehud Hausman	
X-1-3	Capacity (if such capacity is not obvious from reading the request)	agent for Reinhold Cohn and Partners	

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	22 October 2013 (22.10.2013)
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/US
10-6	Transmittal of search copy delayed until search fee is paid	V

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11-1	Date of receipt of the record copy by the International Bureau	
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From the INTERNATIONAL BUREAU

PCTNOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

DR. MARK FRIEDMAN LTD.
Moshe Aviv Tower, 54th Floor
7 Jabotinsky St.
5252007 Ramat Gan
ISRAËL

Date of mailing (day/month/year) 16 September 2014 (16.09.2014)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 5837/1	
International application No. PCT/IL2013/050856	International filing date (day/month/year) 22 October 2013 (22.10.2013)

1. The following indications appeared on record concerning:			
☐ the applicant	☐ the inventor	☒ the agent	☐ the common representative
Name and Address REINHOLD COHN AND PARTNERS POB 13239 6113102 Tel Aviv Israel		State of Nationality	State of Residence
		Telephone No. +972 3 5672087	
		Facsimile No. +972 3 5606405	
		E-mail address emgerhard@rcip.co.il	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:			
☒ the person	☐ the name	☐ the address	☐ the nationality ☐ the residence
Name and Address DR. MARK FRIEDMAN LTD. Moshe Aviv Tower, 54th Floor 7 Jabotinsky St. 5252007 Ramat Gan Israel		State of Nationality	State of Residence
		Telephone No. +972 3611 4100	
		Facsimile No. +972 3611 4101	
		E-mail address patents@friedpat.com ☐ Notifications by e-mail authorized	
3. Further observations, if necessary: The appointment of the agent of record has been revoked. A new agent has been appointed, as indicated in Box 2. The new agent's file reference is : 5837/1.			
4. A copy of this notification has been sent to:			
☒ the receiving Office	☐ the International Preliminary Examining Authority		
☐ the International Searching Authority	☒ the designated Offices concerned		
☐ the Authority(ies) specified for supplementary search	☐ the elected Offices concerned		
	☒ other: REINHOLD COHN AND PARTNERS		

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Baert Carole
Facsimile No. +41 22 338 71 30	e-mail pt09.pct@wipo.int Telephone No. +41 22 338 74 09

1111

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

March 03, 2014

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APPLICATION NUMBER: 61/717,216

FILING DATE: *October 23, 2012*

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US61/717,216*



Certified by

David J. Kappas

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

Provisional Application for Patent Cover Sheet					
This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)					
Inventor(s)					
Inventor 1					Remove
Given Name	Middle Name	Family Name	City	State	Country
Ishay		Sivan	Tel-Aviv		IL
All Inventors Must Be Listed – Additional Inventor information blocks may be generated within this form by selecting the Add button.					Add
Title of Invention		System and method for real time assessment of a picture quality			
Attorney Docket Number (if applicable)					
Correspondence Address					
Direct all correspondence to (select one):					
☐ The address corresponding to Customer Number			☒ Firm or Individual Name		
Firm or Individual Name 1			Ishay Sivan		
Firm or Individual Name 2					
Mailing Address of Applicant:					
Address 1		Dissentchik 12			
Address 2					
City	Tel-Aviv	State/Province			
Postal Code	69353	Country		IL	
Phone	972-54-6549030				

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are:

Doc Code: TR.PROV

Document Description: Provisional Cover Sheet (SB16)

PTO/SB16 (11-08)

Approved for use through 05/31/2015. OMB 0651-0132

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.

Entity Status

Applicant claims small entity status under 37 CFR 1.27

☒ Yes, applicant qualifies for small entity status under 37 CFR 1.27

☐ No

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Signature

Please see 37 CFR 1.4(d) for the form of the signature.

Signature	Ishtay Sivan		Date (YYYY-MM-DD)	2012-10-23
First Name	Ishtay	Last Name	Sivan	Registration Number (if appropriate)

This collection of information is required by 37 CFR 1.51. 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 8 hours 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. This form can only be used when in conjunction with EFS-Web. If this form is mailed to the USPTO, it may cause delays in handling the provisional application.

PROVISIONAL APPLICATION FOR PATENT

System and method for real time assessment of a picture quality

Inventor: Ishay Sivan

Date: October 23, 2012

ABSTRACT

A system and method for real time assessment of a picture quality produced on multiple sensor device as a smartphone, including data from device sensors like image sensor, accelerometer and gyroscope. This data will be used to produced multiple quality indicators. These values are combined to form a total image quality. The way the combining is done can be configured by the user or be done automatically to give emphasis on certain values. The indication can given before the user has taken the image, and may be given again when the picture is taken, depending on configuration. These quality indicators, including the total indicator, are save along with the final image to be used by other software.

BACKGROUND OF THE INVENTION

Image quality has been assessed by various methods. For example measuring the details and acutance of an image (full reference, no reference, partial reference) via various methods like DCT measurements. Other methods included using gyroscope to measure is the image is leveled or not, or even an accelerometer to hint of device shake. Few are done in real time, like the image level. There are methods to evaluate image blur or evaluate image details like:

1. "A No-Reference Objective Image Sharpness Metric Based on the Notion of Just Noticeable Blur (JNB)" (IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 18, NO. 4, APRIL 2009)
2. "Blur determination in the compressed domain using DCT information" 1999 International Conference on Image Processing, 386 - 390 vol.2

There are methods and programs that use motion detection to tell the user when it is best to press the shutter button, but they don't give a quality evaluation after the user pressed the shutter button. This invention is about combining data from multiple sensors and multiple quality indicators, using today available GPU and CPU to calculate in real time each quality indicator, and about forming a combined total indicator to be shown to the user before and after he has pressed the shutter button.

SUMMARY OF THE INVENTION

In general, each available sensor send its data to another component that process this raw data and outputs a related processed data. From that data (and perhaps some configuration or other sensor input) a quality indicator is formed.

This can be seen in drawing 1 which form a part of this specification.

There are many qualities indicators, depending on device capabilities and implementation:

1. Image leveled to the horizon
2. motion detection
3. camera is focused or still focusing
4. ISO level and how it is related to the specific sensor
5. Exposure time and how is it related to the scene taken if data available
6. Lens focal length, aperture, focus distance and sensor type and model.
7. Histogram evaluation
8. Image details (acutance, corners detected, DCT coefficient for high details, image sharpness)
9. Under and over exposure area
10. Face detection and over or under exposed area near faces.

Electronic Acknowledgement Receipt

EFS ID:	14052091
Application Number:	61717216
International Application Number:	
Confirmation Number:	3674
Title of Invention:	System and method for real time assessment of a picture quality
First Named Inventor/Applicant Name:	Ishay Sivan
Correspondence Address:	Ishay Sivan - Dissentchik 12 - Tel-Aviv - 69353 IL - ishay@ishaysivan.com
Filer:	Ishay Sivan
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	23-OCT-2012
Filing Date:	
Time Stamp:	13:17:53
Application Type:	Provisional

Payment information:

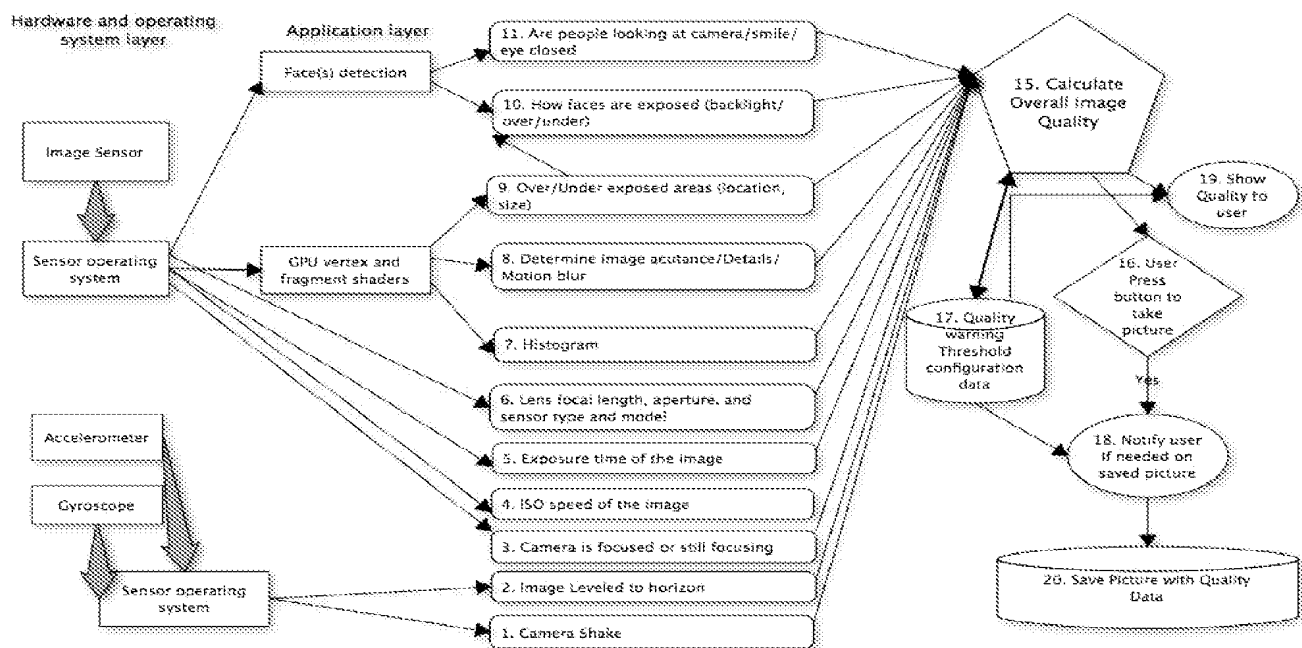
Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 125

RAM confirmation Number	10973				
Deposit Account					
Authorized User					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Provisional Cover Sheet (SB16)	ProvisionalCoverForm2.pdf	3567377	no	2
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Warnings:					
This is not a USPTO supplied Provisional Cover Sheet SB16 form.					
Information:					
2	Specification	Patent.pdf	222928	no	6
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Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	28351	no	2
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Warnings:					
Information:					
Total Files Size (in bytes):			3818656		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

11. Face detection and is face is smiling and/or looking at camera
 These indicators are passed to a component (item 15) that analyzes the relevance of each of them, and with some configuration data (item 17) spills out a “total” quality value.
 The quality indicator can be shown to the user if configured to (item 19).
 Also, given an optional configurable “minimum” quality, a further indication to the user can be made if the image is bellow this quality.
 When the user presses the “shutter” button o take the picture (item 16) another indication to the user may be shown (item 18), dependent on configuration.
 After the user presses the shutter button the image will be saved (item 20) along the quality indication including the total quality. This can be inside the image exif extension or another file.
 In another embodiment it can also be that the image will not be saved or deleted after taken if it is bellow some quality indicator threshold including the total quality indicator.

BRIEF EXPLANATION OF DIAGRAM 1

On the left side of the diagram are the hardware sensor. The bulk arrows indicate raw data transfer to the operating system operating these sensors. As we go from left to right we go into the application layer that uses the input provided from these sensors as the image frame, full image when taken, image parameters and data from raw gyroscope and accclerometer. In another embodiment the application layer can take whatever raw data available from these sensor and bypass the most convenient operating system API that provide the sensor data.
 Face detection can be made in the operating system or application layer.
 The GPU is is programed with vertex and fragment shaders to facilitate real time data input to the application like histogram, image details and over/under exposed areas.
 As we go further to the right of the diagram the quality indicators are created following the logic described herein. These parameters are passed to the application logic as to calculate overall image quality, user warnings and saving of the final image.



DETAILED DESCRIPTION OF THE INVENTION

The invention described herein consists of a system and method for real time assessment of picture quality produced on multiple sensors device as a smartphone. In one embodiment, all of the sensors like image sensor, accelerometer, and gyroscope and so on are embedded in one device. It can be that they are divided in different devices, but send their data to one device where the total indicator is calculated.

Typically, today's smartphone include all these sensor and hardware inside the smartphone. But it is possible that the image will be sent to the device from an external camera via a cable or Wi-Fi.

Image sensor sends its data to the device operating system that may send the whole image or a preview of it to the GPU at a rate of X frame per second.

This image data is passed to various programed GPU vertex and fragment shaders. This will be used for fast calculation of some of the quality indicators.

The following are each quality indicator and how it is calculated:

1. Image leveled to horizon

The device gyroscope (and accelerometer if available) is used to calculate device angle to the horizon, or how the device is leveled. Using this data a quality indicator for device leveled according to its orientation is calculated. For example, zero to 3 degrees is quality "excellent", 3 to 5 degrees is quality "good" and so on. Take notice that the device may be held horizontally or vertically by the user.

2. Motion detection

Device accelerometer data (and gyroscope if available) can be used to determine if the device is accelerating related to the ground reference frame. This calculation can be done via the software embedded in the sensors, the device operating system or manually calculated by software running on the device. Acceleration related to the ground is given as pitch yaw and roll or any other method, to indicated acceleration in 3 axis. These values are used to give a quality indicator on camera shake in real time.

3. Camera is focus or still focusing

The device image sensor may send a signal to the application software component (via the operating system) that the image sensor is focused or still focusing. This will be used to form an "excellent" quality for focused and "bad" quality indicator for still focusing.

4. ISO level and camera hardware exposure data

Data as ISO level, exposure time, focal length, and aperture and focus area is sent from the image sensor to the device operating system to the application software component.

Depending on the device capabilities, like max and minimum ISO, a quality indicator is produced. High ISO gives bad quality vs low ISO that gives high quality indicator.

An optional exposure time quality indicator may be created, if a minimum exposure time is configured.

5. Exposure time

Depending on the scene, the exposure time could give another quality indicator.

For example if we are taking a picture of a dog, we need a fast exposure, so the dog will not be blurred. This could be in conjunction with the detail indicator.

6. Lens focal length, aperture, focus distance, sensor type and model and depth of field

Depending on the device capabilities to change focal length and aperture, and given a known configured scene, a quality indicator can be given to how these parameters confront to the given

scene. For example, a scene with a baby taken 50 cm from him, with a Nikon D300, 50mm focal length lens, aperture of 1.8, means the depth of field will be 2.7 cm. This means that the baby face will not be fully in focus, and a bad quality can be given. For a same configuration with f/8 aperture, an excellent quality can be given.

7. Image Histogram

Using the image frame and some GPU shaders, a histogram can be calculated in real time. In Photography it is well known how a “good” and “bad” histogram looks.

For “typical” images, those with an average range of light and dark areas, a good histogram will basically look like a bell curve that’s centered around the center of the graph. A full explanation will be out of the scope of this document, but a bad histogram means that the colors of the image are mostly pushed to right or to the left.

This data can also be used as a quality indicator, given a threshold configuration.

8. Image details

There are many known algorithms to extract image quality. There are full reference, no reference or partial reference.

For example blur can be detected via “A No-Reference Objective Image Sharpness Metric Based on the Notion of Just Noticeable Blur (JNB)” (IEEE TRANSACTIONS ON IMAGE PROCESSING, VOL. 18, NO. 4, APRIL 2009)

Most algorithms will take too long on current CPU and if can be implemented, may be slow on a GPU as well, but as the technology progresses, these algorithms can be implemented to for a real time, or near real time image quality indicator.

Still, algorithms like Harris corner detection or its variants like Shi Tomasi corners detection can be used to determine if the image frame we have now has more or less details than the previous frame. Combine that with data from the gyroscope and accelerometer, we can know if the device has moved and with this partial reference know if the quality has severely deteriorated or got better. These algorithms may have parameters like sensitivity and threshold for Harris corner detection. The preferred input for these parameters can come from the image sensor like ISO used.

Other algorithms can be to calculate the image acutance, or calculating the image DCT coefficient and look for a high sum of high coefficient (“Blur determination in the compressed domain using DCT information” 1999 International Conference on Image Processing, 386 - 390 vol.2) from each of these algorithms one can determine a quality indicator.

9. Under and over exposure areas

Given a configurable under and over threshold (say 5% from pure white and 3% from pure black) the image frame given to the GPU is processed to calculate areas that are under exposed and areas that are over exposed. The image frame is divided to a configurable number of areas, say 256 areas or 1024 areas. If over a configurable number of percentage of pixels in the area (say 95%) are under or over exposed, the area is marked as under or over exposed.

10. Face detection and over or under exposed area near faces

Face detection can be provided in the application layer or as a service provided by the operating system API or even image sensor raw output data.

This data can be used in combination with the under/over exposure area calculated before, to determine if the faces are under or over exposed, or more likely if there is a particular over exposed area near the face.

If so, the average luminance of the face is calculated. If it is below a threshold, this may indicate the face is underexposed (backlight). This will give a low quality indicator for this “face underexposed” indicator.

11. Face detection and is face is smiling and/or looking at camera

Using the face location, one can determine if the person in each face is smiling and/or looking at the camera. This data can be used for another quality indicator.

Say over 90% of the faces are looking at the camera and 80% are smiling equals an “Excellent” quality, while none are looking and none are smiling indicating a “bad” quality.

Combining the separate quality indicator to a total quality indicator

Each device may have different hardware capabilities, thereby will not include all the possible quality indicators or will not be able to process details indicators due to a slow hardware.

Some indicators may be ignored if configured so by the user. We are now left with a set of indicators to work with.

To come out with a total quality indicator, we will use a weight function, giving each indicator a configured weight.

$$\sum_{a \in A} f(a)w(a).$$

In this formula $f(a)$ is the quality indicator for indicator a out of A possible.

$w(a)$ is the related weight function. Each weight function may be configured by the user, take into account the device capabilities or mix the two. It is also possible that the formula a weight function of one indicator will take into account the data from other quality indicator of quality indicators weight functions.

For example a quality indicator indicating the device has not yet reach focus (item 4) will be given a high weight relative to other quality indicator as “person not looking to camera” (item 5.4)

The sum of $f(a)*w(a)$ will give an un-normalized total quality indicator. It will need to be normalized to fit a quality spectrum shown to the user (for example a spectrum shown to user can be an integer between 1 to 5) or saved alongside the image file.

From that we will get the total quality indicator.

Using the total quality indicator

The total quality indicator can be shown to the user in real time. Also, given a configurable “minimum” quality, an indication to the user can be made if the image total quality indicator is below this minimum.

The indication can show just the total quality or the all the quality indicators below a certain threshold. The indication can be a number of even an icon representing the quality.

For example 5 smiles, each represent a quality indicator.

Smiling face – Good, crying face – bad and so on.

In one embodiment, the picture will be saved without the user having to press a “shutter” button.

If the user needs to press a “shutter” button to actually save the picture, then after the picture is taken, the user can be warned of low quality if needed and configured so.

After in image is taken, the user may have an option to see some or all the quality indicators, and from that get a details sense of what he can do to get a better picture from that specific scene.

It can also be that the image will not be saved or deleted if it is bellow some quality indicator threshold including the total quality indicator.

After the image is saved, the qualities indicators will be saved along with the image so it can be used afterwards.

The user may choose to get suggestions from the application on how to improve the next shot. The application will use the quality indicators and their correlation to answer that.

Claims:

What is claimed is:

1. A system and method for real time calculations of image quality indicators explained herein.
2. A system and method according to claim 1 where the quality indicators are shown to the user before he actually takes the picture.
3. A system and method according to claim 1 where the total quality indicator is shown to the user before he actually takes the picture.
4. A system and method according to claim 1 where the total quality indicator is shown to the user after he took the picture.
5. A system and method according to claim 1 where the quality indicators are saved along with the image, for example inside the exif data
6. A system and method according to claim 1 where the quality indicators are used to decide if to save the image taken.
7. A system and method according to claim 1 where the quality indicators are used suggest to the user how to improve the picture he is taking.

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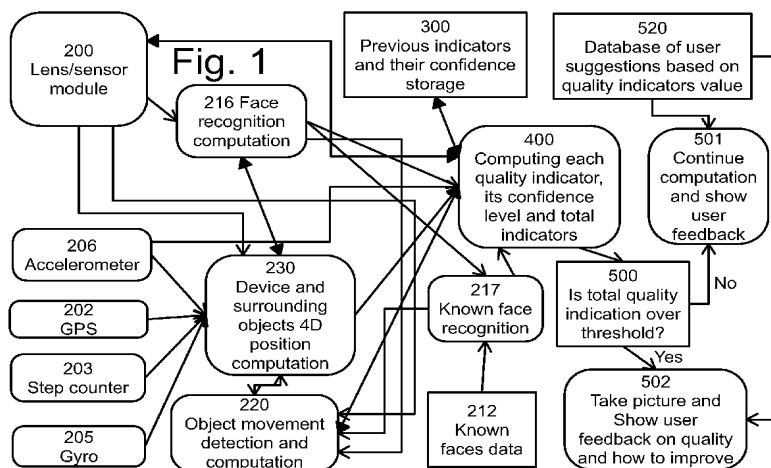
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(57) Abstract: A computerized method for computing the photo quality of a captured image in a device image acquisition system, comprising on-board combining of a plurality of quality indicators computed from said captured image and its previous image frames quality indicators and a confidence level for at least one of said quality indicators; and using a processor to determine, based on said combining, whether photo quality is acceptable and taking differential action depending on whether quality is or is not acceptable.

REAL TIME ASSESSMENT OF PICTURE QUALITY

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REFERENCE TO CO-PENDING APPLICATIONS

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Priority is claimed from two US provisional applications as per the forms attached hereto.

FIELD OF THIS DISCLOSURE

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The present invention relates generally to image processing and more particularly to analysis of photographed images.

BACKGROUND FOR THIS DISCLOSURE

20

Cameras today, even those with good "auto mode" functions, still rely on the camera user to assess a picture's quality, either at the time of taking the picture, or at a later stage. Certain software, such as Photoshop, offers tools to enhance a picture to an extent. Many users simply take more than one picture, say 5-6 pictures, so they will be able to choose one good one.

25

Conventional technology constituting background to certain embodiments of the present invention is described in the following publications inter alia:

a. US 20130155474 in which a user of the mobile device is provided with feedback prior to the capturing of at least one image of a paper document which provides the user with at least one instruction for adjusting at least one measured parameter. Parameter values may be combined into a group threshold or total overall quality score, such that the combination of all of the measured parameter values produces an overall quality score which exceeds a defined threshold value before the image can be captured by the camera. According to this publication, "The user can be provided detailed information to assist the user in taking a better quality image of the

30

document. For example, the blurriness may have been the result of motion blur caused by the user moving the camera while taking the image. The test result messages can suggest that the user hold the camera steadier when retaking the image."

5 b. WO 2006040761 / US20070195174 which describe a system in which the interface module further enables to define the scene dynamics of the captured image and attributes of the captured image scene dynamics include image motion speed and motion speed of the subjects and the interface module further enables setting the captured image attributes relative weight for the computation of the total image grade.

10 c. US20090278958 which describes inter alia that "The scoring of a current base image may be based on scores which have been given to previously captured base images. In such a manner, redundant calculation may be avoided."

 d. Other systems such as the following patent documents: US7362354; WO2003069559; US7688379; US20090263028; US20060017820; US20060056835; US8125557; WO2011148212; US7920727; US20130155474; US8040382.

15 The disclosures of all publications and patent documents mentioned in the specification, and of the publications and patent documents cited therein directly or indirectly, are hereby incorporated by reference. Materiality of such publications and patent documents to patentability is not conceded

20 SUMMARY OF THE INVENTION

 Certain embodiments seek to utilize camera hardware such as accelerometers, gyros and autofocus lenses, inter alia, to evaluate pictures taken in real time, and actively assist in obtaining the best picture given the circumstances at hand.

25 Typically, each available sensor, e.g. accelerometers, gyros, sends its raw data to a processing component 400 that outputs a quality indicator e.g. as illustrated in Fig. 1. and Fig 3. Data may also be sent to Device/surrounding objects 4D position computation component 230 for 4D positioning computation. Raw data may be combined with quality indication from other sensors, such as the camera/lens module 200, that can send its own quality indications. For example, some lens modules can
30 estimate the picture focus quality, as it is a part of their auto focus functionality. Some camera/lens modules may have dual cameras or more for achieving 3D data, sophisticated focusing methods like Lytro light field camera, or their own hardware

sensors like Google Glass. All this available data can be sent to component 400 and Device/surrounding objects 4D position computation component 230 for use of their functions. Various quality indicators, depending on device capabilities and implementation, may be employed.

- 5 Prior art has used certain independent quality indicators, each giving a quality of one particular aspect of a picture, for a given picture. Some try to quantify the quality by means of a total quality indicator. Typically this is done as follows:

$$QI_{total} = \sum_{i=1}^n QI(t)_i$$

Where n is the number of quality indicators (QI), and t is the time of test.

- 10 Some implementations use a weight function in computation, but the weight is either constant or can be change by the user manually.

$$QI_{total} = \sum_{i=1}^n QI(t)_i * w_i(t)$$

- However, in this invention, the weight of one indicator will take into account data from other quality indicator/s e.g. their quality indicator value, weight, confidence level (explained forthwith) in them and their previous value, weight and confidence level. For example, if both device shake quality indicator and/or camera focus quality indicator indicate a poor quality, disregard use of aesthetic quality indicator in total computation, even if user indicated that he would like to give it a high priority. This will prevent the device from taking a picture when the picture is blurry, as is the case in prior art. Once shake is low and focus is optimal, aesthetic QI may be used in total quality computations. One quality indicator's importance or relative weight within the total quality indicator may change over time, if some other quality indicator indicates that the first quality indicator becomes less relevant in quantifying the picture quality.
- 15
- 20

- Furthermore, since each QI algorithm has its own assumptions, and each sensor may have measurement errors, the quality indication (QI) value may therefore not be reliable. Also, a QI value that fluctuates widely may not be reliable, and in certain cases, re-assessment of the quality indicator may be called for. Thus, a "confidence level" in the QI is obtained. These indicators may be relayed to a
- 25

processing component that analyses the current relevance of each indicator, and with suitable configuration, provides a “total” quality value.

This total quality indicator and its detailed list of quality indicators can be used to give the user accurate feedback on the picture quality, whether and how it fits
5 user preferences (configured in 151, used in total QI computation), and provide detailed suggestions on how to take a better picture, if possible.

Suggestions may be provided as an oral message, typically pre-recorded, as an icon on a screen, or as text. Suggestions may use the recorded images as a template for the suggestions. This may include marking over exposed areas in red, or marking a
10 problematic element with a circle.

The quality indicators’ values and total quality indicator can be shown to the user in real time.

Certain embodiments of the present invention include a method which
15 comprises combining data from multiple sensors and multiple quality indicators, using available GPU and CPU, to compute, in real time, each quality indicator, and to form a combined total indicator to be shown to the user before and after he has pressed the shutter button. The user may get, or choose to get, suggestions from the application on how to improve the next shot, using the quality indicators and their
20 correlation.

Further indication to the user can be made if the image is below a certain total quality indicator threshold.

According to one embodiment, quality indications are used to control the lens module 200. For example, focus distance reported may be below hyper focal distance
25 or very short and accelerometer reports movement in direction perpendicular to focus plan. This can be used to find a way to shorten the shutter speed (increase ISO or change aperture for example). Another example may be to change the focus point and possibly focus distance if the object being tracked has moved.

In another embodiment, when the user presses the “shutter” button to take the
30 picture (component 105), the device will wait for the total quality indicator to reach a minimum value/threshold, before taking a full resolution picture as shown in Fig 1. Ideally, this time will be close to the shutter release time. A timeout mechanism can ensure a full resolution picture will be taken, even if the threshold is not reached in a given time after the shutter is released.

A list of suggestions to the users may be for instance “blurred image due to camera shake”, or “blurred subject due to subject movement”, or “Image dynamic range is beyond the sensor dynamic abilities –choose area of interest, or take a high dynamic range (HDR) shot”.

5 Embodiments include but are not limited to:

Embodiment 1. A method for computing the photo quality of a captured image in a device image acquisition system, said method comprising:

10 computing at least one total quality indicator based on at least two quality indicators computed from said captured image and its previous image frames,
to determine whether the photo quality is acceptable; and
providing a corresponding detailed photo quality feedback.

Embodiment 2. A system according to embodiment 1, where automatically activating the capturing apparatus, once a logical criterion based on said quality indicators is met.

15 Embodiment 3: A system, according to embodiment 1 where
a message provider is operative where at least one appropriate suggestion from a pre-stored table of suggestions on how the digital image can be improved further, where said message is presented as a suggestion to the user.

Embodiment 4: A system, according to embodiment 1 where
20 pictures are taken and saved at each frame, but only pictures with a said logical criterion are marked as so.

Embodiment 5: A system, according to embodiment 1 where the stream of frames is saved as a video and;
quality indicators, user preferences, confidence level, and quality importance are
25 used to quantify video quality.

Embodiment 6: A system, according to embodiment 5, used to give a user suggestions on improvement of the video.

Embodiment 7: A system, according to embodiment 1, where computed QI and their confidence levels are used to change parameters in the lens/sensor module to
30 achieve better total QI.

Embodiment 8: A system and method as in embodiment 1 used for automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button.

Embodiment 9. A system using blur type detection for alerting the user of object

movement in a region.

Embodiment 10. A system using blur type detection for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image.

Embodiment 11. A system and method described herein for evaluating video
5 quality.

Embodiment 12. A system with device shake recognition, where a device movement gesture can be used for shutter press indication.

Embodiment 13. A system with device shake recognition, where a device movement gesture can be used for delete picture indication.

10

Also provided, excluding signals, is a computer program comprising computer program code means for performing any of the methods shown and described herein when said program is run on a computer; and a computer program product, comprising a typically non-transitory computer-usable or -readable medium e.g. non-transitory computer -usable or -readable storage medium, typically tangible, having a
15 computer readable program code embodied therein, said computer readable program code adapted to be executed to implement any or all of the methods shown and described herein. It is appreciated that any or all of the computational steps shown and described herein may be computer-implemented. The operations in accordance with the teachings herein may be performed by a computer specially constructed for the
20 desired purposes or by a general purpose computer specially configured for the desired purpose by a computer program stored in a typically non-transitory computer readable storage medium. The term "non-transitory" is used herein to exclude transitory, propagating signals or waves, but to otherwise include any volatile or non-volatile computer memory technology suitable to the application.

25

Any suitable processor, display and input means may be used to process, display e.g. on a computer screen or other computer output device, store, and accept information such as information used by or generated by any of the methods and apparatus shown and described herein; the above processor, display and input means
30 including computer programs, in accordance with some or all of the embodiments of the present invention. Any or all functionalities of the invention shown and described herein, such as but not limited to steps of flowcharts, may be performed by a conventional personal computer processor, workstation or other programmable device or computer or electronic computing device or processor, either general-purpose or

specifically constructed, used for processing; a computer display screen and/or printer and/or speaker for displaying; machine-readable memory such as optical disks, CDROMs, DVDs, BluRays, magnetic-optical discs or other discs; RAMs, ROMs, EPROMs, EEPROMs, magnetic or optical or other cards, for storing, and keyboard or mouse for accepting. The term "process" as used above is intended to include any type of computation or manipulation or transformation of data represented as physical, e.g. electronic, phenomena which may occur or reside e.g. within registers and /or memories of a computer or processor. The term processor includes a single processing unit or a plurality of distributed or remote such units.

The above devices may communicate via any conventional wired or wireless digital communication means, e.g. via a wired or cellular telephone network or a computer network such as the Internet.

The apparatus of the present invention may include, according to certain embodiments of the invention, machine readable memory containing or otherwise storing a program of instructions which, when executed by the machine, implements some or all of the apparatus, methods, features and functionalities of the invention shown and described herein. Alternatively or in addition, the apparatus of the present invention may include, according to certain embodiments of the invention, a program as above which may be written in any conventional programming language, and optionally a machine for executing the program such as but not limited to a general purpose computer which may optionally be configured or activated in accordance with the teachings of the present invention. Any of the teachings incorporated herein may wherever suitable operate on signals representative of physical objects or substances.

The embodiments referred to above, and other embodiments, are described in detail in the next section.

Any trademark occurring in the text or drawings is the property of its owner and occurs herein merely to explain or illustrate one example of how an embodiment of the invention may be implemented.

Unless specifically stated otherwise, as apparent from the following discussions, it is appreciated that throughout the specification discussions, utilizing terms such as, "processing", "computing", "estimating", "selecting", "ranking", "grading", "calculating", "determining", "generating", "reassessing", "classifying", "generating", "producing", "stereo-matching", "registering", "detecting",

"associating", "superimposing", "obtaining" or the like, refer to the action and/or processes of a computer or computing system, or processor or similar electronic computing device, that manipulate and/or transform data represented as physical, such as electronic, quantities within the computing system's registers and/or memories, into
5 other data similarly represented as physical quantities within the computing system's memories, registers or other such information storage, transmission or display devices. The term "computer" should be broadly construed to cover any kind of electronic device with data processing capabilities, including, by way of non-limiting example, personal computers, servers, computing system, communication devices,
10 processors (e.g. digital signal processor (DSP), microcontrollers, field programmable gate array (FPGA), application specific integrated circuit (ASIC), etc.) and other electronic computing devices.

The present invention may be described, merely for clarity, in terms of terminology specific to particular programming languages, operating systems,
15 browsers, system versions, individual products, and the like. It will be appreciated that this terminology is intended to convey general principles of operation clearly and briefly, by way of example, and is not intended to limit the scope of the invention to any particular programming language, operating system, browser, system version, or individual product.

20 Elements separately listed herein need not be distinct components and alternatively may be the same structure.

Any suitable input device, such as but not limited to a sensor, may be used to generate or otherwise provide information received by the apparatus and methods shown and described herein. Any suitable output device or display may be used to
25 display or output information generated by the apparatus and methods shown and described herein. Any suitable processor may be employed to compute or generate information as described herein e.g. by providing one or more modules in the processor to perform functionalities described herein. Any suitable computerized data storage e.g. computer memory may be used to store information received by or
30 generated by the systems shown and described herein. Functionalities shown and described herein may be divided between a server computer and a plurality of client computers. These or any other computerized components shown and described herein may communicate between themselves via a suitable computer network.

BRIEF DESCRIPTION OF THE DRAWINGS

Certain embodiments of the present invention are illustrated in the following drawings:

5 Fig. 1 is a functional block diagram of a system and method for real time assessment of picture quality produced on a device, e.g. as shown in Fig. 2, having multiple sensors including use of hardware sensor data to generate and utilize picture quality indications.

10 Fig. 2 illustrates a hardware and operating system (OS) layer which is operative in conjunction with the functional block diagram of Fig. 1.

 Figs. 3 and 4 illustrates component 400 in detail and a sample of a quality indicator computation dependence, all according to certain embodiments.

 Computational components described and illustrated herein can be implemented in various forms, for example, as hardware circuits such as but not
15 limited to custom VLSI circuits or gate arrays or programmable hardware devices such as but not limited to FPGAs, or as software program code stored on at least one tangible or intangible computer readable medium and executable by at least one processor, or any suitable combination thereof. A specific functional component may be formed by one particular sequence of software code, or by a plurality of such,
20 which collectively act or behave or act as described herein with reference to the functional component in question. For example, the component may be distributed over several code sequences such as but not limited to objects, procedures, functions, routines and programs and may originate from several computer files which typically operate synergistically.

25 Data can be stored on one or more tangible or intangible computer readable media stored at one or more different locations, different network nodes or different storage devices at a single node or location.

 It is appreciated that any computer data storage technology, including any type of storage or memory and any type of computer components and recording media that
30 retain digital data used for computing for an interval of time, and any type of information retention technology, may be used to store the various data provided and employed herein. Suitable computer data storage or information retention apparatus may include apparatus which is primary, secondary, tertiary or off-line; which is of

any type or level or amount or category of volatility, differentiation, mutability, accessibility, addressability, capacity, performance and energy use; and which is based on any suitable technologies such as semiconductor, magnetic, optical, paper and others.

5

DETAILED DESCRIPTION OF THE INVENTION

Certain embodiments of the present invention include a system and method for real time assessment of picture quality produced on a device having multiple sensors, such as a smartphone. In one embodiment, all of the sensors, such as but not limited to an image sensor, accelerometer or gyroscope, are embedded in one device. It may be that they reside in different devices, but send their data to one device where the total indicators are computed.

Fig. 1 is a functional block diagram of a system and method for real time assessment of picture quality produced on a device, e.g. as shown in Fig. 2, having multiple sensors including use of hardware sensor data to generate and utilize picture quality indications.

Referring now to Fig. 1, a Lens/sensor module 200 such as OmniVision OM8865 may be characterized by and/or generate photographic parameters, including but not limited to some or all of:

- a) The current image the sensor receives, referred to as a frame or image
 - b) ISO speed (current, min, max)
 - c) Is camera focused (yes/no/estimate if available).
 - d) Aperture
 - e) Focal length
 - f) Shutter speed
 - g) Focus rectangle, or area of interest
 - h) Sensor type and size -- for example BSI2 CMOS 1/2.5 inch
 - i) Depth of Field
 - j) Scene mode or user preferences.
- These parameters may be used for computing quality indicator values and their confidence level, as indicated in Fig 3.

The module 200 sends continuous video frames of the scene in front of the device lens, and data from other sensors is continuously received and analyzed in real

time.

Typically, a smartphone includes all such sensor and hardware inside the smartphone. However, it is possible that the image may be sent to the device from an external camera via a cable or Wi-Fi. The image sensor sends its data to the device operating system that may send the whole image or a preview of it to the GPU 122 of Fig. 2 at a rate of X frames per second. This image data is passed on to various programmed GPU vertex and fragment shaders. It is then used for fast computation of some of the quality indicators.

Fig. 2 illustrates a hardware and operating system (OS) layer, which is operative in conjunction with the functional block diagram of Fig. 1.

Errors and probability in quality indicators

When prior art computes a quality indicator value, it was done without taking into account the possibility of error in the computed QI, as all sensors give out errors.

For example, a user wishes to compute a quality indicator for device shake based on data from accelerometers. Accelerometers have precision errors and drifting errors over time. If the user wishes to compute a speed vector, this will be relevant. The speed may be assumed to be 100 ± 3 . A GPS can estimate location and speed errors via its location computation. Errors may also occur as a result of blurriness of some sort, or may result from image resolution and many other factors. For example, assuming a device is moving at a constant speed, and V_i is the computed speed in frame i , where $1 \leq i \leq n$, then if value V_n is 2 standard deviation from the average speed measured so far, (and assuming a normal distribution), then probability for this value is 5%, denoted $P_i(t)$. Most of the time the speed may not be constant, but the above technique can nonetheless can be applied, mutatis mutandis, when errors can be estimated. The probability factor P , is closely related to the nature of the quality indicator and hardware used. For example, a GPS device has its own algorithm for that e.g. Kalman Filters. Beyond mere errors, recognition or pattern algorithms have assumptions that can be related to "probability" of the feature been searched. For example in object recognition, if 4 out of 5 features for this object (face, lamp, chair) have been recognized, a probability P of 80% is indicated. Other examples may be comparison to a similar image for same scene recognition, as objects have moved or just look similar. Aesthetic fit algorithms employ "probability" which pertains to this.

Confidence level of quality indicator

Thus far, only a current image has been illustrated, but previous data can aid in computation of a better confidence level. This depends on the QI in question and the nature of the errors, but assuming a general case, one way of computing the confidence level of QI_i denoted C_i(t) is

$$C_i(t) = P_i(t_{j2}) * N(P_i(t_{j2}))$$

$$N(x) = e^{\frac{-(x-\mu)^2}{2\sigma^2}}$$

$$\mu_i = \sum_{k=t_1}^{t_2} \frac{P(t_k)_i}{k_2 - k_1}; \quad \sigma_i = \sqrt{\frac{1}{n} \sum_{k=1}^n (P(t_k)_i - \mu_i)^2}$$

t_{j2} is the time of frame j₂, the last frame so far.

t_{j1} is the time of minimum frame j₁ computation which may be used.

N(x) is a formula for a normal distribution, σ the standard deviation and μ the mean value. The values in the distribution here are P_i(t)

In the formula for computing normal distribution and standard deviation, there is a limit on the “looking back” portion of the computation, so when a significant event occurs at frame j₁, it may be reset.

This example uses normal distribution, since nothing is known about the QI at hand, but this need not be the only distribution function. For example, if the location is measured by an accelerometer, accelerometer readout errors and drifting errors over time may be used to construct a better distribution function. For example, an accelerometer distribution function may be different for high acceleration and for low acceleration, since in low values the distribution will be more spread out than in high values.

Mean μ_i and standard deviation σ_i are computed from a specific frame j₁ until the current time (or just until the previous frame). This way a significant event in j₂ can be an indication to reset j₁ to j₂, so the computations will not use frames before j₂.

In another embodiment, one that doesn't use old data N=1, thus

$$C_i(t) = P_i(t_{j2})$$

There may be other methods to compute confidence. For example, GPS location algorithms (such as a Kalman filter) have their own way of computing confidence in the location, especially but not limited to, the mean of error in position.

If current GPS data say location has changed 3 meters in the last 15 milliseconds, but accelerometer data shows no change, and assuming that it is known from past computations that speed is relative zero, then the GPS data may not be trusted, and confidence in the GPS QI for movement, is low.

- 5 In another example, it may be that the lens module 200 report image is in focus, however independent focus blur QI 244 image is not in focus. This can affect the confidence of QI in component 248, where lens module QI is computed.

One way to compute the confidence level that is dependent on other values can be expressed as

$$C_i(t) = P_i(t_{j2}) * N(P_i(t_{j2})) * \prod_{k=1}^n f_{ik}(t, QI(t)_k)$$

- 10 Where n is the number of available quality indicators, and i and k are running indices of the current quality indicator in question. The function f_{ik} denotes a function specific to these quality indicator correlations. If there is no correlation, the function will be regarded as the scalar 1. In the above example, i being QI in component 248, and one some value $1 \leq k \leq n; k \neq i$ where k is the index for QI in component 244, 15 the value of f_{ik} can be 0.5 if $QI(t)_k < 0.7$. (In this example all QI and confidence levels are normalized to 1).

More examples of use and computation of confidence levels are now described, as other components and quality indicators are introduced.

20 **Quality indicators use of previous frames data**

- The QI used in the total quality indicator, $QI_ForTotal(t)_i$ employs the current value of $QI_i(t)$ but also the confidence level. The confidence level is a function of old values inherited by virtue of distribution formula $N(t)$. So if the QI value is 25 significantly different then expected, the QI value's confidence level may drop thereby bypassing a current QI that may be problematic.

- Other ways to bypass or wholly or partially discount a current wayward QI value include, say, recognition of an object or face. The object may have been in the field of view one frame ago, with high confidence, say 1/30 of a second ago. Now the QI say 30 the object is no longer there, perhaps with low $P_i(t)$ value. It is possible however that the object in fact is still there; just the recognition algorithm has misses the object. In

this example the method may override the current QI with the previous one, at least for a frame or two. More generally, old QI may be employed, particularly if its confidence level exceeds newer QI values, to generate an improved current QI value. One embodiment could be an average of the last few frames that had a high
5 confidence level. The availability of old QI, errors in them via P_i , and the computation of C_i provide other methods for determining the value of $QI_i(t)$ e.g. for use in the total indicator. Algorithms of deep learning in neural networks, applied to confidence level data inter alia, may be used to better compute a current value of the quality indicator.

10 The following are examples of quality indicators and computational functionalities therefor, some or all of which may be provided as shown in Fig. 1:

Blur detection in component 244

15

Image blur can be of 2 types: focus or movement. In order to detect blur, quantify it and alert the user, its origin may be determined, so the user will have information on why the picture has inferior quality.

Blur caused by movement can be either due to the imaging device having moved
20 (usually shake) and/or because the object which was photographed, moved. Both movements refer to the time the image is taken, and the shutter speed.

There are many algorithms for testing blur via frequency distribution in k space transformation such as DCT or other Fourier transform variants, for example prior art US20110096180. Other ways may be testing signal-to-noise ratio and
25 searching for peak signal-to-noise ratio (PSNR). These algorithms can be used to create a blur quality indicator in component 244. This may assist in double checking the camera module 200 own focus assessment used in computation of QI in component 248. This is an advantageous step, since many quality indicators function better when they use previous frames, assuming they are all in focus. Retesting
30 lens/camera module 200 own focus assessment may therefore be helpful.

Device movement indication based on accelerometer

Camera shake and movement can be quantified using an accelerometer
206 to measure device 3D acceleration, and integrating this over time to determine

camera speed. The time of resetting the speed to zero is advantageous, since computation rounding and sensor errors may accumulate over time. This can be done in a few ways, for example: zero speed can be accessed when the device's acceleration is minimal and back and forth over a long time (meaning device is
 5 around some point in space).

Device movement quality indicator 270

A person of skill in the field of photography would recognize the rule of thumb of focal length which may be reciprocal to the shutter speed if one wants to
 10 avoid camera shake due to hand shake. Component 200 provides these two parameters. Device/surrounding objects 4D position computation component 230 provides a position of the device as a function of time in some degree of confidence. Given an average hand jitter speed, one can set a threshold of the accepted speed of the device. For example, assume that for a shutter speed 1/15 of a second, speed may
 15 be less than 2 mm per second. 1 mm per second may provide excellent quality, 2 mm per second good quality and 2 cm per second very poor quality. Also a depth of field of the picture (DOF) can be computed, using the focus distance, aperture of the lens and so on. If the depth of field is small and subject distance is short (macro photography), then movement of the device in the z axis may have a profound effect
 20 on quality but for most pictures and devices this is not the case.

For example, a scene with a baby taken from 50 cm away with a Nikon D300, 50mm focal length lens, aperture of 1.8, means the depth of field may be 2.7 cm. This means that the baby's face may not be fully in focus, and an inferior quality may be indicated. For the same configuration with f/8 aperture, an excellent quality may be
 25 indicated.

These computations may aid in determining the importance of movement in the Z axis to the value of the QI. Let a function $I_3(x)$ be the importance of the z axis. In one embodiment $I_3(x)$ may be an exponential function of some sort. The other axes, x and y, each have their own function. They can also have an exponential function, but with
 30 a different factor. Given the speed V_i in each direction as given by Device/surrounding objects 4D position computation component 230 the following can be computed:

$$QI_{\text{device motion}} = \frac{\sum_1^3 I_i(x_i) * V_i(t)}{3}$$

This is one possible method for computation of the base QI for device motion which is not intended to be limiting. Other embodiments may for example use confidence levels .

Component 200 may have some kind of image stabilization - sensor shift, lens
5 stabilization or other. In this case the lens or sensor movement speed in these image stabilizations may be incorporated into the speed $V_i(t)$ in the formula above, for the QI to be correct. If this cannot be achieved with sufficient accuracy, the errors may be incorporated into this QI confidence level.

10 **Object movement component 220**

There are many methods of computing a motion vector. A block matching method may be used, or a gradient method, etc., or if the motion vector information is included in the input image signal in some form, this information may be utilized. The motion of the objects in the image frame is caused by the combination of two factors:
15 real object movement and apparent movement caused by device movement.

When computing object speed in the image frame, one must subtract the device movement as computed in Device/surrounding objects 4D position computation component 230 from the object speed vector computed.

Methods of statistical pattern recognition may be used to fully recognize
20 actual objects, such as a chair, a tree, a face or a car. If either the imaging device or object is moving, the identity of the object may be considered as a factor for the related confidence level; e.g. a car is much more likely to be moving during imaging than is a tree. Objects that are in the focus rectangle or area of interest are more significant to quality. If there is some movement at a far end region (or: at a
25 significant distance), this may not greatly affect the quality indicator.

Object movement quality indicator 260

The data from component 220 can be used to create a quality indicator about blur due to subject movement. Normally, no movement would indicate excellent quality, and high-speed movement would indicate low quality.

30 Some objects are more important than others for a "good" picture. For example, often a face is more important than a chair. In order to compute this subject movement quality indicator, each object may be recognized and its movement vector and significance may be factored into the quality indicator dependent on this object's movement.

This computed data may be used to alert the user of motion of a specific object that is considered important such as a face located in the center of an image.

One way of computation of this quality indicator, noted $QI_{\text{subject movement}}$, may be:

$$5 \quad QI_{\text{subject movement}} = \frac{\sum_n A(x_i) * B(x_i) * S(x_i)}{n}$$

where $A(x)$ – binary/multi-value indicator: is object inside or outside of; within, close to or far from, the focus/interest area rectangle

$B(x)$ – importance of object to a picture

- 10 $S(x)$ – object speed factor. A desired speed may be assigned a “high” value of 1, and 0 may be assigned for non-desired speed, with possible values in the middle. If the object is not to look blurred, it should be standing still relative to the current shutter speed. In that case a high value may be a slow speed. However, speed of an object may be desirable, e.g. to create the artistic impression of movement in the picture. In
- 15 such a case, a high value may be assigned to a high speed.
- Each factor is normalized to 1 in this example.

- In one embodiment, if the motion vector’s estimation quality is not sufficient, the camera module may be instructed to take a picture of a different exposure, say a
- 20 shorter one, to measure the movement more precisely.

Computing object motion vector via corners detection

- Algorithms such as Harris corner detection or its variants such as Shi Tomas corners detection may be used to determine whether the new image frame has more or less
- 25 details than the previous frame. This determination may be combine with data from the gyroscope and accelerometer, if provided, to indicate whether or not the device has moved and/or the quality has severely deteriorated or increased.

- The total quality indicator can be shown to the user in real time. Also, given a configurable “minimum” quality, an indication to the user can be made if the image
- 30 total quality indicator is below this minimum.

In each region, the number of corners are counted and their center of gravity is computed. This is done for each region on each frame. The path of each center of

gravity may then be followed over each region and a motion vector may thereby be computed. This may be feasible if the speed of the object is slow, since when the speed is quick, the corners may become blurred.

5 **Image leveled to horizon quality indicator 271**

The device gyroscope 205 and accelerometer 206, both of which may or may not be provided or available, may be used to compute device angle to the horizon, or how the device is leveled. Using this data, a quality indicator for “device leveled according to its orientation”, is computed. For example, zero to 3 degrees is “excellent” quality,
10 3 to 5 degrees is “good” quality and so on. The user may hold the device either horizontally or vertically.

Camera focus quality indicator 248

As already mentioned, component 200 may send to component 248 data if component 200 is currently in focus, thereby to form an “excellent” quality indicator
15 level for already-focused and “bad” quality indicator for still-focusing. Some camera modules may provide a focus estimation of their own. In such cases, this may be incorporated into or replace the quality indicator to provide more than a yes/no quality indication.

Furthermore, when the lens focuses, the frames received from the camera module
20 are blurred, so the quality indicators related to the blur or object motion detection may be affected. In one implementation, the frames with low focus quality, may be removed when computing these quality indicators.

The lens/camera module 200 may also report its own focus confidence level.

Ideally, the focus indication sent by component 200 may coincide with component
25 244 QI. However, if it does not, say 244 indicates out of focus and 200 indicates in focus, this can be used to lower 248 confidence level, as demonstrated in the confidence level section.

Face detection quality indicator 249

This quality indicator indicates whether there is a face or faces and whether the
30 face is smiling and/or looking at the camera. These indicators are passed on to a component 249 that analyzes the relevance of each of them, and yields a “total” quality value for this quality indicator.

Furthermore, one may determine if each face is smiling and/or looking at the camera. This data may be used for a quality indicator. For example, a scene in which

over 90% of the faces are looking at the camera and 80% are smiling, equals “excellent” face quality, while a scene in which none are looking and none are smiling indicates “bad” quality. Importance of the smiling/not smiling factor may be configured by the user via component 151.

5 **Recognized face quality indicator 250**

The device may have a list of configured faces to recognize and for each, pre-stored, their importance, say a user family member or work colleague. The data may also include specific face features. This is denoted as component 212,

10 Recognition of these faces in component 217 may be used by component 250 to produce a quality indicator based on importance as well as face quality, as before. Face importance may change over time by the user, or automatically, by learning user preferences. Confidence level may be computed similarly to 249. However, since it is a known person, more data may be obtained to enhance face recognition, such as face features from various angles, glasses, etc.

15 **ISO level and camera hardware exposure data 245**

Data such as ISO level, exposure time, focal length, and aperture and focus area is sent from the lens/camera module 200.

20 Depending on the device capabilities, such as maximum and minimum ISO, a quality indicator is produced. High ISO gives bad quality vs low ISO that gives a high quality indicator.

An optional exposure time quality indicator may be created, if a minimum exposure time is configured.

Lens focal length, aperture, focus distance, sensor type and model and depth of field 247

25 Depending on the device capabilities to change focal length and aperture, and given a known configured scene, a quality indicator may be provided to indicate how these parameters confront the given scene. For example, if the scene is a portrait and no face is detected by component 216 yields a bad QI.

30 Another example may be to use the sensor type and model (component 200) to yield a QI related to it – professional quality may yield good quality, when a poor quality, less costly component, yields poor quality.

Another embodiment for this QI is for testing background blurring, which may sometimes actually be desired. For example, a scene with face recognition in 216 and a very small aperture, say f10 with focus distance in the hyper focal distance of

component, 200 yields a bad quality, whereas a wide aperture, say f2.8 on these conditions, yields a good quality.

Under and overexposed quality indicator 243

Given configurable under and over thresholds (say 5% from pure white and 3%
5 from pure black) the image frame given to the GPU is processed to compute areas that are underexposed and areas that are overexposed, e.g. similar to the zone system by Ansel Adams known in the field of photography.

The image frame is divided to a configurable number of areas; say 256 areas or 1024 areas. If a configurable number of percentages of pixels in an area (say 95%) are
10 under or over exposed, the area is marked as under or over exposed. If the image sensor or operating system supports scene recognition/ scene mode, or object recognition is present, then the image sensor or operating system may be used in the evaluation of this quality indicator. For example, if the sun or a lamp is the brightest area in the image, they may be ignored. A point of bright light like the sun or a light
15 bulb may be recognized by their pattern and may be ignored.

On another embodiment, the computation may be based on percentage of over and underexposed pixels in the image.

An image in which a large percentage is marked as over or under exposed, say over 40%, may get a bad over/under quality indicator. The same thresholding method may
20 be used for the method of areas described before e.g. if over 40% of 256 areas are considered over exposed.

In another embodiment, pixel or areas inside or outside the focus area of the picture, as given by the lens/camera module 200, may have a different weight e.g. pixels or areas outside the focus area may have a lower affect on the quality indicator value.

25 This indicator may be used to indicate to the device that an High dynamic range (HDR) shot may be taken, and may be done either automatically or by notifying the user. Depending on the device, this may be done automatically by taking 2 pictures with different exposure settings.

Histogram quality indicator 241

30 The under/over quality indicator is a special case of a more general quality indicator taking into account not just the histogram extreme, but also its central part, and also taking into account function structure and lens/camera module 200's available dynamic range.

This may be no reference, or a full reference (meaning in computation there is or

there is not a reference to a preferred image), e.g. as in “The Design of High-Level Features for Photo Quality Assessment” by Yan Ke, Xiaoou Tang and Feng Jing.

Obstructing the lens quality indicator 246

Obstructing the lens may occur as a result of putting the finger partly or fully on the lens. For example, in bright conditions there may be a brown-red area in one corner. In dark conditions there may be no light at all in that location. Confidence in having recognized the situation may be enhanced as more frames are taken and the camera is moved around because if there is no obstruction on the lens, then the size of the area previously believed to be obstructed, would change significantly. There may be other objects causing obstruction that may be recognized. If they are recognized, their name can be used in feedback to the user, instructing him to remove the obstruction.

The amount of area and confidence may be used to give this quality indicator a degree/rating between “excellent” and “bad”. For example, a finger blocking the lens may look on the image as a brownish area, probably in a corner of the frame. If the color were green, or it is an isolated area in the middle, the confidence would be low.

For the previous example (finger blocking appearing as a brownish area) the confidence is high.

Functionality 230 - Measuring distance to objects and creating a 4D environment measurement in real time e.g. by computation of Device/surrounding objects 4D position

As already described, the speed of the device in each direction may be measured and the distance traveled may be computed.

With the help of a GPS (e.g. based on unit 202 in Fig. 1) and/or step counting hardware (unit 203) accuracy in the range of a few dozen or a dozen or centimetres or even a single centimetre may be computed by a person skilled in the area for the device 3D relative position in time, thereby to yield 4D position.

This could be used by component 270 to yield better QI accuracy. By measuring the boundaries of an object in one location and again in another location, after moving the device, the distance to the object may be measured (assuming the object is still). e.g. via parallax. Parallax is the apparent displacement of an object because of a change in the observer's point of view. Since cameras today easily achieve 8MP and more, typically, distance can be computed providing parameters such as lens focal length from component 200.

The 3D scene is built according to the input images from the image capturing unit 200 or any other sources. It can be based on multi-view image geometry techniques as introduced in “Multiple View Geometry in Computer Vision” by R. I. Hartley, A. Zisserman, Cambridge University Press (2004). The user may help by moving the
5 device, either by walking a few steps or holding the device at full arm’s length and swinging it pointing to the scene in question. However, a full 3D scene reconstruction is not required. A partial reconstruction, including scene change in time, may suffice.

Since the methods used to estimate the distance include integrated estimation, such as the distance is between 2 to 3 meters, a confidence level on each object can be
10 constructed, similar to that described in the confidence level section. Also, since the device position itself may have errors or uncertainties, this also can be used in the confidence level of each object. This confidence level can then be used by quality indicators using this component data, so that they may implement their own confidence level.

15 **Aesthetic rules quality indicators 240**

In photography, there exist ‘golden rules’ for fitting of the composition to a section that may give a better aesthetic looking picture. There are heuristics that provide a means of achieving an eye-pleasing composition such as but not limited to: rule of thirds, golden triangle, golden spiral, shapes and lines, amputation avoidance, visual
20 balance, and diagonal dominance.

For example, when taking a picture on a beach, the sea and sky meet on the horizon ‘line’. To fit this rule, one must put the line either at one third-height or two-thirds height, thereby fitting the “rule of thirds”. Either one is “correct”. However, putting the line in the middle creates a composition that is considered less favorable to the
25 viewer.

There are various methods of testing a fit to this rule, for example in “Photographic”, *Volume 29 (2010), Number 2* “Optimizing Photo Composition” by L. G. Liu, R. J. Chen, L. Wolf, and D. Cohen-Or.

Further types of aesthetic models exist, based on chroma and exposure. Some may
30 only give a non-reference quality indication without suggestion on coordinate change, as in the previous article. For example, a model is described in published US20130188866.

In another embodiment, multiple aesthetic qualities may be used.

This aesthetic QI, can be used for suggestion to the user to move from his

current location to another location, together with the other quality indicators like under/over, it may be suggested to the user that he should move from his current location.

For example, a lamp in the street behind a person at night will not be good even if it fits a golden rule. Using data from Device/surrounding objects 4D position computation component 230, we can assess distance to the person's face, say 2 meters, the distance to a lamp of 4 meters height 4 meters behind him, we can suggest to the user that he should move 2 steps to the right and one forward, tilting the device 20 degrees to the left if he wishes to achieve a better aesthetic QI score and a better total QI.

Functionality 242: Same scene quality indicator

One of the problems solved by certain embodiments of the present invention include a processing system to reduce or eliminate any need to take multiple pictures of the same scene, in order to get one good picture. If the proposed system negates this need, it may be helpful to indicate to the user he is taking unnecessary pictures that may only be a burden at a later stage.

This is a heuristic quality indicator, taking into account the time, location of device, angle of device, object movement in the device and other parameters, including but not limited to photographic parameters such as ISO and focal length. It may require these parameters of previous pictures taken in recent time. One possible implementation includes comparing each QI and its confidence data to the QI and associated confidence level of a previously recorded and saved image in the last say 5 seconds (configurable). If the data of each QI is the same, it may be concluded that it is a "bad" same scene quality indicator.

Functionality 400 and 401: Combining the separate quality indicators to total quality indicators

As described herein, some quality indicators and their confidence levels may depend on other QI data. For example, aesthetic QI computation 240 may need the data on image leveled to horizon from component 271. If confidence of 271 is very low, it may not use any other data. Some, but not limited to, examples of QI computation components can be seen in Fig 3.

Some quality indicators may be considered mandatory (unless specifically turned

off) since they cause unacceptable blurring of the image:

- Focus
- Subject movement
- Device movement

5 Each device may have different hardware capabilities, thereby may not yield all the possible quality indicators or may not be able to process detail indicators, due to slow hardware. Some indicators may be ignored, if so configured by the user. One is then left with a set of indicators with which to compute.

A QI use in a total indicator may vary depending on situation. For example,
 10 “overexposed” quality indicator computation 243 may use data from object recognition in component 220. If the picture shows a sunset, it is likely that there will be over and underexposed areas, so in one embodiment it may be chosen to decrease importance of a sun-lit area and be less sensitive to overexposed QI in total computation. In another example, face exposure check may be increased if the face
 15 quality indicator suggests there is a face.

$$QI_ForTotal(t)_i = QI(t)_i * \prod_{j=1}^n f_{ij}(t, QI(t)_j, C_j)$$

As can be seen in this formula, there is a dependency in the confidence level C_j before it is used, so data of QI with low confidence level may not be used. There may be other ways to formulate these connections. This may be employed as a general case.

$$QI_{total} = \sum_{i=1}^n QI_ForTotal(t)_i * w(t, C_i)_i$$

$W(t)_i$ is the weight of each QI in the total and may be used to ignore QI if desired.
 20 $W(t)_i$ is dependent on time, since the user may choose to change it. $W(t)_i$ may be dependent on the confidence level. For example, if it is not desired to include below say 10% confidence, and w_i will be zero if $C_i < 0.1$.

There can be more than one type of total QI. For example, when computing total QI, and only mandatory QI are chosen (QI's considered mandatory by an application or use case), a mandatory total QI may be provided. This QI may be used to decide when
 25 to take the picture, e.g. as described below. Another option is to use all the QI to get a sense of the picture quality as a whole. One can choose to formulate other total QI for other needs.

This formula is just one way to achieve a total indicator that is dependent on quality

indicators, their confidence levels and their relations. The idea is to enable a general formula as quality indicators are added or removed in some embodiments, or for different implementations with various levels of complexity and interconnections between QI.

5 **Functionality 502: Taking a picture at the proper time using total quality indicator**

It may be that the picture will not be taken when the shutter is pressed, but only when a minimum threshold on specific QI with specific confidence level is met, when a total QI minimum threshold is met, or timeout occurs.

10 In such cases, the user may be shown, in real time, the QI values and possible suggestions, as indicated in 501. The data for the suggestions may be in 520, where QI and their confidence level may be used to show suggestions. Suggestions can be shown for QI how a value is no good, and confidence level beyond a threshold, say 0.7

15 The QI indication user interface may be a number, and may even be an icon representing the quality. For example 5 smiles may each represent a quality indicator. Smiling face – good, crying face – bad, and so on.

 A picture, once taken, may be shown to the user with its quality indicators, together with further suggestions on how to improve (for example “image is underexposed in a large area”).

20 The image may not be saved or may be deleted if total QI or any other predetermined QI is below some quality indicator threshold. After the image is saved, the quality indicators may be saved along with the image (one embodiment may be to use the EXIF convention used in JPEG files) so that they may be used at a later stage, such as when a user wants to see the picture quality days after it was taken.

Suggestions to the user on how to improve the picture and component 520

 The user may choose to get suggestions from the application on how to improve the next shot. The application may use the quality indicators and their correlation to answer that.

 This can be done before a final picture is taken and/or after. The application may use quality indicators, their confidence level, importance and their correlation to respond. This is where the database with user suggestions, component 520, is used. The data in this can be a table of text to be shown for every given QI with a low

value. In a more complex embodiment, it can be an SQL table being queried by multiple QI. An example of such a query on the database may be “select * from suggestion_table where QI1 > 0.9 and QI2 < 0.2” In this example QI1 can be module 200 ISO speed and QI2 can be device shake QI. The text retrieved can be “Try to use
5 higher ISO speed to counteract device shake”. Another example can be QI1 is QI of 248 and QI2 is of 244. The text retrieved can be “focus may be off. Focus one another subject and try again”. There may be more complicated queries and embodiments, as a person in the field of databases can easily construct, given ideas from a person in the field of photography.

- 10 Text suggestions may be accompanied by an image explaining them. For example, if there is a low quality indicator of under/over exposure, the implication may be presented to the user via text, and overexposed areas on a picture preview may be painted in red, and underexposed areas may be in blue.

- The confidence levels may aid in recognizing the best suggestion to be retrieved
15 from a table of suggestions. For example, one may use a QI with confidence larger than 0.5, and show suggestions in the order of confidence levels. In another example, certain QIs may always have priority over others, even if their confidence levels are lower than others, as long as they are higher than, say 0.7.

Device movement gestures as indications for shutter press and delete

- 20 In another embodiment the user may not need to indicate he is ready by first pressing the shutter. In such cases, the device may assume that the user is ready at any time, or may wait for the device to be stationary hence pointed at some specific point in space for a certain configured time. For example, the user may pull the device out of his pocket and point it to the desired scene and hold it there for a duration of one second.
25 The device hardware may detect that the device has been in motion for a few seconds, and then held relatively still in space, pointing at a certain direction for say one second. The system may assume that the user pulls the device out of his pocket in order to take a picture, and thus goes into “take picture” mode, waiting for the quality indicators to be above the threshold, then taking the picture automatically. The user
30 may hear the sound of a picture being taken and return the device to his pocket. A shake gesture (available in mobile OS like iOS) may be an indication to the device to delete the picture and start again. Alternatively, the shake gesture may be recognized via the device shake QI.

Using the system to evaluate video quality

A quality ranking system over continuous frames, may be used to evaluate a video comprising said frames. One method would be to compute and average the total quality indicators over frames.

In another embodiment a different set of weight functions w_i may be used e.g.

5 different weights for different frames.

Further examples of system use are as follows:

- 10 a) If device shake QI is bad or camera focus QI is bad, disregard use of aesthetic QI in total computation, even if user has indicated he would like to give it a high priority. This will prevent the device from taking a picture when the picture is blurry. The suggestion to the user can be “Hold still” or “wait for focus”. Once shake is low and focus is optimal, aesthetic QI in total quality computations may be used.
- 15 b) Quality reported by lens module 200 showing focus is fine, but independent focus blur QI 244 shows the lens is completely out of focus e.g. due to a poor lens module focus application. Therefore, confidence in the lens focus quality indicator drops and the weight of this indicator in the total quality may be reduced.
- 20 c) Device movement QI confidence level computed in 270 is low due to errors in computing location in Device/surrounding objects 4D position computation component 230, or to sub standard accelerometer, but face recognition system 216 with excellent confidence level, insists on a face for 10 frames straight. In this case, use face recognition QI in total QI even if shake in 270 is high, but only at a reduced percentage of, say, 50% of normal face QI.
- 25 d) Device movement importance is high if the depth of field of the lens is very small (for instance, in macro photography). For a quality picture, high confidence and low value of device shake QI in 270 are desirable, and their weight in the total QI may be high. User suggestions can be to hold still or use a flash, for example.
- 30 e) If previous frames indicated a face in the far left or right of the picture, and now there is no face, it is very possible that the picture has “half a face”, amputation, so that may be the feedback to the user. For example, a face has been identified by the face recognizing QI, but attributes low confidence as a result. The system can alert the user of a possible face amputation.
- f) A person may want to take a picture of, say, his spouse in a scenic location, or

near a historic building. He may choose to give aesthetic QI and recognized person a high priority. This priority may enable to build a total QI with that weight, and to instruct the photographer to move a few meters to the right and left for example, to get an approximated 3D environment in
5 Device/surrounding objects 4D position computation component 230. The device may measure all QI, especially the aesthetic QI, and may instruct the photographer on the best location to stand. This may depend on the place with the best total QI.

The system may if desired be implemented as a web-based system employing
10 software, computers, routers and telecommunications equipment as appropriate.

Any suitable deployment may be employed to provide functionalities e.g. software functionalities shown and described herein. For example, a server may store certain applications, for download to clients, which are executed at the client side, the server side serving only as a storehouse. Some or all functionalities e.g. software
15 functionalities shown and described herein may be deployed in a cloud environment. Clients e.g. mobile communication devices such as smartphones may be operatively associated with but external to the cloud.

It is appreciated that terminology such as "mandatory", "required", "need" and "must" refer to implementation choices made within the context of a particular
20 implementation or application described herewithin for clarity and are not intended to be limiting since in an alternative implantation, the same elements might be defined as not mandatory and not required or might even be eliminated altogether.

It is appreciated that software components of the present invention including programs and data may, if desired, be implemented in ROM (read only memory) form
25 including CD-ROMs, EPROMs and EEPROMs, or may be stored in any other suitable typically non-transitory computer-readable medium such as but not limited to disks of various kinds, cards of various kinds and RAMs. Components described herein as software may, alternatively, be implemented wholly or partly in hardware and/or firmware, if desired, using conventional techniques. Conversely, components
30 described herein as hardware may, alternatively, be implemented wholly or partly in software, if desired, using conventional techniques.

Included in the scope of the present invention, inter alia, are electromagnetic signals carrying computer-readable instructions for performing any or all of the steps or operations of any of the methods shown and described herein, in any suitable order

including simultaneous performance of suitable groups of steps as appropriate; machine-readable instructions for performing any or all of the steps of any of the methods shown and described herein, in any suitable order; program storage devices readable by machine, tangibly embodying a program of instructions executable by the machine to perform any or all of the steps of any of the methods shown and described herein, in any suitable order; a computer program product comprising a computer useable medium having computer readable program code, such as executable code, having embodied therein, and/or including computer readable program code for performing, any or all of the steps of any of the methods shown and described herein, in any suitable order; any technical effects brought about by any or all of the steps of any of the methods shown and described herein, when performed in any suitable order; any suitable apparatus or device or combination of such, programmed to perform, alone or in combination, any or all of the steps of any of the methods shown and described herein, in any suitable order; electronic devices each including a processor and a cooperating input device and/or output device and operative to perform in software any steps shown and described herein; information storage devices or physical records, such as disks or hard drives, causing a computer or other device to be configured so as to carry out any or all of the steps of any of the methods shown and described herein, in any suitable order; a program pre-stored e.g. in memory or on an information network such as the Internet, before or after being downloaded, which embodies any or all of the steps of any of the methods shown and described herein, in any suitable order, and the method of uploading or downloading such, and a system including server/s and/or client/s for using such; a processor configured to perform any combination of the described steps or to execute any combination of the described modules; and hardware which performs any or all of the steps of any of the methods shown and described herein, in any suitable order, either alone or in conjunction with software. Any computer-readable or machine-readable media described herein is intended to include non-transitory computer- or machine-readable media.

Any computations or other forms of analysis described herein may be performed by a suitable computerized method. Any step described herein may be computer-implemented. The invention shown and described herein may include (a) using a computerized method to identify a solution to any of the problems or for any of the objectives described herein, the solution optionally include at least one of a

decision, an action, a product, a service or any other information described herein that impacts, in a positive manner, a problem or objectives described herein; and (b) outputting the solution.

5 The scope of the present invention is not limited to structures and functions specifically described herein and is also intended to include devices which have the capacity to yield a structure, or perform a function, described herein, such that even though users of the device may not use the capacity, they are if they so desire able to modify the device to obtain the structure or function.

10 Features of the present invention which are described in the context of separate embodiments may also be provided in combination in a single embodiment.

For example, a system embodiment is intended to include a corresponding process embodiment. Also, each system embodiment is intended to include a server-centered "view" or client centered "view", or "view" from any other node of the system, of the entire functionality of the system, computer-readable medium, apparatus, including only those functionalities performed at that server or client or node.

Conversely, features of the invention, including method steps, which are described for brevity in the context of a single embodiment or in a certain order may be provided separately or in any suitable subcombination or in a different order. "e.g." is used herein in the sense of a specific example which is not intended to be limiting. Devices, apparatus or systems shown coupled in any of the drawings may in fact be integrated into a single platform in certain embodiments or may be coupled via any appropriate wired or wireless coupling such as but not limited to optical fiber, Ethernet, Wireless LAN, HomePNA, power line communication, cell phone, PDA, Blackberry GPRS, Satellite including GPS, or other mobile delivery. It is appreciated that in the description and drawings shown and described herein, functionalities described or illustrated as systems and sub-units thereof can also be provided as methods and steps therewithin, and functionalities described or illustrated as methods and steps therewithin can also be provided as systems and sub-units thereof. The scale used to illustrate various elements in the drawings is merely exemplary and/or appropriate for clarity of presentation and is not intended to be limiting.

CLAIMS:

1. A digital image acquisition system comprising
an image capture component for capturing in a buffer, a current digital image
5 having pixels;
at least one digital processor programmed for real time computation of
multiple quality indicators characterizing quality of the current digital image;
automatic image capturing, and storing in user-accessible memory, of at least
one image only after a first logical criterion predefined on said multiple quality
10 indicators, is satisfied; and
a message provider operative, while said first logical criterion is still not
satisfied, to select, based on at least one second logical criterion pre-defined on at
least one of said multiple quality indicators, at least one appropriate suggestion from a
pre-stored table of suggestions of how a user of the system may cause said first
15 logical criterion to be satisfied and to present said appropriate suggestion to the user,
wherein at least one of said logical criteria are pre-defined over a time-
dependent confidence level defined over at least one of said quality indicators.
2. A system according to claim 1 wherein at least one of said indicators
20 characterizing quality is computed based on analyzing said pixels.
3. A system according to claim 1 wherein at least one of said indicators
characterizing quality is computed based on comparing said pixels to previous frame
data generated by said image capture component.
25
4. A system according to claim 3 wherein said comparing comprises identifying
an object in a current and a previous frame and computing the object's speed.
5. A system according to claim 1 wherein at least one of said indicators
30 characterizing quality is computed based on data received from at least one hardware
component operatively associated with the image capture component.
6. A system according to claim 5 wherein said hardware component includes at
least one of an accelerometer, gyro, GPS receiver.

7. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on 4D device coordinates.
- 5 8. A system according to claim 1 wherein said logical criterion comprises whether or not a total quality indicator computed by combining said multiple quality indicators, exceeds a predetermined threshold.
9. A system according to claim 1 wherein said logical criterion comprises
10 whether or not each of said multiple quality indicators, exceeds a predetermined threshold.
10. A system according to claim 1 wherein said logical criterion comprises a logical expression combining with at least one OR, several logical conditions of
15 whether or not certain individual indicators from among said multiple quality indicators, exceeds a predetermined respective threshold.
11. A method for computing the photo quality of a captured image in a device image acquisition system, said method comprising:
20 on-board combining of:
a plurality of quality indicators computed from said captured image and its previous image frames quality indicators and
a confidence level for at least one of said quality indicators,; and
determining, based on said combining, whether photo quality is acceptable
25 and taking differential action depending on whether quality is or is not acceptable.
12. A method according to claim 11 and also comprising automatically activating the capturing apparatus, after a logical criterion based on at least one said quality indicator is met.
30
13. A method according to claim 11 and also comprising, based on said combining, at least one appropriate suggestion from a pre-stored table of suggestions on how picture quality can be improved.

14. A system according to claim 1 wherein said pre-stored table of suggestions includes a suggestion of changing at least one characteristic of said image capture component.
- 5 15. A method according to claim 11 wherein a stream of frames is saved as video and at least quality indicators are used to quantify quality of said video.
16. A method according to claim 11 and also comprising giving a user suggestions on improvement of the video.
- 10 17. A method according to claim 11 wherein at least one lens/sensor module parameter is changed, based on said combining, to achieve better total QI.
18. A method according to claim 11 and also comprising automatic image
15 capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button.
19. A method according to claim 11 wherein blur type detection is used for alerting the user of object movement in a region.
- 20 20. A method according to claim 11 wherein blur type detection is used for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image.
21. A method according to claim 11 wherein at least one quality indicator is used
25 as a delete-picture indication.
22. A system according to claim 1 wherein said automatic capturing occurs only after a user presses a shutter button.
- 30 23. A system according to claim 1 wherein said automatic capturing occurs regardless of whether a user has pressed a shutter button.
24. A system according to claim 1 wherein one quality indicator comprises a quantification of blurriness in the current image and wherein said table includes a

“Remove Moving Object From Scene Or Cause Object To Remain Stationary” message and wherein the message provider is operative, while said logical criterion is still not satisfied, to select same message, based on a condition pre-defined on said blurriness quantification.

5 25. A system according to claim 5 wherein said logical criterion comprises a criterion predicting based on at least one of an accelerometer and a GPS receiver, a time at which there will be an acceptably low level of image capture component shake, and said automatic image capturing occurs at said time.

26. A system according to claim 14 wherein said at least one characteristic of said
10 image capture component comprises at least one of angle and position thereof.

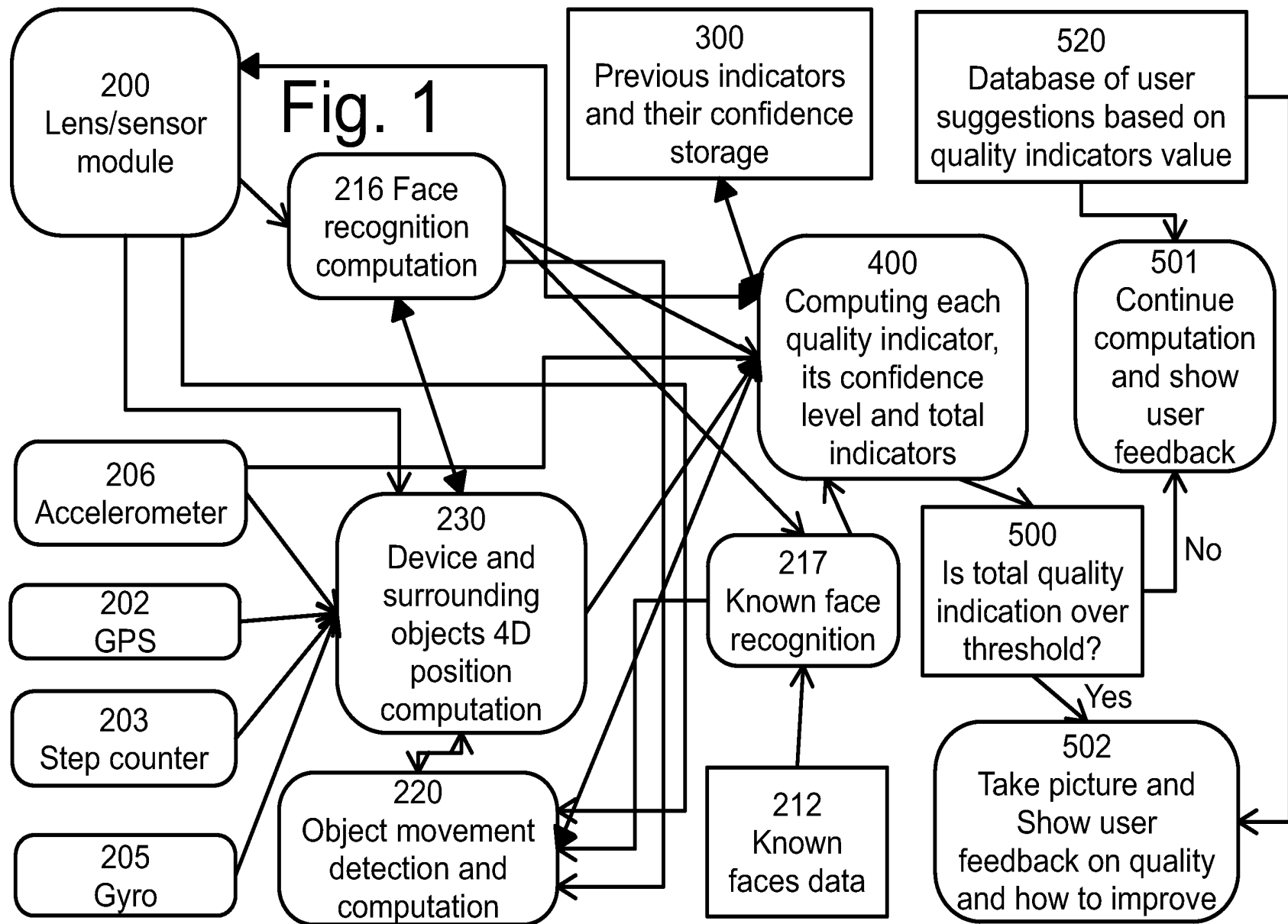
27. A computer program product, comprising a non-transitory tangible computer readable medium having computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a digital image
15 acquisition method comprising:

real time computation of multiple quality indicators characterizing quality of a current digital image;

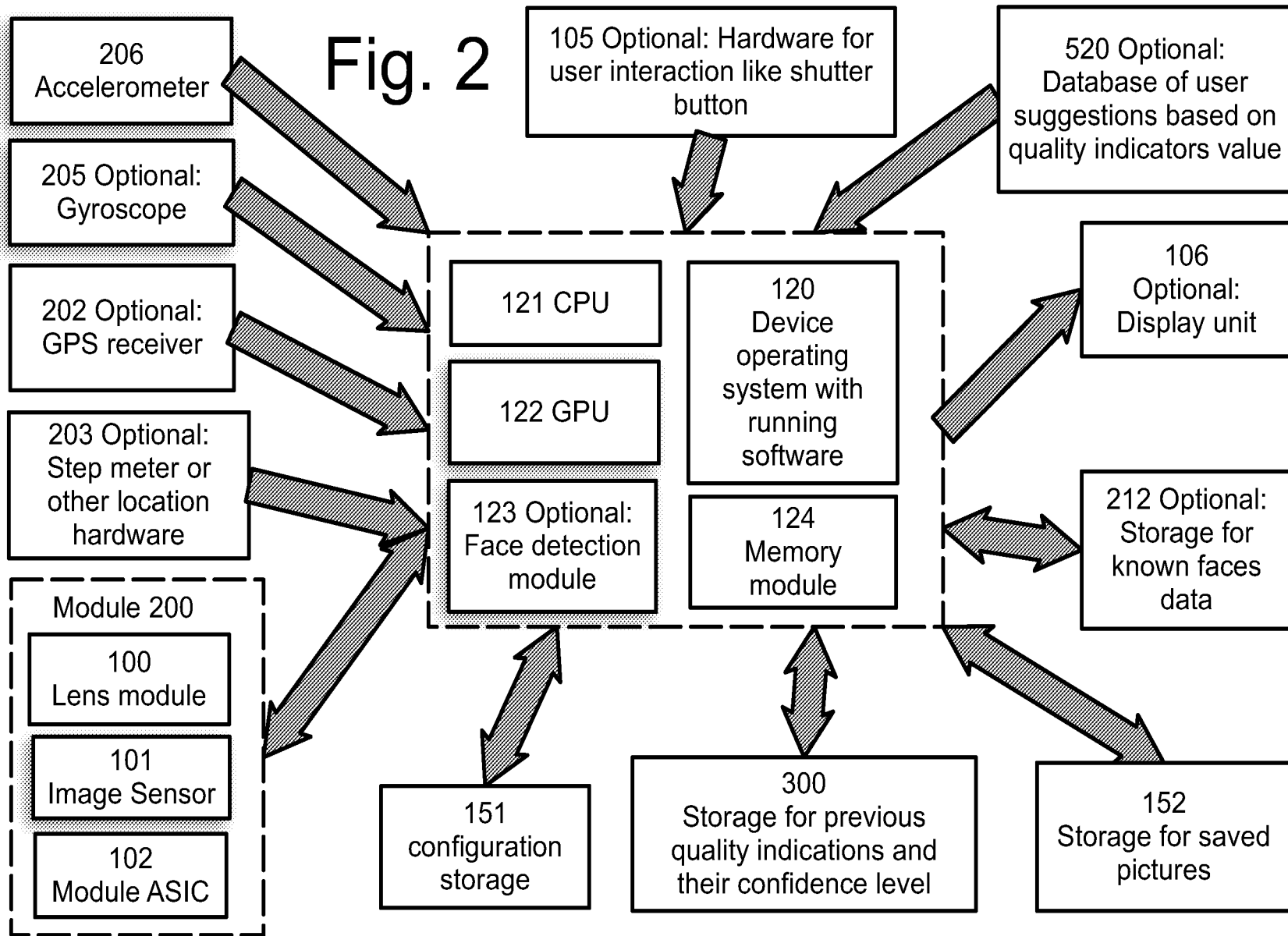
automatic image capturing, and storing in user-accessible memory, of at least one image only after a first logical criterion predefined on said multiple quality
20 indicators, is satisfied; and

selecting, while said first logical criterion is still not satisfied, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to
25 present said appropriate suggestion to the user,

wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.



1/4



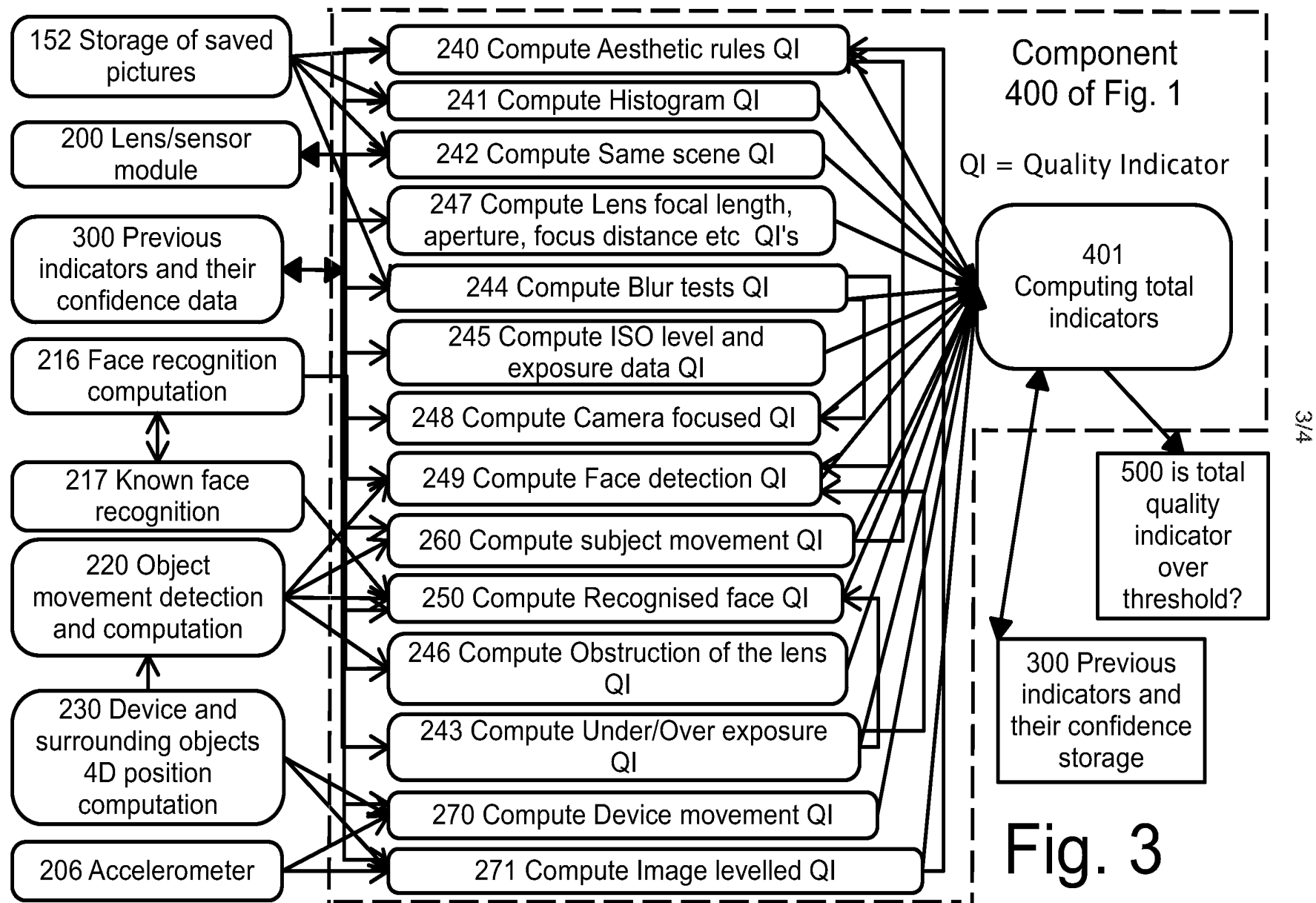
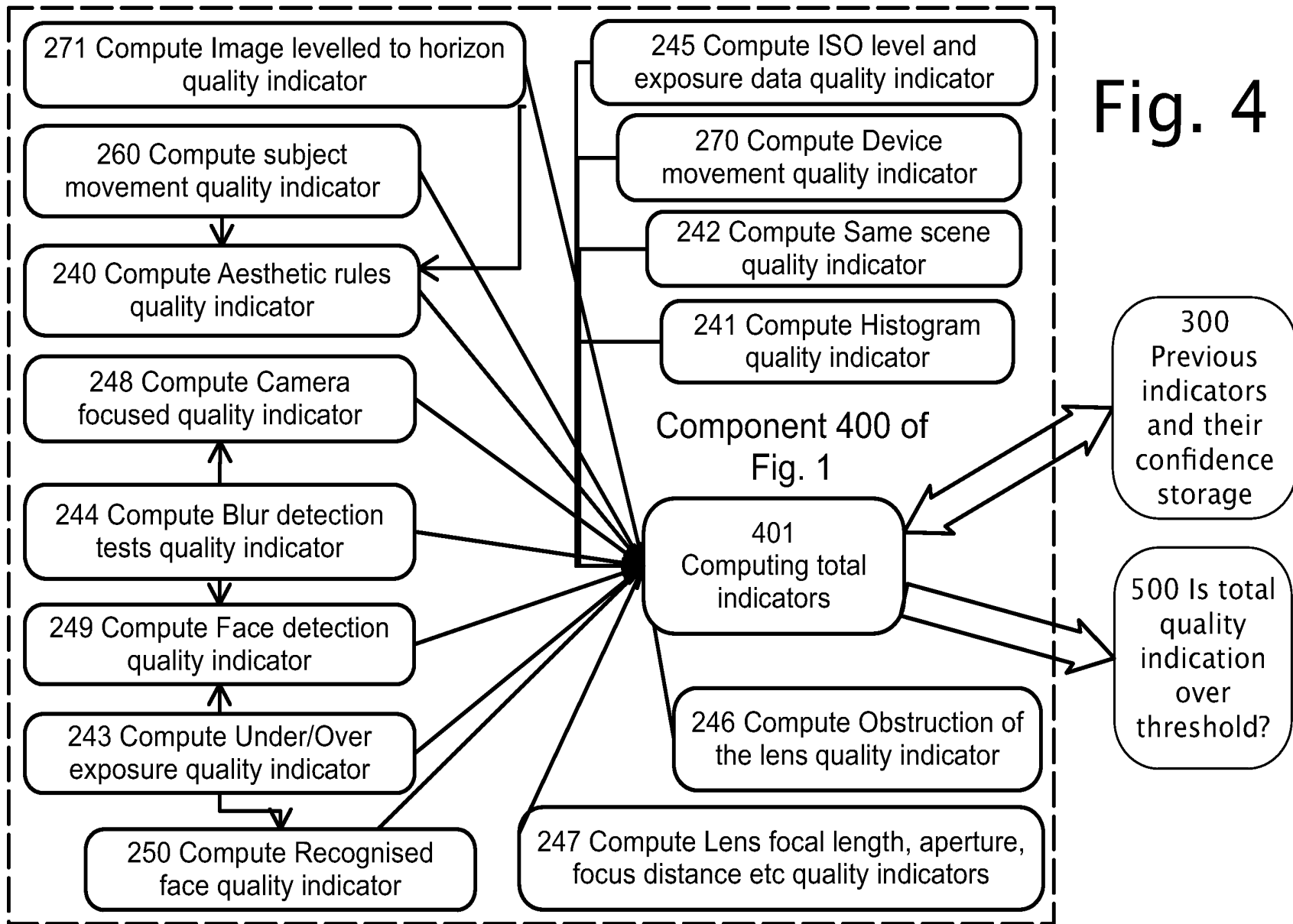


Fig. 4



INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL13/50856

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G06K 9/46 (2014.01)

USPC - 382/195

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) : G06T 15/00; G06K 9/46; G06K 9/40 (2014.01)

USPC : 382/275; 382/195; 352/38

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

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

MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); Google/ GooglePatents; IEEE; ProQuest
Keywords: Digital image and quality indicator and blurr and confidence**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — A	US 2004/0174434 A1 (WALKER, J et al.) 9 September 2004; Abstract; paragraphs [0044], [0506], [0715].	11-13 and 15-21 ----- 1-10, 14, and 22-27
A	US 8131118 B1 (JING, Y et al.) 6 March 2012; Whole document.	1-10, 14, and 22-27
A	US 2011/0279700 A1 (STEINBERG, E et al.) 17 November 2011; Whole document.	1-10, 14, and 22-27

☐ Further documents are listed in the continuation of Box C.

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

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Date of the actual completion of the international search

3 February 2014 (03.02.2014)

Date of mailing of the international search report

18 FEB 2014

Name and mailing address of the ISA/US

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14437105
	Filing Date		2015-04-20
	First Named Inventor	ISHAY SIVAN	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	SIV001US	

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7362354	A1	2008-04-22	Qian Lin	
	2	7688379	A1	2010-03-30	George Forman	
	3	8125557	A1	2012-02-28	Wan-Yu Chen	
	4	7920727	A1	2011-05-04	Chi-Jung Weng	
	5	8040382	A1	2011-10-18	Phillippe Kahn	
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	8	7982770		2011-07-19	Phillippe Kahn	

**INFORMATION DISCLOSURE
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Application Number	14437105
Filing Date	2015-04-20
First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

9	8131118		2012-06-03	Yushi Jing	
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U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20130155474	A1	2013-06-20	Mitek Systems	
	2	20070195174	A1	2007-08-23	Halpern Oren	
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	7	20110096180	A1	2011-04-28	Scott McCloskey	
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First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

9	20100290673	A1	2010-11-18	Naoyuki Miyashita	
10	20130058561	A1	2014-09-30	Chia-Ming Cheng	
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	Art Unit		
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	Attorney Docket Number		SIV001US

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FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	WO2003069559			2003-08-21	Qian Lin		☐
	2	WO2011148212			2011-12-01	Sony Ericsson Mobile Communications AB		☐
	3	2008033200	JP	A	2008-02-14	Nikon Corp		☐
	4	2007208922	JP	B2	2007-08-16	Fujifilm Corp		☐
	5	2006050494	JP	B2	2006-02-16	Casio Comput Co Ltd		☐
	6	WO2004030378			2004-04-08	Poulsen Anders		☐
	7	WO13044983			2013-04-04	Klaus Michael Hoffman		☐

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Application Number	14437105
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First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

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

Application Number	14437105
Filing Date	2015-04-20
First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

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

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OR

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

☐ See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Eva Taksel/	Date (YYYY-MM-DD)	2015-05-05
Name/Print	Eva Taksel	Registration Number	47985

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

Electronic Acknowledgement Receipt

EFS ID:	22252910
Application Number:	14437105
International Application Number:	
Confirmation Number:	8102
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY
First Named Inventor/Applicant Name:	ISHAY SIVAN
Customer Number:	112864
Filer:	Eva Leah Taksel
Filer Authorized By:	
Attorney Docket Number:	SIVOO1US
Receipt Date:	05-MAY-2015
Filing Date:	
Time Stamp:	03:33:48
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	ids.pdf	77420 a09cc49bd7cd9ad2dfea57ec5c2fe5c32f1295d3	no	7

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2247936	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/IL13/50856	International filing date (day/month/year) 22 October 2013 (22.10.2013)	Priority date (day/month/year) 23 October 2012 (23.10.2012)	
International Patent Classification (IPC) or national classification and IPC IPC: H04N 5/228(2006.01),5/222(2006.01);G06K 9/40(2006.01) USPC: 348/208.15,333.04;382/275			
Applicant ISHAY SLVAN			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of ~~18~~ sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of <u>17</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No.I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3bis of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☒ Box No. VII Certain defects in the international application ☒ Box No. VIII Certain observations on the international application			
Date of submission of the demand 19 August 2014 (19.08.2014)		Date of completion of this report 24 March 2015 (24.03.2015)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer USMAN KHAN Telephone No. (571) 270-1131	

Form PCT/IPEA/409 (cover sheet) (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IL13/50856

Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into English which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b)).
- ☐ publication of the international application (Rule 12.4(a)).
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a) and (b)).

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

- ☐ the international application as originally filed/furnished
- ☒ the description:
 pages 1-30 as originally filed/furnished
 pages* NONE received by this Authority on _____
 pages* NONE received by this Authority on _____
- ☒ the claims:
 pages 31-34 as originally filed/furnished
 pages* NONE as amended (together with any statement) under Article 19
 pages* 1-6 received by this Authority on 23 OCTOBER 2014(23.10.2014)
 pages* NONE received by this Authority on _____
- ☒ the drawings:
 pages 1/4-4/4 as originally filed/furnished
 pages* NONE received by this Authority on _____
 pages* NONE received by this Authority on _____
- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____

5. ☐ This report has been established:

- ☐ taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
- ☐ without taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.4bis) and 70.2(e)).

6. ☐ Supplementary international search report(s) from Authority(ies) _____ has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IL13/50856**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>1-10,14,22-27</u>	YES
	Claims <u>11-13,15-21,28-32</u>	NO
Inventive Step (IS)	Claims <u>1-10,14,22-27</u>	YES
	Claims <u>11-13,15-21,28-32</u>	NO
Industrial Applicability (IA)	Claims <u>1-32</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and Explanations (Rule 70:7)
Please See Continuation Sheet

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IL13/50856

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claims 11 - 13, 15 - 21, and 30 - 31 contain(s) the following defect(s) in the form or contents thereof: claim 11 line 6 includes ";;". Claim 30 states in line 9 includes "said detecting said no movement" this statement seems to be have grammer issues. Claim 31 line 7 is missing a semicolon. Please check the other claims for similar issues.

Form PCT/IPEA/409 (Box No. VII) (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IL13/50856

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 11 – 13, 15 – 21, and 28 – 32 are objected to under PCT Article 6 as lacking clarity because claims 11 – 13, 15 – 21, and 28 – 32 are indefinite for the following reason(s): claim 17 includes no explanation of what QI stands for. Claim 28 is unclear since it does not clearly state when to store and when not to store the image. Claim 30 line 6 states "at list a" there seems to be grammar issues with this limitation. Claim 30 states in line 5 "detecting no movement relative to said movement", examiner is unsure how no movement can be detected relative to a movement. Claim 31 line 8 states "at least on of" there seems to be grammar issues with this limitation. Claim 31 line 9 states "e", line 10 states "said least one". Please check all claims for similar issues.

Additionally, body of claims 11 and 32 are not (1) be tied to a particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing.

Form PCT/IPEA/409 (Box No. VIII) (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IL13/50856

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

V. 2. Citations and Explanations:

Claims 1 - 10, 14, and 22 - 27 meet the criteria set out in PCT Article 33(2) and (3), and thus have novelty and inventive step (nonobviousness), because the prior art taken singularly or in combination fails disclose or fairly suggest the claimed invention. Specifically, the prior art fails to disclose automatic image capturing, and storing in user-accessible memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user, wherein at least one of said logical criteria are pre-defined over a time- dependent confidence level defined over at least one of said quality indicators.

Claims 1 - 10, 14, and 22 - 27 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability, because the subject matter claimed can be made or used in industry.

Claims 11-13, 15 - 21, and 22 - 27 lack an inventive step under PCT Article 33(2) as being anticipated by US 2004/0174434 A1 to Walker, J et al. (hereinafter "Walker").

Regarding claim 11, Walker teaches a method for computing photo quality of a captured image in a device image acquisition system (paragraph 0044), said method comprising: combining of: a plurality of quality indicators computed from said captured image (paragraph 0506) and its previous image frames quality indicators (paragraph 0506; note plurality of images used e.g. paragraph 0108, 0298, 0309 - 0311, 0474, 0481, 0511 - 0520, 0551, 0604-0608) and a confidence level for at least one of said quality indicators (paragraph 0506; note

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IL13/50856

Supplemental Box

the applicant does not claim specifically what steps/requirements are included as a confidence level and what is not included as a confidence level hence the examiner can broadly read this limitation until the applicant further limits the claims); and determining, based on said combining, a photo quality (paragraph 0715).

Regarding claim 12, Walker teaches automatically activating the capturing apparatus, after a logical criterion based on at least one said quality indicator is met (paragraph 0715).

Regarding claim 13, Walker teaches based on said combining, at least one appropriate suggestion from a pre-stored table of suggestions on how picture quality can be improved (figure 10 and paragraphs 0228 - 0244).

Regarding claim 15, Walker teaches a stream of frames is saved as video and at least quality indicators are used to quantify quality of said video (paragraph 0079).

Regarding claim 16, Walker teaches comprising giving a user suggestions on improvement of the video (paragraphs 0079 and 0556).

Regarding claim 17, Walker teaches wherein at least one lens/sensor module parameter is changed, based on said combining, to achieve better total QI (paragraphs 0044 and 0506).

Regarding claim 18, Walker teaches automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button (paragraphs 0282 and 0715).

Regarding claim 19, Walker teaches wherein blur type detection is used for alerting the user of object movement in a region (paragraph 0303).

Regarding claim 20, Walker teaches wherein blur type detection is used for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image (paragraphs 0160, 0303, and 0444).

Regarding claim 21, Walker teaches wherein at least one quality indicator is used as a delete-picture indication (paragraph 0715):

Regarding claim 28, Walker teaches determining if said photo quality is acceptable and taking differential action depending on whether said photo quality is acceptable or allowing storing said captured image, only if said photo quality is not acceptable (paragraph 0504 and 0715).

Regarding claim 29, Walker teaches a digital image acquisition system comprising a camera lens module 200 configured for receiving captured digital image (paragraph 0044); and a computing module 400 (figures 4 - 6) programmed for computing total quality value (paragraph 0506); wherein said total quality value being for providing photo quality feedback (paragraph 0506); wherein said total quality value being computed according to a plurality of quality indicators computed from said digital image and its previous image frames quality indicators (paragraph 0506; note plurality of images used e.g. paragraph 0108, 0298, 0309 - 0311, 0474, 0481, 0511 - 0520, 0551, 0604-0608) or wherein said total quality value being computed according to a confidence level of at least one of quality indicators computed from said digital image (paragraph 0506, 0244, and 0715; note the applicant does not claim specifically what steps/requirements are included as a confidence level and what is not included as a confidence level hence the examiner can broadly read this limitation until the applicant further limits the claims).

Regarding claim 30, Walker teaches a method for controlling an electronic device configured for capturing images (paragraph 0044), comprising: detecting movement of said electronic device, using a motion sensing component (paragraph 0090, 0223, 0226); detecting no movement relative to said movement, using said motion sensing component (paragraph 0090, 0223, 0226); said no movement being for a list a predetermined period of time (paragraph 0090, 0223, 0226); instructing said device to switch to preview mode as a result of said detecting said no movement (paragraph 0100 note applicant does not claim that the mode switch is automatic); measuring photo quality while in preview mode (paragraph 0506); and instructing said device to capture an image as a result of detecting that said photo quality exceeds a threshold (paragraph 0506, 0244, and 0715).

Regarding claim 31, Walker teaches a method for computing photo quality of a captured image in a device image acquisition system (paragraph 0044) said method comprising: comparing; at least one first image quality indicator computed from said captured image with at least one second-image quality indicator computed from said previous image frames (paragraph 0506, 0244, and 0715); and said first-image and said second-image quality indicators being related to a scene (paragraph 0506, 0244, and 0715); determining photo quality at least on of said captured image as not acceptable if said first-image quality indicator as being substantially similar to said least one second-image quality indicator; and determining photo quality of said captured image as acceptable otherwise; thereby preventing storing similar frames from said scene (paragraph 0506, 0244, and 0715).

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IL13/50856**Supplemental Box**

Regarding claim 32, Walker teaches a method for controlling an electronic device configured for capturing images (paragraph 0044), comprising: measuring at least one quality indicator (paragraph 0506, 0244, and 0715); determining, based on said photo quality, at least one parameter related to lens of said electronic device or to sensor module of said electronic device (paragraphs 0506, 0244, and 0715).

CLAIMS

1. A digital image acquisition system comprising
- 5 an image capture component for capturing in a buffer, a current digital image having pixels;
- at least one digital processor programmed for real time computation of multiple quality indicators characterizing quality of the current digital image;
- automatic image capturing, and storing in user-accessible memory, of at least
- 10 one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and
- a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a
- 15 pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,
- wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.
- 20 2. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on analyzing said pixels.
3. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on comparing said pixels to previous frame
- 25 data generated by said image capture component.
4. A system according to claim 3 wherein said comparing comprises identifying an object in a current and a previous frame and computing the object's speed.
- 30 5. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on data received from at least one hardware component operatively associated with the image capture component.

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6. A system according to claim 5 wherein said hardware component includes at least one of an accelerometer, gyro, GPS receiver.
7. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on 4D device coordinates.
8. A system according to claim 1 wherein said logical criterion comprises whether or not a total quality indicator computed by combining said multiple quality indicators, exceeds a predetermined threshold.
9. A system according to claim 1 wherein said logical criterion comprises whether or not each of said multiple quality indicators, exceeds a predetermined threshold.
10. A system according to claim 1 wherein said logical criterion comprises a logical expression combining with at least one OR, several logical conditions of whether or not certain individual indicators from among said multiple quality indicators, exceeds a predetermined respective threshold.
11. A method for computing photo quality of a captured image in a device image acquisition system, said method comprising:
 combining of: -----
 a plurality of quality indicators computed from said captured image and its previous image frames quality indicators and
 a confidence level for at least one of said quality indicators,; and
 determining, based on said combining, a photo quality -----
12. A method according to claim 11 and also comprising automatically activating the capturing apparatus, after a logical criterion based on at least one said quality indicator is met.
13. A method according to claim 11 and also comprising, based on said combining, at least one appropriate suggestion from a pre-stored table of suggestions on how picture quality can be improved.

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AMENDED SHEET - IPEA/US

14. A system according to claim 1 wherein said pre-stored table of suggestions includes a suggestion of changing at least one characteristic of said image capture component.
- 5
15. A method according to claim 11 wherein a stream of frames is saved as video and at least quality indicators are used to quantify quality of said video.
16. A method according to claim 15 and also comprising giving a user suggestions on improvement of the video.
- 10
17. A method according to claim 11 wherein at least one lens/sensor module parameter is changed, based on said combining, to achieve better total QI.
18. A method according to claim 11 and also comprising automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button.
19. A method according to claim 11 wherein blur type detection is used for alerting the user of object movement in a region.
- 20
20. A method according to claim 11 wherein blur type detection is used for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image.
21. A method according to claim 11 wherein at least one quality indicator is used as a delete-picture indication.
- 25
22. A system according to claim 1 wherein said automatic capturing occurs only after a user presses a shutter button.
- 30
23. A system according to claim 1 wherein said automatic capturing occurs regardless of whether a user has pressed a shutter button.

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AMENDED SHEET - IPEA/US

24. A system according to claim 1 wherein one quality indicator comprises a quantification of blurriness in the current image and wherein said table includes a "Remove Moving Object From Scene Or Cause Object To Remain Stationary" message and wherein the message provider is operative, while said logical criterion is still not satisfied, to select same message, based on a condition pre-defined on said blurriness quantification.

25. A system according to claim 5 wherein said logical criterion comprises a criterion predicting based on at least one of an accelerometer and a GPS receiver, a time at which there will be an acceptably low level of image capture component shake, and said automatic image capturing occurs at said time.

26. A system according to claim 14 wherein said at least one characteristic of said image capture component comprises at least one of angle and position thereof.

27. A computer program product, comprising a non-transitory tangible computer readable medium having computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a digital image acquisition method comprising:

real time computation of multiple quality indicators characterizing quality of a current digital image;

automatic image capturing, and storing in memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and

selecting, while said first logical criterion is still not satisfied, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,

wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.

28. The method of claim 11 further comprising determining if said photo quality is acceptable and taking differential action depending on whether said photo quality is acceptable or allowing storing said

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captured image, only if said photo quality is not acceptable.

29. A digital image acquisition system comprising

a camera lens module 200 configured for receiving captured digital image; and

a computing module 400 programmed for computing total quality value; wherein said total quality value being for providing photo quality feedback;

wherein said total quality value being computed according to a plurality of quality indicators computed from said digital image and its previous image frames quality indicators or wherein said total quality value being computed according to a confidence level of at least one of quality indicators computed from said digital image.

30. A method for controlling an electronic device configured for capturing images, comprising:

detecting movement of said electronic device, using a motion sensing component;

detecting no movement relative to said movement, using said motion sensing component; said no movement being for at list a predefined period of time;

instructing said device to switch to preview mode as a result of said detecting said no movement;

measuring photo quality while in preview mode; and

instructing said device to capture an image as a result of detecting that said photo quality exceeds a threshold.

31. A method for computing photo quality of a captured image in a device image acquisition system, said method comprising:

comparing :

at least one first-image quality indicator computed from said captured image with at least one second-image quality indicator computed from said previous image frames ; and said first-image and said second-image quality indicators being related to a scene

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determining photo quality at least on of said captured image as not acceptable if said e first-image quality indicator as being substantially similar to said least one second-image quality indicator; and determining photo quality of said captured image as acceptable otherwise; thereby preventing storing similar frames from said scene

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32. A method for controlling an electronic device configured for capturing images, comprising:

measuring at least one quality indicator;

determining, based on said measuring, a photo quality; and

amending, based on said photo quality, at least one parameter related to lens of said electronic device or to sensor module of said electronic device

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AMENDED SHEET - IPEA/US

CLAIMS

1. A digital image acquisition system comprising
- 5 an image capture component for capturing in a buffer, a current digital image having pixels;
- at least one digital processor programmed for real time computation of multiple quality indicators characterizing quality of the current digital image;
- automatic image capturing, and storing in user-accessible memory, of at least
- 10 one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and
- a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a
- 15 pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,
- wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.
- 20 2. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on analyzing said pixels.
3. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on comparing said pixels to previous frame
- 25 data generated by said image capture component.
4. A system according to claim 3 wherein said comparing comprises identifying an object in a current and a previous frame and computing the object's speed.
- 30 5. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on data received from at least one hardware component operatively associated with the image capture component.

6. A system according to claim 5 wherein said hardware component includes at least one of an accelerometer, gyro, GPS receiver.

7. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on 4D device coordinates.

8. A system according to claim 1 wherein said logical criterion comprises whether or not a total quality indicator computed by combining said multiple quality indicators, exceeds a predetermined threshold.

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9. A system according to claim 1 wherein said logical criterion comprises whether or not each of said multiple quality indicators, exceeds a predetermined threshold.

10. A system according to claim 1 wherein said logical criterion comprises a logical expression combining with at least one OR, several logical conditions of whether or not certain individual indicators from among said multiple quality indicators, exceeds a predetermined respective threshold.

11. A method for computing photo quality of a captured image in a device image acquisition system, said method comprising:

combining of:

a plurality of quality indicators computed from said captured image and its previous image frames quality indicators and

a confidence level for at least one of said quality indicators,; and
determining, based on said combining, a photo quality .

12. A method according to claim 11 and also comprising automatically activating the capturing apparatus, after a logical criterion based on at least one said quality indicator is met.

13. A method according to claim 11 and also comprising, based on said combining, at least one appropriate suggestion from a pre-stored table of suggestions on how picture quality can be improved.

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14. A system according to claim 1 wherein said pre-stored table of suggestions includes a suggestion of changing at least one characteristic of said image capture component.

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15. A method according to claim 11 wherein a stream of frames is saved as video and at least quality indicators are used to quantify quality of said video.

16. A method according to claim 15 and also comprising giving a user suggestions on improvement of the video.

10

17. A method according to claim 11 wherein at least one lens/sensor module parameter is changed, based on said combining, to achieve better total QI.

18. A method according to claim 11 and also comprising automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button.

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19. A method according to claim 11 wherein blur type detection is used for alerting the user of object movement in a region.

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20. A method according to claim 11 wherein blur type detection is used for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image.

21. A method according to claim 11 wherein at least one quality indicator is used as a delete-picture indication.

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22. A system according to claim 1 wherein said automatic capturing occurs only after a user presses a shutter button.

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23. A system according to claim 1 wherein said automatic capturing occurs regardless of whether a user has pressed a shutter button.

24. A system according to claim 1 wherein one quality indicator comprises a quantification of blurriness in the current image and wherein said table includes a "Remove Moving Object From Scene Or Cause Object To Remain Stationary" message and wherein the message provider is operative, while said logical criterion is still not satisfied, to select same message, based on a condition pre-defined on said blurriness quantification.

25. A system according to claim 5 wherein said logical criterion comprises a criterion predicting based on at least one of an accelerometer and a GPS receiver, a time at which there will be an acceptably low level of image capture component shake, and said automatic image capturing occurs at said time.

26. A system according to claim 14 wherein said at least one characteristic of said image capture component comprises at least one of angle and position thereof.

27. A computer program product, comprising a non-transitory tangible computer readable medium having computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a digital image acquisition method comprising:

real time computation of multiple quality indicators characterizing quality of a current digital image;

automatic image capturing, and storing in memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and

selecting, while said first logical criterion is still not satisfied, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,

wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.

28. The method of claim 11 further comprising determining if said photo quality is acceptable and taking differential action depending on whether said photo quality is acceptable or allowing storing said

captured image, only if said photo quality is not acceptable.

29. A digital image acquisition system comprising

5 a camera lens module 200 configured for receiving captured digital image; and

a computing module 400 programmed for computing total quality value; wherein said total quality value being for providing photo quality feedback;

10 wherein said total quality value being computed according to a plurality of quality indicators computed from said digital image and its previous image frames quality indicators or wherein said total quality value being computed according to a confidence level of at least one of quality indicators computed from said digital image.

15 30. A method for controlling an electronic device configured for capturing images, comprising:

detecting movement of said electronic device, using a motion sensing component;

20 detecting no movement relative to said movement, using said motion sensing component; said no movement being for at list a predefined period of time;

instructing said device to switch to preview mode as a result of said detecting said no movement;

measuring photo quality while in preview mode; and

25 instructing said device to capture an image as a result of detecting that said photo quality exceeds a threshold.

31. A method for computing photo quality of a captured image in a device image acquisition system, said method comprising:

comparing :

30 at least one first-image quality indicator computed from said captured image with at least one second-image quality indicator computed from said previous image frames ; and said first-image and said second-image quality indicators being related to a scene

determining photo quality at least on of said captured image as not acceptable if said e first-image quality indicator as being substantially similar to said least one second-image quality indicator; and determining photo quality of said captured image as acceptable otherwise; thereby preventing storing similar frames from said scene

5

32. A method for controlling an electronic device configured for capturing images, comprising:

10 measuring at least one quality indicator;

 determining, based on said measuring, a photo quality; and

 amending, based on said photo quality, at least one parameter related to lens of said electronic device or to sensor module of said electronic device

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CLAIMS

1. A digital image acquisition system comprising
- 5 an image capture component for capturing in a buffer, a current digital image having pixels;
- at least one digital processor programmed for real time computation of multiple quality indicators characterizing quality of the current digital image;
- automatic image capturing, and storing in user-accessible memory, of at least
- 10 one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and
- a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a
- 15 pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,
- wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.
- 20 2. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on analyzing said pixels.
3. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on comparing said pixels to previous frame
- 25 data generated by said image capture component.
4. A system according to claim 3 wherein said comparing comprises identifying an object in a current and a previous frame and computing the object's speed.
- 30 5. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on data received from at least one hardware component operatively associated with the image capture component.

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6. A system according to claim 5 wherein said hardware component includes at least one of an accelerometer, gyro, GPS receiver.
7. A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on 4D device coordinates.
8. A system according to claim 1 wherein said logical criterion comprises whether or not a total quality indicator computed by combining said multiple quality indicators, exceeds a predetermined threshold.
9. A system according to claim 1 wherein said logical criterion comprises whether or not each of said multiple quality indicators, exceeds a predetermined threshold.
10. A system according to claim 1 wherein said logical criterion comprises a logical expression combining with at least one OR, several logical conditions of whether or not certain individual indicators from among said multiple quality indicators, exceeds a predetermined respective threshold.
11. A method for computing the photo quality of a captured image in a device image acquisition system, said method comprising:
 - ~~on-board~~ combining of:
 - a plurality of quality indicators computed from said captured image and its previous image frames quality indicators and
 - a confidence level for at least one of said quality indicators,; and
 - determining, based on said combining, ~~whether a photo quality is acceptable and taking differential action depending on whether quality is or is not acceptable.~~
12. A method according to claim 11 and also comprising automatically activating the capturing apparatus, after a logical criterion based on at least one said quality indicator is met.
13. A method according to claim 11 and also comprising, based on said combining, at least one appropriate suggestion from a pre-stored table of suggestions on how

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picture quality can be improved.

14. A system according to claim 1 wherein said pre-stored table of suggestions includes a suggestion of changing at least one characteristic of said image capture component.

15. A method according to claim 11 wherein a stream of frames is saved as video and at least quality indicators are used to quantify quality of said video.

16. A method according to claim 14 and also comprising giving a user suggestions on improvement of the video.

17. A method according to claim 11 wherein at least one lens/sensor module parameter is changed, based on said combining, to achieve better total QI.

18. A method according to claim 11 and also comprising automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button.

19. A method according to claim 11 wherein blur type detection is used for alerting the user of object movement in a region.

20. A method according to claim 11 wherein blur type detection is used for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image.

21. A method according to claim 11 wherein at least one quality indicator is used as a delete-picture indication.

22. A system according to claim 1 wherein said automatic capturing occurs only after a user presses a shutter button.

23. A system according to claim 1 wherein said automatic capturing occurs regardless of whether a user has pressed a shutter button.

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24. A system according to claim 1 wherein one quality indicator comprises a quantification of blurriness in the current image and wherein said table includes a "Remove Moving Object From Scene Or Cause Object To Remain Stationary" message and wherein the message provider is operative, while said logical criterion is still not satisfied, to select same message, based on a condition pre-defined on said blurriness quantification.

25. A system according to claim 5 wherein said logical criterion comprises a criterion predicting based on at least one of an accelerometer and a GPS receiver, a time at which there will be an acceptably low level of image capture component shake, and said automatic image capturing occurs at said time.

26. A system according to claim 14 wherein said at least one characteristic of said image capture component comprises at least one of angle and position thereof.

27. A computer program product, comprising a non-transitory tangible computer readable medium having computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a digital image acquisition method comprising:

real time computation of multiple quality indicators characterizing quality of a current digital image;

automatic image capturing, and storing in memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and

selecting, while said first logical criterion is still not satisfied, based on at least one second logical criterion pre-defined on, at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,

wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.

28. The method of claim 11 further comprising determining if said photo quality is acceptable and taking differential action depending on whether said photo quality is acceptable or allowing storing said

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captured image, only if said photo quality is not acceptable.

29. A digital image acquisition system comprising

a camera lens module 200 configured for receiving captured digital
5 image; and

a computing module 400 programmed for computing total quality
value; wherein said total quality value being for providing photo quality
feedback;

10 wherein said total quality value being computed according to a plurality of
quality indicators computed from said digital image and its previous image frames
quality indicators or wherein said total quality value being computed according to
a confidence level of at least one of quality indicators computed from said digital
image.

15 30. A method for controlling an electronic device configured for capturing
images, comprising:

detecting movement of said electronic device, using a motion
sensing component;

20 detecting no movement relative to said movement, using said
motion sensing component; said no movement being for at list a
predefined period of time;

instructing said device to switch to preview mode as a result of
said detecting said no movement;

25 measuring photo quality while in preview mode; and
instructing said device to capture an image as a result of detecting
that said photo quality exceeds a threshold.

31. A method for computing photo quality of a captured image in a device
image acquisition system, said method comprising:

comparing :

30 at least one first-image quality indicator computed from said captured
image with at least one second-image quality indicator computed from
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5 determining photo quality at least on of said captured image as not acceptable if said e first-image quality indicator as being substantially similar to said least one second-image quality indicator; and determining photo quality of said captured image as acceptable otherwise; thereby preventing storing similar frames from said scene

10 32. A method for controlling an electronic device configured for capturing images, comprising:
 measuring at least one quality indicator;
 determining, based on said measuring, a photo quality; and
 amending, based on said photo quality, at least one parameter related to lens of said electronic device or to sensor module of said electronic device

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2247936	FOR FURTHER ACTION		See Form PCT/IPEA/416																
International application No. PCT/IL13/50856	International filing date (day/month/year) 22 October 2013 (22.10.2013)	Priority date (day/month/year) 23 October 2012 (23.10.2012)																	
International Patent Classification (IPC) or national classification and IPC IPC: H04N 5/228(2006.01);5/222(2006.01);G06K 9/40(2006.01) USPC: 348/208.15,333.04;382/275																			
Applicant ISHAY SLVAN																			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of <u>0</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No.I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3bis of Annex C of the Administrative Instructions). 4. This report contains indications relating to the following items: <table border="0" style="width: 100%;"> <tr> <td>☒ Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td>☐ Box No. II</td> <td>Priority</td> </tr> <tr> <td>☐ Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td>☐ Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td>☒ Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td>☐ Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td>☒ Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td>☒ Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>				☒ Box No. I	Basis of the report	☐ Box No. II	Priority	☐ Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	☐ Box No. IV	Lack of unity of invention	☒ Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement	☐ Box No. VI	Certain documents cited	☒ Box No. VII	Certain defects in the international application	☒ Box No. VIII	Certain observations on the international application
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☒ Box No. VIII	Certain observations on the international application																		
Date of submission of the demand 19 August 2014 (19.08.2014)		Date of completion of this report 08 December 2014 (08.12.2014)																	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Authorized officer USMAN KHAN Telephone No. (571) 270-1131																	

Form PCT/IPEA/409 (cover sheet) (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IL13/50856

Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into English which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b)).
 - ☐ publication of the international application (Rule 12.4(a)).
 - ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a) and (b)).

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-30 as originally filed/furnished
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☒ the claims:
- pages 31-34 as originally filed/furnished
- pages* NONE as amended (together with any statement) under Article 19
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☒ the drawings:
- pages 1/4-4/4 as originally filed/furnished
- pages* NONE received by this Authority on _____
- pages* NONE received by this Authority on _____
- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____

5. ☐ This report has been established:

- ☐ taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
- ☐ without taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.4bis) and 70.2(e)).

6. ☐ Supplementary international search report(s) from Authority(ies) _____ has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IL13/50856**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>1-10, 14 and 22-27</u>	YES
	Claims <u>11-13 and 15-21</u>	NO
Inventive Step (IS)	Claims <u>1-10, 14, 22-27</u>	YES
	Claims <u>11-13 and 15-21</u>	NO
Industrial Applicability (IA)	Claims <u>1-27</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and Explanations (Rule 70.7)
Please See Continuation Sheet

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IL13/50856

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claims 11 – 13, 15 - 21 contain(s) the following defect(s) in the form or contents thereof: claim 11 line 6 includes “, ;”. Claim 30 states in line 9 “said detecting said no movement” this statement seems to have an extra “said”. Claim 31 lines line 7 is missing a semicolon. Please check the other claims for similar issues.

Form PCT/IPEA/409 (Box No. VII) (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IL13/50856

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 17 is objected to under PCT Article 6 as lacking clarity because claim 17 is indefinite for the following reason(s): claim 17 there is no explanation of what Q1 stands for.

Additionally, claim 11 is not (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing.

Form PCT/IPEA/409 (Box No. VIII) (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IL13/50856

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

V. 2. Citations and Explanations:

The claim amendments filed have not been entered. The claims are being examined as originally filed.

Claims 1 - 10, 14, and 22 - 27 meet the criteria set out in PCT Article 33(2) and (3), and thus have novelty and inventive step (nonobviousness), because the prior art taken singularly or in combination fails disclose or fairly suggest the claimed invention. Specifically, the prior art fails to disclose automatic image capturing, and storing in user-accessible memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user, wherein at least one of said logical criteria are pre-defined over a time- dependent confidence level defined over at least one of said quality indicators.

Claims 1 - 10, 14, and 22 - 27 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability, because the subject matter claimed can be made or used in industry.

Claims 11-13, 15 - 21 lack an inventive step under PCT Article 33(2) as being anticipated by US 2004/0174434 A1 to Walker, J et al. (hereinafter 'Walker').

Regarding claim 11, Walker teaches a method for computing photo quality of a captured image in a device image acquisition system (paragraph 0044), said method comprising: an board combining of: a plurality of quality indicators computed from said captured image

Form PCT/IPEA/409 (Supplemental Box) (July 2011)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IL13/50856

Supplemental Box

(paragraph 0506) and its previous image frames quality indicators (paragraph 0506) and a confidence level for at least one of said quality indicators (paragraph 0506); and determining, based on said combining, wherein photo quality is acceptable and taking differential action depending on whether quality is or is not acceptable (paragraph 0715).

Regarding claim 12, Walker teaches automatically activating the capturing apparatus, after a logical criterion based on at least one said quality indicator is met (paragraph 0715).

Regarding claim 13, Walker teaches comprising, based on said combining, at least one appropriate suggestion from a pre-stored table of suggestions on how picture quality can be improved (figure 10 and paragraphs 0228 - 0244).

Regarding claim 15, Walker teaches a stream of frames is saved as video and at least quality indicators are used to quantify quality of said video (paragraph 0079).

Regarding claim 16, Walker teaches comprising giving a user suggestions on improvement of the video (paragraphs 0079 and 0556).

Regarding claim 17, Walker teaches wherein at least one lens/sensor module parameter is changed, based on said combining, to achieve better total QI (paragraphs 0044 and 0506).

Regarding claim 18, Walker teaches automatic image capturing of at least one picture once a configured total quality indicator meets a minimum threshold, even without the user pressing a shutter button (paragraphs 0282 and 0715).

Regarding claim 19, Walker teaches wherein blur type detection is used for alerting the user of object movement in a region (paragraph 0303).

Regarding claim 20, Walker teaches wherein blur type detection is used for alerting the user he is moving too fast in a vehicle to achieve a non-blurred image (paragraphs 0160, 0303, and 0444).

Regarding claim 21, Walker teaches wherein at least one quality indicator is used as a delete-picture indication (paragraph 0715).



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
14/437,105	04/20/2015		565	SIVOOIUS	29	4

CONFIRMATION NO. 8102

FILING RECEIPT



0000000075898620

112864
Eva L. Taksel
306 Burnt Mills Ave
Silver Spring, MD 20901-1204

Date Mailed: 07/06/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Ishay Sivan, Tel Aviv, ISRAEL;

Applicant(s)

Ishay SIVAN, Tel Aviv, ISRAEL

Power of Attorney: The patent practitioners associated with Customer Number 112864

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/IL2013/050856 10/22/2013
which claims benefit of 61/717,216 10/23/2012
and claims benefit of 61/759,643 02/01/2013

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 06/23/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/437,105**

Projected Publication Date: 10/08/2015

Non-Publication Request: No

Early Publication Request: No

**** MICRO ENTITY ****

Title

REAL TIME ASSESSMENT OF PICTURE QUALITY

Preliminary Class**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No****PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

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

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

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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

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

NOT GRANTED

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

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET Substitute for Form PTO-1360 (For use with Form PTO/SB/06)							Application Number 14437105		Filing Date	
							Applicant(s) Ishay SIVAN			
							* May be used for additional claims or amendments			
CLAIMS	AS FILED		AFTER FIRST AMENDMENT		AFTER SECOND AMENDMENT			*	*	*
	Indep	Depend	Indep	Depend	Indep	Depend				
1	1		1							
2		1		1						
3		1		1						
4		1		1						
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Total Indep	7		4		0					
Total Depend	25	↙	25	↙	0	↙				
Total Claims	32		29		0					
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number
14/437,105

APPLICATION AS FILED - PART I

(Column 1)		(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	70
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	120
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	180
TOTAL CLAIMS (37 CFR 1.16(j))	29	minus 20 = * 9			OR	x 20 =	180
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = * 1				x 105 =	105
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
			TOTAL			TOTAL	655

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

APPLICATION AS AMENDED - PART II

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

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

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

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

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

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



UNITED STATES PATENT AND TRADEMARK OFFICE

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

U.S. APPLICATION NUMBER NO.	FIRST NAMED INVENTOR	ATTY. DOCKET NO.
14/437,105	Ishay Sivan	SIVOO1US

112864

Eva L. Taksel

306 Burnt Mills Ave

Silver Spring, MD 20901-1204

INTERNATIONAL APPLICATION NO.

PCT/IL2013/050856

I.A. FILING DATE	PRIORITY DATE
10/22/2013	10/23/2012

CONFIRMATION NO. 8102
371 ACCEPTANCE LETTER



OC000000075898621

Date Mailed: 07/06/2015

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office, in its capacity as a Designated / Elected Office (37 CFR 1.495), has ACCEPTED the above identified international application for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above. A Filing Receipt will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE or 371(c) DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1) and (c)(2) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN BELOW.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363)

04/20/2015

DATE OF RECEIPT OF 35 U.S.C.
371(c)(1) and (c)(2) REQUIREMENTS

The following items have been received:

- Copy of the International Application filed on 04/20/2015
- Copy of the International Search Report filed on 04/20/2015
- Copy of IPE Report filed on 04/20/2015
- Copy of Annexes to the IPE filed on 04/20/2015
- Preliminary Amendments filed on 04/20/2015
- Information Disclosure Statements filed on 05/05/2015
- Inventor's Oath or Declaration filed on 04/20/2015
- Request for Immediate Examination filed on 04/20/2015
- U.S. Basic National Fees filed on 04/20/2015
- Priority Documents filed on 04/20/2015
- Power of Attorney filed on 04/20/2015
- Application Data Sheet (37 CFR 1.76) filed on 04/20/2015

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

VONDA M WALLACE

Telephone: (571) 272-3734

To: sollar@neto.net.il,espatents@gmail.com,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 112864

Jul 06, 2015 05:34:03 AM

Dear PAIR Customer:

Eva L. Taksel
306 Burnt Mills Ave
Silver Spring, MD 20901-1204
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 112864 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
14437105	APP.FILE.REC	07/06/2015	SIVOO1US
	M903	07/06/2015	SIVOO1US

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/437,105	Filing Date 04/20/2015	☐ To be Mailed
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ENTITY: ☐ LARGE ☐ SMALL ☒ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

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

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT	05/05/2015	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 29	Minus	**	= 29	X \$20 =	580
	Independent (37 CFR 1.16(h))	* 4	Minus	***	= 4	X \$105 =	420
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						1000	

(Column 1)

(Column 2)

(Column 3)

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

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

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

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

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

LIE
/ERNEST MARFO/

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

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

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.

POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Application Number	14/437,105
	Filing Date	April 20, 2015
	First Named Inventor	Ishay SIVAN
	Title	REAL TIME ASSESMENT OF...
	Art Unit	2661
	Examiner Name	Not yet assigned
	Attorney Docket Number	SIVAN-001-US

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

131926

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application 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

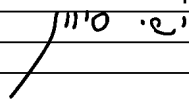
Email

I am the:

☒ Applicant/Inventor.

OR

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.**SIGNATURE of Applicant or Assignee of Record**

Signature		Date	Aug 10 2015
Name	Ishay SIVAN	Telephone	
Title and Company			

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 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.

Privacy Act Statement

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

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

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

Electronic Acknowledgement Receipt

EFS ID:	23171040
Application Number:	14437105
International Application Number:	
Confirmation Number:	8102
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY
First Named Inventor/Applicant Name:	Ishay Sivan
Customer Number:	112864
Filer:	Yehuda Binder
Filer Authorized By:	
Attorney Docket Number:	SIVOO1US
Receipt Date:	11-AUG-2015
Filing Date:	20-APR-2015
Time Stamp:	09:30:11
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Signed-POA.pdf	147536 79b14b2780922c99fa738038d34dd3218250a0db	no	2

Warnings:

Information:

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.



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/437,105	04/20/2015	Ishay Sivan	SIVAN-001-US

CONFIRMATION NO. 8102

POA ACCEPTANCE LETTER

131926
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL



Date Mailed: 08/18/2015

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/11/2015.

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.

/hsarwari/



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/437,105	04/20/2015	Ishay Sivan	SIVOOIUS

CONFIRMATION NO. 8102

POWER OF ATTORNEY NOTICE

112864
Eva L. Taksel
306 Burnt Mills Ave
Silver Spring, MD 20901-1204



Date Mailed: 08/18/2015

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/11/2015.

- 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.

/hsarwari/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ATTY.'S DOCKET: SIVAN-001-US

In re Application of:	)	Confirmation No. 8102
	)	
Ishay SIVAN	)	Art Unit: 2661
	)	
Appln. No.: 14/437,105	)	Examiner: Not yet assigned
	)	
Filed: April 20, 2015	)	Washington, D.C.
	)	
For: REAL TIME ASSESSENT OF...	)	August 19, 2015
	)	

AMENDMENT:

Honorable Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building, Mail Stop Amendments
401 Dulany Street
Alexandria, VA 22314

Sir:

This Amendment is to be supplemented to the PPH
Request that hereby submitted.

Amendments to the Claims appear in the Listing of
Claims that begins on page 2 of this paper.

Remarks begin on page 6 of this paper.

Amendments to the claims

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

1. (Original) A digital image acquisition system comprising
an image capture component for capturing in a buffer, a current digital image having pixels;
at least one digital processor programmed for real time computation of multiple quality indicators characterizing quality of the current digital image;
automatic image capturing, and storing in user-accessible memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and
a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,
wherein at least one of said logical criteria are pre-defined over a time-dependent confidence level defined over at least one of said quality indicators.
2. (Original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on analyzing said pixels.
3. (Original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based

on comparing said pixels to previous frame data generated by said image capture component.

4. (Original) A system according to claim 3 wherein said comparing comprises identifying an object in a current and a previous frame and computing the object's speed.

5. (Original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on data received from at least one hardware component operatively associated with the image capture component.

6. (Original) A system according to claim 5 wherein said hardware component includes at least one of an accelerometer, gyro, GPS receiver.

7. (Original) A system according to claim 1 wherein at least one of said indicators characterizing quality is computed based on 4D device coordinates.

8. (Original) A system according to claim 1 wherein said logical criterion comprises whether or not a total quality indicator computed by combining said multiple quality indicators, exceeds a predetermined threshold.

9. (Original) A system according to claim 1 wherein said logical criterion comprises whether or not each of said multiple quality indicators, exceeds a predetermined threshold.

10. (Original) A system according to claim 1 wherein said logical criterion comprises a logical expression combining with at least one OR, several logical conditions of whether or not

certain individual indicators from among said multiple quality indicators, exceeds a predetermined respective threshold.

11-13. (Canceled).

14. (Original) A system according to claim 1 wherein said pre-stored table of suggestions includes a suggestion of changing at least one characteristic of said image capture component.

15-21. (Canceled).

22. (Original) A system according to claim 1 wherein said automatic capturing occurs only after a user presses a shutter button.

23. (Original) A system according to claim 1 wherein said automatic capturing occurs regardless of whether a user has pressed a shutter button.

24. (Original) A system according to claim 1 wherein one quality indicator comprises a quantification of blurriness in the current image and wherein said table includes a "Remove Moving Object From Scene Or Cause Object To Remain Stationary" message and wherein the message provider is operative, while said logical criterion is still not satisfied, to select same message, based on a condition pre-defined on said blurriness quantification.

25. (Original) A system according to claim 5 wherein said logical criterion comprises a criterion predicting based on at least one of an accelerometer and a GPS receiver, a time at which there will be an acceptably low level of image capture

component shake, and said automatic image capturing occurs at said time.

26. (Original) A system according to claim 14 wherein said at least one characteristic of said image capture component comprises at least one of angle and position thereof.

27. (Original) A computer program product, comprising a non-transitory tangible computer readable medium having computer readable program code embodied therein, said computer readable program code adapted to be executed to implement a digital image acquisition method comprising:

real time computation of multiple quality indicators characterizing quality of a current digital image;

automatic image capturing, and storing in memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and

selecting, while said first logical criterion is still not satisfied, based on at least one second logical criterion predefined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user,

wherein at least one of said logical criteria are predefined over a time-dependent confidence level defined over at least one of said quality indicators.

28-32. (Canceled).

Appln. No. 14/437,105

Amendment is to be supplemented to the PPH Request

REMARKS

Via the present Amendment, the applicant conforms the claims of this US Application to the claims that were found in the International Preliminary Report on Patentability with novelty, inventive step and industrial applicability.

The new set of claims is hereby provided along a PPH request.

Respectfully submitted,

By /yb/
Yehuda Binder
Registration No. 73,612

Electronic Acknowledgement Receipt

EFS ID:	23245772
Application Number:	14437105
International Application Number:	
Confirmation Number:	8102
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY
First Named Inventor/Applicant Name:	Ishay Sivan
Customer Number:	131926
Filer:	Yehuda Binder
Filer Authorized By:	
Attorney Docket Number:	SIVAN-001-US
Receipt Date:	19-AUG-2015
Filing Date:	20-APR-2015
Time Stamp:	04:38:19
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition to make special under Patent Prosecution Hwy	PPH-request.pdf	211283 5d7677c123072d0494265430a3bd510d1b418035	no	3

Warnings:

Information:

2		PPH-Amendment.pdf	122144	yes	6
			b23ae875e2dae2be704656ddfd3b27e4e13eafc1		
Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Preliminary Amendment			1	1	
Claims			2	5	
Applicant Arguments/Remarks Made in an Amendment			6	6	
Warnings:					
Information:					
Total Files Size (in bytes):			333427		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

REQUEST FOR PARTICIPATION IN THE GLOBAL/IP5 PATENT PROSECUTION HIGHWAY (PPH) PILOT PROGRAM IN THE USPTO

Application No.:	14/437,105	First Named Inventor:	Ishay SIVAN
Filing Date:	April 20, 2015	Attorney Docket No.:	SIVAN-001-US
Title of the Invention:	REAL TIME ASSESMENT OF PICTURE QUALITY		

THIS REQUEST FOR PARTICIPATION IN THE PPH PILOT PROGRAM ALONG WITH THE REQUIRED DOCUMENTS MUST BE SUBMITTED VIA EFS-WEB. INFORMATION REGARDING EFS-WEB IS AVAILABLE AT [HTTP://WWW.USPTO.GOV/PATENTS-APPLICATION-PROCESS/FILING-ONLINE/ABOUT-EFS-WEB](http://www.uspto.gov/patents-application-process/filing-online/about-efs-web).

APPLICANT HEREBY REQUESTS PARTICIPATION IN THE PATENT PROSECUTION HIGHWAY (PPH) PILOT PROGRAM AND PETITIONS TO MAKE THE ABOVE-IDENTIFIED APPLICATION SPECIAL UNDER THE PPH PILOT PROGRAM.

Office of earlier examination (OEE):

OEE application number: PCT/IL2013/050856

Both the OEE application and the above-identified U.S. application have the following earliest date (filing or priority date): 23 October 2012

Type of OEE work product relied upon:

Mailing date of OEE work product: IPRP/US dated April 6, 2015

Supporting Documents

One or more of the required documents below may be available electronically from the Dossier Access System or PATENTSCOPE (see <https://www.jpo.go.jp/ppph-portal/filewrapper.htm>). If the applicant requests the USPTO to attempt to obtain a document electronically and such attempt is unsuccessful, the applicant will be required to supply the document. Accordingly, to avoid dismissal of the initial PPH request and potential denial of participation in the PPH program, the applicant should verify that the document is actually available via the Dossier Access System or PATENTSCOPE before requesting retrieval. If the applicant is unable to verify availability, then the applicant should submit the document with the PPH request.

1. OEE Work Product and Translation

A copy of the OEE work product and translation if not already in English:

- ☐ Attached
 ☐ Previously submitted
 ☐ Not required because the decision to grant a patent was the first office action
- ☒ Applicant requests the USPTO to attempt to obtain the document(s) from the Dossier Access System or PATENTSCOPE

2. References Cited in OEE Work Product

A listing of references cited in the OEE work product and document copies (except U.S. patents and U.S. published patent applications):

- ☐ Attached
 ☒ Previously Submitted
 ☐ Not required because no references were cited in the OEE work product
- ☐ Applicant requests the USPTO to attempt to obtain the document(s) from the Dossier Access System or PATENTSCOPE

[Page 1 of 2]

This collection of information is required by 35 U.S.C. 119, 37 CFR 1.55, and 37 CFR 1.102(d). 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 2 hours 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.

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.

REQUEST FOR PARTICIPATION IN THE GLOBAL/IP5 PPH PILOT PROGRAM IN THE USPTO
(continued)

Application No.:	14/437,105	First Named Inventor:	Ishay SIVAN
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3. Claims Correspondence Certification Statement

All of the claims in this application sufficiently correspond to the patentable/allowable claims in the OEE application.

4. Claims Correspondence Table

[illegible]

Signature <u>/yb/</u>	Date August 19, 2015
Name <u>BINDER Yehuda</u> (Print/Typed)	Registration Number <u>73,612</u>

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 14/437,105			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	70		
SEARCH FEE (37 CFR 1.16(k), (j), or (m))	N/A	N/A	N/A			N/A	120		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	180		
TOTAL CLAIMS (37 CFR 1.16(i))	29	minus 20 = 9				x 20 =	180		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = 1				x 105 =	105		
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00		
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	655		
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)		
	Total (37 CFR 1.16(i))	Minus	**	x	=	x	=		
	Independent (37 CFR 1.16(h))	Minus	***	x	=	x	=		
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
(Column 1)		(Column 2)		(Column 3)		TOTAL ADD'L FEE		TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		TOTAL ADD'L FEE		TOTAL ADD'L FEE	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)		
	Total (37 CFR 1.16(i))	Minus	**	x	=	x	=		
	Independent (37 CFR 1.16(h))	Minus	***	x	=	x	=		
	Application Size Fee (37 CFR 1.16(s))								
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
(Column 1)		(Column 2)		(Column 3)		TOTAL ADD'L FEE		TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		TOTAL ADD'L FEE		TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/437,105	04/20/2015	Ishay Sivan	SIVAN-001-US

CONFIRMATION NO. 8102

PUBLICATION NOTICE



OC000000077944112

131926
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

Title:REAL TIME ASSESSMENT OF PICTURE QUALITY

Publication No.US-2015-0288874-A1

Publication Date:10/08/2015

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 Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, 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 <http://pair.uspto.gov/>. 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 Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

131926 7590 10/28/2015
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

EXAMINER

HANNETT, JAMES M

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 10/28/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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14/437,105

04/20/2015

Ishay Sivan

SIVAN-001-US

8102

TITLE OF INVENTION: REAL TIME ASSESSMENT OF PICTURE QUALITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	MICRO	\$240	\$0	\$0	\$240	01/28/2016

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

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

131926 7590 10/28/2015
 May Patents Ltd. c/o Dorit Shem-Tov
 P.O.B 7230
 Ramat-Gan, 5217102
 ISRAEL

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/437,105	04/20/2015	Ishay Sivan	SIVAN-001-US	8102

TITLE OF INVENTION: REAL TIME ASSESSMENT OF PICTURE QUALITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	MICRO	\$240	\$0	\$0	\$240	01/28/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
HANNETT, JAMES M	2662	348-207100

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

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

2. For printing on the patent front page, list

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

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

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

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

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

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

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

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/437,105	04/20/2015	Ishay Sivan	SIVAN-001-US	8102
131926	7590	10/28/2015	EXAMINER	
May Patents Ltd. c/o Dorit Shem-Tov			HANNETT, JAMES M	
P.O.B 7230			ART UNIT	PAPER NUMBER
Ramat-Gan, 5217102			2662	
ISRAEL			DATE MAILED: 10/28/2015	

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

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

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

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

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 14/437,105	Applicant(s) SIVAN, ISHAY	
	Examiner JAMES HANNETT	Art Unit 2662	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to the claims filed 8/19/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-10 and 22-27. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

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

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

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

Attachment(s)

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

/JAMES HANNETT/
Primary Examiner, Art Unit 2662

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

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 5/5/2015 was filed in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Allowable Subject Matter

Claims 1-10 and 22-27 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art does not teach a digital image acquisition system comprising an image capture component for capturing in a buffer, a current digital image having pixels; at least one digital processor programmed for real time computation of multiple quality indicators characterizing quality of the current digital image; automatic image capturing, and storing in user-accessible memory, of at least one image only after a first logical criterion predefined on said multiple quality indicators, is satisfied; and a message provider operative, while said first logical criterion is still not satisfied, to select, based on at least one second logical criterion pre-defined on at least one of said multiple quality indicators, at least one appropriate suggestion from a pre-stored table of suggestions of how a user of the system may cause said first logical criterion to be satisfied and to present said appropriate suggestion to the user, wherein at least one of said logical criteria are pre- defined over a time-dependent confidence level defined

over at least one of said quality indicators. Therefore, the claims are allowed over the prior art.

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 James M. Hannett whose telephone number is 571-272-7309. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roberto Velez can be reached on 571-272-8597. 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).

/James M. Hannett/
Primary Examiner
Art Unit 2662

Application/Control Number: 14/437,105
Art Unit: 2662

Page 4

JMH
October 28, 2015

Notice of References Cited	Application/Control No. 14/437,105		Applicant(s)/Patent Under Reexamination SIVAN, ISHAY	
	Examiner JAMES HANNETT		Art Unit 2662	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-2011/0075930 A1	03-2011	Cerosaletti; Cathleen D.	G06K9/00677	382/190
*	B	US-8,330,826 B2	12-2012	Cerosaletti; Cathleen D.	G06K9/00664	348/222.1
*	C	US-2006/0017820 A1	01-2006	Kim; Su-hyun	H04N5/772	348/231.2
*	D	US-9,154,692 B2	10-2015	Son; Joo-Young	H04N5/23222	1/1
*	E	US-8,081,227 B1	12-2011	Kim; Grace	H04N5/23293	348/211.3
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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



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 Alexandria, Virginia 22313-1450
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BIB DATA SHEET

CONFIRMATION NO. 8102

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
14/437,105	04/20/2015	348	2662	SIVAN-001-US		
APPLICANTS Ishay SIVAN, Tel Aviv, ISRAEL INVENTORS Ishay Sivan, Tel Aviv, ISRAEL; ** CONTINUING DATA ***** This application is a 371 of PCT/IL2013/050856 10/22/2013 which claims benefit of 61/717,216 10/23/2012 and claims benefit of 61/759,643 02/01/2013 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** MICRO ENTITY ** 06/23/2015						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/JAMES M HANNETT/</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY ISRAEL	SHEETS DRAWINGS 4	TOTAL CLAIMS 29	INDEPENDENT CLAIMS 4
ADDRESS May Patents Ltd. c/o Dorit Shem-Tov P.O.B 7230 Ramat-Gan, 5217102 ISRAEL						
TITLE REAL TIME ASSESSMENT OF PICTURE QUALITY						
FILING FEE RECEIVED 565	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Search Notes 	Application/Control No. 14437105	Applicant(s)/Patent Under Reexamination SIVAN, ISHAY
	Examiner JAMES HANNETT	Art Unit 2662

CPC- SEARCHED		
Symbol	Date	Examiner
H04N 5/23222, 5/23229,5/23258	10/23/2015	JMH

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
East Search	10/23/2015	JMH
Inventor Name Search	10/23/2015	JMH

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	PGPUB text search, see interference search report.	10/23/2015	JMH

	/JAMES HANNETT/ Primary Examiner.Art Unit 2662
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14437105
	Filing Date		2015-04-20
	First Named Inventor	ISHAY SIVAN	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	SIV001US	

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7362354	A1	2008-04-22	Qian Lin	
	2	7688379	A1	2010-03-30	George Forman	
	3	8125557	A1	2012-02-28	Wan-Yu Chen	
	4	7920727	A1	2011-05-04	Chi-Jung Weng	
	5	8040382	A1	2011-10-18	Phillippe Kahn	
	6	8285067	A1	2012-10-09	Eran Steinberg	
	7	8244053	A1	2012-08-14	Eran Steinberg	
	8	7982770		2011-07-19	Phillippe Kahn	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

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

Application Number	14437105
Filing Date	2015-04-20
First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

	9	8131118		2012-06-03	Yushi Jing	
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If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20130155474	A1	2013-06-20	Mitek Systems	
	2	20070195174	A1	2007-08-23	Halpern Oren	
	3	20090278958	A1	2009-11-12	Orna Bregman-Amitai	
	4	20090263028	A1	2009-10-22	Sung Jin Kwon	
	5	20060017820	A1	2006-01-26	Su-hyun Kim	
	6	20060056835	A1	2006-03-16	Eunice Poon	
	7	20110096180	A1	2011-04-28	Scott McCloskey	
	8	20120133816	A1	2012-04-22	Francisco Imai	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

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

Application Number	14437105
Filing Date	2015-04-20
First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

9	20100290673	A1	2010-11-18	Naoyuki Miyashita	
10	20130058561	A1	2014-09-30	Chia-Ming Cheng	
11	20130038771	A1	2013-02-14	Apple Inc	
12	20140050367	A1	2014-02-20	Francine Chen	
13	20130050507	A1	2014-02-25	Zia Syed	
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15	20130063538	A1	2013-03-14	Paul Hubner	
16	20120086847	A1	2012-04-12	Brett Foster	
17	20100026872	A1	2011-12-20	Jin-Lin Jiang	
18	20040174434	A1	2004-09-09	Jay Walker	
19	20110279700	B1	2011-11-17	Eran Steinberg	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14437105
	Filing Date		2015-04-20
	First Named Inventor	ISHAY SIVAN	
	Art Unit		
	Examiner Name		
	Attorney Docket Number		SIV001US

	20					
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If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	WO2003069559			2003-08-21	Qian Lin		☐
	2	WO2011148212			2011-12-01	Sony Ericsson Mobile Communications AB		☐
	3	2008033200	JP	A	2008-02-14	Nikon Corp		☐
	4	2007208922	JP	B2	2007-08-16	Fujifilm Corp		☐
	5	2006050494	JP	B2	2006-02-16	Casio Comput Co Ltd		☐
	6	WO2004030378			2004-04-08	Poulsen Anders		☐
	7	WO13044983			2013-04-04	Klaus Michael Hoffman		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14437105
	Filing Date		2015-04-20
	First Named Inventor	ISHAY SIVAN	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	SIV001US	

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/James Hannett/	Date Considered	10/23/2015
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

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

Application Number	14437105
Filing Date	2015-04-20
First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

CERTIFICATION STATEMENT

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

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

OR

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

☐ See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Eva Taksel/	Date (YYYY-MM-DD)	2015-05-05
Name/Print	Eva Taksel	Registration Number	47985

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

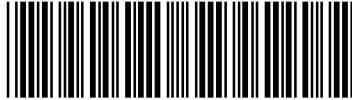
Privacy Act Statement

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 the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent 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 inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/

<i>Index of Claims</i> 	Application/Control No. 14437105	Applicant(s)/Patent Under Reexamination SIVAN, ISHAY
	Examiner JAMES HANNETT	Art Unit 2662

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

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

EAST Search History (Prior Art)

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EAST Search History (Interference)

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Issue Classification 	Application/Control No. 14437105	Applicant(s)/Patent Under Reexamination SIVAN, ISHAY	
	Examiner JAMES HANNETT	Art Unit 2662	

CPC						
Symbol					Type	Version
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H04N		5	/	23258	I	2013-01-01
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CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
		16	
(Assistant Examiner)	(Date)	O.G. Print Claim(s)	O.G. Print Figure
/JAMES HANNETT/ Primary Examiner.Art Unit 2662	10/23/2015	1	1
(Primary Examiner)	(Date)		

Issue Classification 	Application/Control No. 14437105	Applicant(s)/Patent Under Reexamination SIVAN, ISHAY
	Examiner JAMES HANNETT	Art Unit 2662

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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NONE		Total Claims Allowed:	
		16	
(Assistant Examiner) /JAMES HANNETT/ Primary Examiner.Art Unit 2662 (Primary Examiner)	(Date) 10/23/2015 (Date)	O.G. Print Claim(s)	O.G. Print Figure
		1	1

PRINTER RUSH

(PTO ASSISTANCE)

Application: 14437105

Examiner: Hannett

GAU: 2662

From: Daxa Patel

Location: IDC

Creation Date: 11/17/2015

Tracking #: Week Date: 11/02/2015

<u>DOC CODE</u>	<u>DOC DATE</u>	<u>MISCELLANEOUS</u>
☐ 1449		☐ Continuing Data
☐ IDS		☐ Foreign Priority
☒ CLM	<u>08/19/2015</u>	☐ Document Legibility
☒ IIFW/FWCLM	<u>10/28/2015</u>	☐ Fees
☐ SRFW		☐ Petition (TC)
☐ DRW		☐ Other
☐ OATH		
☐ 312		
☐ SPEC		

[RUSH] Message:

Original claim 14 is not renumbered on claim index. Please verify allowance of claim and renumber claim index accordingly.

Thank you
Dp

[XRUSH] Response:

Initials: _____

PRINTER RUSH

(PTO ASSISTANCE)

Application: 14437105

Examiner: Hannett

GAU: 2662

From: Daxa Patel

Location: IDC

Creation Date: 11/17/2015

Tracking #: Week Date: 11/02/2015

<u>DOC CODE</u>	<u>DOC DATE</u>	<u>MISCELLANEOUS</u>
☐ 1449		☐ Continuing Data
☐ IDS		☐ Foreign Priority
☒ CLM	<u>08/19/2015</u>	☐ Document Legibility
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☐ DRW		☐ Other
☐ OATH		
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☐ SPEC		

[RUSH] Message:

Original claim 14 is not renumbered on claim index. Please verify allowance of claim and renumber claim index accordingly.

Thank you
Dp

[XRUSH] Response:

Corrected

Initials: /JH/



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/437,105	04/20/2015	Ishay Sivan	SIVAN-001-US	8102

131926 7590 11/27/2015
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

EXAMINER

HANNETT, JAMES M

ART UNIT	PAPER NUMBER
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2662

MAIL DATE	DELIVERY MODE
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11/27/2015

PAPER

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.

Corrected Notice of Allowability	Application No. 14/437,105	Applicant(s) SIVAN, ISHAY	
	Examiner JAMES HANNETT	Art Unit 2662	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to the claims filed 8/19/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-10, 14 and 22-27. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

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

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

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

Attachment(s)

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

/JAMES HANNETT/
 Primary Examiner, Art Unit 2662

Issue Classification 	Application/Control No. 14437105	Applicant(s)/Patent Under Reexamination SIVAN, ISHAY	
	Examiner JAMES HANNETT	Art Unit 2662	

CPC					
Symbol				Type	Version
H04N		5	23222	F	2013-01-01
H04N		5	23229	I	2013-01-01
H04N		5	23258	I	2013-01-01

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
		17	
(Assistant Examiner)	(Date)		
/JAMES HANNETT/ Primary Examiner.Art Unit 2662	11/23/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 14437105	Applicant(s)/Patent Under Reexamination SIVAN, ISHAY
	Examiner JAMES HANNETT	Art Unit 2662

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17												
	2		18												
	3		19												
	4		20												
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	12		28												
	13		29												
	14		30												
	15		31												
	16		32												

NONE	Total Claims Allowed: 17	
(Assistant Examiner)	(Date)	
/JAMES HANNETT/ Primary Examiner.Art Unit 2662	11/23/2015	O.G. Print Claim(s) 1
(Primary Examiner)	(Date)	O.G. Print Figure 1

<i>Index of Claims</i> 	Application/Control No. 14437105	Applicant(s)/Patent Under Reexamination SIVAN, ISHAY
	Examiner JAMES HANNETT	Art Unit 2662

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

☒ Claims renumbered in the same order as presented by applicant			☐ CPA			☐ T.D.			☐ R.1.47		
CLAIM		DATE									
Final	Original	11/23/2015									
	1	=									
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	3	=									
	4	=									
	5	=									
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	29	-									
	30	-									
	31	-									
	32	-									

PART B - FEE(S) TRANSMITTAL

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

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

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

May Patents Ltd.
c/o Dorit Shem-Tov
P.O.B. 7230
Ramat-Gan 5217102,
Israel

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/437,105	04/20/2015	Ishay SIVAN	SIVAN-001-US	8102

TITLE OF INVENTION:

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	MICRO	\$240	\$0	\$0	\$240	01/28/2016
EXAMINER	ART UNIT	CLASS-SUBCLASS				

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

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

2. For printing on the patent front page, list

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

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

1 May Patents Ltd. c/o Dorit Shem-Tov

2 _____

3 _____

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

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

(A) NAME OF ASSIGNEE

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

SNAP AID LTD.

TEL AVIV

ISRAEL 6935635

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

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

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

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

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 506726 (enclose an extra copy of this form).

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

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

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

Authorized Signature /yb/
Typed or printed name Yehuda BINDER

Date January 20, 2016
Registration No. 73,612

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

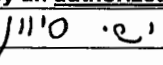
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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.

CERTIFICATION OF MICRO ENTITY STATUS (GROSS INCOME BASIS)			
Application Number or Control Number (if applicable): 14/437,105		Patent Number (if applicable):	
First Named Inventor: Ishay SIVAN		Title of Invention: REAL TIME ASSESSMENT OF PICTURE QUALITY	
The applicant hereby certifies the following—			
(1) SMALL ENTITY REQUIREMENT – The applicant qualifies as a small entity as defined in 37 CFR 1.27. (2) APPLICATION FILING LIMIT – Neither the applicant nor the inventor nor a joint inventor has been named as the inventor or a joint inventor on more than four previously filed U.S. patent applications, excluding provisional applications and international applications under the Patent Cooperation Treaty (PCT) for which the basic national fee under 37 CFR 1.492(a) was not paid, and also excluding patent applications for which the applicant has assigned all ownership rights, or is obligated to assign all ownership rights, as a result of the applicant's previous employment. (3) GROSS INCOME LIMIT ON APPLICANTS AND INVENTORS – Neither the applicant nor the inventor nor a joint inventor, in the calendar year preceding the calendar year in which the applicable fee is being paid, had a gross income, as defined in section 61(a) of the Internal Revenue Code of 1986 (26 U.S.C. 61(a)), exceeding the "Maximum Qualifying Gross Income" reported on the USPTO Web site at http://www.uspto.gov/patents/law/micro_entity.jsp which is equal to three times the median household income for that preceding calendar year, as most recently reported by the Bureau of the Census. (4) GROSS INCOME LIMIT ON PARTIES WITH AN "OWNERSHIP INTEREST" – Neither the applicant nor the inventor nor a joint inventor has assigned, granted, or conveyed, nor is under an obligation by contract or law to assign, grant, or convey, a license or other ownership interest in the application concerned to an entity that, in the calendar year preceding the calendar year in which the applicable fee is being paid, had a gross income, as defined in section 61(a) of the Internal Revenue Code of 1986, exceeding the "Maximum Qualifying Gross Income" reported on the USPTO Web site at http://www.uspto.gov/patents/law/micro_entity.jsp which is equal to three times the median household income for that preceding calendar year, as most recently reported by the Bureau of the Census.			
SIGNATURE by an <u>authorized party</u> set forth in 37 CFR 1.33(b)			
Signature			
Name		Ishay SIVAN	
Date	January 22, 201	Telephone	+972-54-6549030
		Registration No.	
☐	There is more than one inventor and I am one of the inventors who are jointly identified as the applicant. The required additional certification form(s) signed by the other joint inventor(s) are included with this form.		

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.

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

Electronic Patent Application Fee Transmittal

Application Number:	14437105			
Filing Date:	20-Apr-2015			
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY			
First Named Inventor/Applicant Name:	Ishay Sivan			
Filer:	Yehuda Binder			
Attorney Docket Number:	SIVAN-001-US			
Filed as Micro Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Issue Fee	3501	1	240	240

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				240

Electronic Acknowledgement Receipt

EFS ID:	24694883
Application Number:	14437105
International Application Number:	
Confirmation Number:	8102
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY
First Named Inventor/Applicant Name:	Ishay Sivan
Customer Number:	131926
Filer:	Yehuda Binder
Filer Authorized By:	
Attorney Docket Number:	SIVAN-001-US
Receipt Date:	22-JAN-2016
Filing Date:	20-APR-2015
Time Stamp:	07:33:38
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$240
RAM confirmation Number	7853
Deposit Account	506726
Authorized User	BINDER, YEHUDA

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	ptol85b.pdf	74625	no	2
			2eeb88a7bf43f99cfb0231c2000aa34bc8de7b3b		
Warnings:					
Information:					
2	Certification of Micro Entity (Gross Income Basis)	Signed-Micro-entity-with-issue.pdf	132518	no	2
			7c72468aad76d1f5102f0335d9cff66bd8215f03		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30002	no	2
			29f8ff00ad9b57467b7649ad414cc044f636e62a		
Warnings:					
Information:					
Total Files Size (in bytes):			237145		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PART B - FEE(S) TRANSMITTAL

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

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

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

May Patents Ltd.
c/o Dorit Shem-Tov
P.O.B. 7230
Ramat-Gan 5217102,
Israel



Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/437,105	04/20/2015	Ishay SIVAN	SIVAN-001-US	8102

TITLE OF INVENTION:

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	MICRO	\$240	\$0	\$0	\$240	01/28/2016
EXAMINER	ART UNIT	CLASS-SUBCLASS				

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.
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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 May Patents Ltd. c/o Dorit Shem-Tov

2

3

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

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

(A) NAME OF ASSIGNEE

SNAPPAID LTD.

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

TEL AVIV

ISRAEL 6935635

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

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

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

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

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 508726 (enclose an extra copy of this form).

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

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

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

Authorized Signature /yb/

Typed or printed name Yehuda BINDER

Date 01/22/2016
January 20, 2016
01 FC:3581
Registration No. 73,612 240.00 DA

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

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

CERTIFICATION OF MICRO ENTITY STATUS (GROSS INCOME BASIS)					
Application Number or Control Number (if applicable): 14/437,105			Patent Number (if applicable):		
First Named Inventor: Ishay Sivan			Title of Invention: REAL TIME ASSESSMENT OF PICTURE QUALITY		
The applicant hereby certifies the following—					
(1) SMALL ENTITY REQUIREMENT – The applicant qualifies as a small entity as defined in 37 CFR 1.27. (2) APPLICATION FILING LIMIT – Neither the applicant nor the inventor nor a joint inventor has been named as the inventor or a joint inventor on more than four previously filed U.S. patent applications, excluding provisional applications and international applications under the Patent Cooperation Treaty (PCT) for which the basic national fee under 37 CFR 1.492(a) was not paid, and also excluding patent applications for which the applicant has assigned all ownership rights, or is obligated to assign all ownership rights, as a result of the applicant's previous employment. (3) GROSS INCOME LIMIT ON APPLICANTS AND INVENTORS – Neither the applicant nor the inventor nor a joint inventor, in the calendar year preceding the calendar year in which the applicable fee is being paid, had a gross income, as defined in section 61(a) of the Internal Revenue Code of 1986 (26 U.S.C. 61(a)), exceeding the "Maximum Qualifying Gross Income" reported on the USPTO Web site at http://www.uspto.gov/patents/law/micro_entity.jsp which is equal to three times the median household income for that preceding calendar year, as most recently reported by the Bureau of the Census. (4) GROSS INCOME LIMIT ON PARTIES WITH AN "OWNERSHIP INTEREST" – Neither the applicant nor the inventor nor a joint inventor has assigned, granted, or conveyed, nor is under an obligation by contract or law to assign, grant, or convey, a license or other ownership interest in the application concerned to an entity that, in the calendar year preceding the calendar year in which the applicable fee is being paid, had a gross income, as defined in section 61(a) of the Internal Revenue Code of 1986, exceeding the "Maximum Qualifying Gross Income" reported on the USPTO Web site at http://www.uspto.gov/patents/law/micro_entity.jsp which is equal to three times the median household income for that preceding calendar year, as most recently reported by the Bureau of the Census.					
SIGNATURE by an <u>authorized party</u> set forth in 37 CFR 1.33(b)					
Signature		/yb/			
Name		Yehuda BINDER			
Date		2016-10-03		Telephone	Registration No. 73612
☐		There is more than one inventor and I am one of the inventors who are jointly identified as the applicant. The required additional certification form(s) signed by the other joint inventor(s) are included with this form.			

Privacy Act Statement

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

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

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

Electronic Acknowledgement Receipt

EFS ID:	25154400
Application Number:	14437105
International Application Number:	
Confirmation Number:	8102
Title of Invention:	REAL TIME ASSESSMENT OF PICTURE QUALITY
First Named Inventor/Applicant Name:	Ishay Sivan
Customer Number:	131926
Filer:	Yehuda Binder
Filer Authorized By:	
Attorney Docket Number:	SIVAN-001-US
Receipt Date:	10-MAR-2016
Filing Date:	20-APR-2015
Time Stamp:	01:19:07
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Certification of Micro Entity (Gross Income Basis)	Signed-Micro-entity.pdf	120001 46a1d4f7c86f4b6f709fc464bd83959c862c31d8	no	2

Warnings:

Information:

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.

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

Application Number	14437105
Filing Date	2015-04-20
First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

	9	20100290673	A1	2010-11-18	Naoyuki Miyashita	
	10	20130058561	A1	2014-09-30	Chia-Ming Cheng	
Change(s) applied to document, /D.H.P./ 12/1/2015	11	20130038771	A1	2013-02-14	~~Apple Inc~~ Brunner; Ralph ; et al.	
	12	20140050367	A1	2014-02-20	Francine Chen	
	13	20130050507	A1	2014-02-25	Zia Syed	
	14	20120182447	A1	2013-02-19	Chanan Gabay	
	15	20130063538	A1	2013-03-14	Paul Hubner	
	16	20120086847	A1	2012-04-12	Brett Foster	
	17	20100026872	A1	2011-12-20	Jin-Lin Jiang	
	18	20040174434	A1	2004-09-09	Jay Walker	
	19	20110279700	B1	2011-11-17	Eran Steinberg	

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

Application Number	14437105
Filing Date	2015-04-20
First Named Inventor	ISHAY SIVAN
Art Unit	
Examiner Name	
Attorney Docket Number	SIV001US

9	8131118		2012-06-03	Yushi Jing	
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If you wish to add additional U.S. Patent citation information please click the Add button.

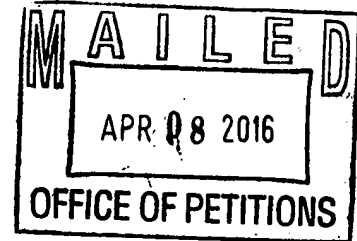
U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
Change(s) applied to document, AD.H.P./ 12/1/2015	1	20130155474	A1	2013-06-20	~~Mitek Systems~~ Roach, John J.; et al.	
	2	20070195174	A1	2007-08-23	Halpern Oren	
	3	20090278958	A1	2009-11-12	Orna Bregman-Amitai	
	4	20090263028	A1	2009-10-22	Sung Jin Kwon	
	5	20060017820	A1	2006-01-26	Su-hyun Kim	
	6	20060056835	A1	2006-03-16	Eunice Poon	
	7	20110096180	A1	2011-04-28	Scott McCloskey	
	8	20120133816	A1	~~2012-04-22~~ 5/2012	Francisco Imai	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JH/



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United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**MAY PATENTS LTD.
C/O DORIT SHEM-TOV
P.O. BOX 7230
RAMAT-GAN 52171-02 IL
ISRAEL**

In re Application of:
Ishay SIVAN
Application No. 14/437,105
Filed 20 April 2015
For: REAL TIME ASSESSMENT OF
PICTURE QUALITY

: DECISION ON REQUEST TO
: PARTICIPATE IN THE PATENT
: PROSECUTION HIGHWAY
: PROGRAM AND PETITION
: TO MAKE SPECIAL UNDER
: 37 CFR 1.102(a)

This is a decision on the request to participate in the Patent Prosecution Highway (PPH) program and the petition under 37 CFR 1.102(a), filed 19 August 2015, to make the above-identified application special.

The request and petition are **DENIED**.

DISCUSSION

A grantable request to participate in the PPH pilot program and petition to make special require:

1. The U.S. application for which participation in the Global/IP5 PPH pilot program is requested must have the same earliest date, whether this is the priority date or filing date, as that of a corresponding national or regional application filed with another Global/IP5 PPH participating office or a corresponding PCT international application for which one of the Global/IP5 PPH participating offices was the International Searching Authority (ISA) or the International Preliminary Examining Authority (IPEA);
2. Applicant must:
 - a. Ensure all the claims in the U.S. application must sufficiently correspond or be amended to sufficiently correspond to the allowable/patentable claim(s) in the corresponding Office of Earlier Examination (OEE) application and
 - b. Submit a claims correspondence table in English;
3. Examination of the U.S. application has not begun;
4. Applicant must submit:
 - a. Documentation of prior office action:

- i. a copy of the office action(s) just prior to the "Decision to Grant a Patent" from each of the Global/IP5 PPH participating office application(s) containing the allowable/patentable claim(s) or
 - ii. if the allowable/patentable claims(s) are from a "Notification of Reasons for Refusal" then the Notification of Reasons for Refusal or
 - iii. if the Global/IP5 PPH participating office application is a first action allowance then no office action from the Global/IP5 PPH participating office is necessary should be indicated on the request/petition form or
 - iv. the latest work product in the international phase of the OEE PCT application;
 - b. An English language translation of the Global/IP5 PPH participating office action or work product from (4)(a)(i)-(ii) or (iv) above; and
5. Applicant must submit:
- a. An IDS listing the documents cited by the Global/IP5 PPH participating office examiner in the Global/IP5 PPH participating office action or work product (unless already submitted in this application)
 - b. Copies of the documents except U.S. patents or U.S. patent application publications (unless already submitted in this application);

Condition (3) above is not met. Examination of the instant US application has begun, and a Notice of Allowability and Notice of Allowance and Fee(s) Due have been mailed on 28 October 2015.

Telephone inquiries concerning this decision should be directed to Vincent N. Trans whose telephone number is (571) 272-3613.

All other inquiries concerning the examination or status of the application is accessible in the PAIR system at <http://www.uspto.gov/ebc.index.html>.



Charles Kim
Acting Director
Office of Petitions



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/437,105	05/10/2016	9338348	SIVAN-001-US	8102

131926 7590 04/20/2016
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

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

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

Ishay Sivan, Tel Aviv, ISRAEL;
Ishay SIVAN, Tel Aviv, ISRAEL

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



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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE	REQUEST ID
14/437,105	04/20/2015	Ishay SIVAN	SIVAN-001-US	98904

Acknowledgement of Loss of Entitlement to Micro Entity Status

The entity status change request below filed through Private PAIR on 11/03/2019 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

× Applicant asserting small entity status. See 37 CFR 1.27.

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

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/Yehuda Binder/
Name:	Yehuda BINDER
Registration Number:	73612