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UTILITY PATENT APPLICATION TRANSMITTAL <i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>	Attorney Docket No.	19299.0009C1
	First Named Inventor	Bartlett Wade Smith, IV
	Title	VIDEO TO DATA
	Priority Mail Express® Label No.	

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	ADDRESS TO: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450
1. ☐ Fee Transmittal Form (PTO/SB/17 or equivalent) 2. ☒ Applicant asserts small entity status. See 37 CFR 1.27 3. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent. 4. ☒ Specification [Total Pages 39] Both the claims and abstract must start on a new page. (See MPEP § 608.01(a) for information on the preferred arrangement) 5. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 18] 6. ☒ Inventor's Oath or Declaration [Total Pages 6] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. ☐ Newly executed (original or copy) b. ☒ A copy from a prior application (37 CFR 1.63(d)) 7. ☒ Application Data Sheet * See note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 8. ☐ CD-ROM or CD-R In duplicate, large table, or Computer Program (Appendix) ☐ Landscape Table on CD 9. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. - c. are required) a. ☐ Computer Readable Form (CRF) b. ☐ Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PAPERS 10. ☐ Assignment Papers (cover sheet & document(s)) Name of Assignee _____ 11. ☐ 37 CFR 3.73(c) Statement (when there is an assignee) ☒ Power of Attorney 12. ☐ English Translation Document (if applicable) 13. ☐ Information Disclosure Statement (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached 14. ☒ Preliminary Amendment 15. ☐ Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) 16. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed) 17. ☐ Nonpublication Request Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 18. ☐ Other: _____ _____ _____ _____

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

19. CORRESPONDENCE ADDRESS				
☒ The address associated with Customer Number: 27890 OR ☐ Correspondence address below				
Name				
Address				
City	State	Zip Code		
Country	Telephone	Email		
Signature	/Harold H Fox Reg # 41498/		Date	2019-02-08
Name (Print/Type)	Harold Fox		Registration No. (Attorney/Agent)	41498

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

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

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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bartlett Wade Smith, IV, et al.

Art Unit : Unknown

Serial No. : Not yet assigned

Examiner : Unknown

Filing Date: Herewith

Title : VIDEO TO DATA

U.S. Patent and Trademark Office

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Randolph Building

401 Dulany Street

Alexandria, VA 22314

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as indicated on the following pages.

Applicant : Bartlett Wade Smith, IV, et al.
Serial No. : Not yet assigned
Filed : Herewith
Page : 2 of 4

Attorney Docket No.: 19299.0009C1

Amendment to the Specification:

Prior to examination, please amend the specification as follows.

Please insert the paragraph below at the beginning at page 1, line 2, as follows:

--CLAIM OF PRIORITY

This application is a continuation of U.S. Application No. 15/197,727, filed June 29, 2016, now U.S. Patent No. 10,204,274, which is incorporated by reference in its entirety.--

In the claims:

1. (Original) A system for generating data from a video, comprising: a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video; an image detector configured to detect images of objects in the still frame images; an object recognizer configured to compare an image of an object to a fractal, wherein the recognizer is further configured to update the fractal with the image; and wherein the coordinator is configured to embed metadata about the object into the video.

2-28. (Canceled)

Applicant : Bartlett Wade Smith, IV, et al.
Serial No. : Not yet assigned
Filed : Herewith
Page : 4 of 4

Attorney Docket No.: 19299.0009C1

REMARKS

The specification has been amended to perfect the priority. Claims 2-28 have been canceled without prejudice. Claim 1 remains. No new matter has been added.

Applicants respectfully request these amendments be entered.

Respectfully submitted,

Date: February 8, 2019

/Harold H Fox, Reg. # 41498/

Harold H. Fox

Reg. No. 41,498

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Washington, DC 20036-1795
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		
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	
Mr. ▾	Bartlett	Wade	Smith	IV ▾	
Residence Information (Select One) • US Residency Non US Residency Active US Military Service					
City	Madison	State/Province	MS	Country of Residence	US

Mailing Address of Inventor:

Address 1	109 Antlers Lane				
Address 2					
City	Madison	State/Province	MS		
Postal Code	39110	Country i	US		

Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
▾	Allison	A.	Talley	▾	
Residence Information (Select One) ● US Residency Non US Residency Active US Military Service					
City	Ridgeland	State/Province	MS	Country of Residence	US

Mailing Address of Inventor:

Address 1	211 Winsmere Way				
Address 2					
City	Ridgeland	State/Province	MS		
Postal Code	39157	Country i	US		

Inventor	3				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
▾	John	Carlos	Shields	IV ▾	
Residence Information (Select One) ● US Residency Non US Residency Active US Military Service					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

City	Fort Worth	State/Province	TX	Country of Residence	US
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Mailing Address of Inventor:

Address 1	12345 Fairway Meadows				
Address 2					
City	Fort Worth	State/Province	TX		
Postal Code	76179	Country i	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	194293		
Email Address	info@step toe.com	Add Email	Remove Email
Email Address	ipdocketing@step toe.com	Add Email	Remove Email

Application Information:

Title of the Invention	VIDEO TO DATA		
Attorney Docket Number	19299.0009C1	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	18	Suggested Figure for Publication (if any)	1

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

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	194293		

Domestic Benefit/National Stage Information:

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

Prior Application Status		Patented	Remove			
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)	
	Continuation of	15197727	2016-06-29	10204274	2019-02-12	
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. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

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

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

Applicant Information:

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

Applicant	1	Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear		
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
Name of the Deceased or Legally Incapacitated Inventor:		
If the Applicant is an Organization check here. ☒		
Organization Name	CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS	
Mailing Address Information For Applicant:		
Address 1	1018 Highland Colony Parkway, Suite 700	
Address 2		
City	Ridgeland	State/Province MS
Country	US	Postal Code 39157-2060
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

Assignee	1
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.	
Remove	
If the Assignee or Non-Applicant Assignee is an Organization check here. ☒	
Organization Name	CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS
Mailing Address Information For Assignee including Non-Applicant Assignee:	
Address 1	1018 Highland Colony Parkway, Suite 700
Address 2	
City	Ridgeland
State/Province	MS
Country ⁱ	US
Postal Code	39157-2060
Phone Number	
Fax Number	
Email Address	
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Signature:

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

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

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

Signature	/Harold H. FOX RGE#41498/		Date (YYYY-MM-DD)	2019-02-08	
First Name	Harold H.	Last Name	Fox	Registration Number	41,498
Additional Signature may be generated within this form by selecting the Add button. Add					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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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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.

VIDEO TO DATA

TECHNICAL FIELD

The present invention relates to a method and a system for generating various and useful data from source media, such as videos and other digital content. The data can be embedded within the source media or combined with the source media for creating an augmented video containing additional contextual information.

BACKGROUND

In the field of image contextualization, distributed reverse image similarity searching can be used to identify images similar to a target image. Reverse image searching can find exactly matching images as well as flipped, cropped, and altered versions of the target image. Distributed reverse image similarity searching can be used to identify symbolic similarity within images. Audio-to-text algorithms can be used to transcribe text from audio. An exemplary application is note-taking software. Audio-to-text, however, lacks semantic and contextual language understanding.

SUMMARY

The present invention is generally directed to a method to generate data from video content, such as text and/or image-related information. A server executing the method can be directed by a program stored on a non-transitory computer-readable medium. The video text can be, for example, a context description of the video.

An aspect can include a system for generating data from a video. The system can include a coordinator, an image detector, and an object recognizer. The coordinator can be communicatively coupled to a splitter and/or to a plurality of demultiplexer nodes. The splitter can be configured to segment the video. The demultiplexer nodes can be configured to extract audio files from the video and/or to extract still frame images from the video. The image detector can be configured to detect images of objects in the still frame images. The object recognizer can be configured to compare an image of an object to a fractal. The recognizer can be further configured to update the fractal with the image. The coordinator can be configured to embed metadata about the object into the video.

In some embodiments, the metadata can include a timestamp and/or a coordinate location of the object in one or more of the still frame images. The coordinator can be configured to create additional demultiplexer processing capacity. The coordinator can be configured to create additional demultiplexer nodes, e.g., when the demultiplexer nodes reach at least 80% of processing capacity.

In other embodiments, the demultiplexer nodes can generate a confidence score based on a comparison of the image and the fractal. In yet other embodiments, the recognizer can generate a confidence score based on a comparison of the image and the fractal.

Another aspect can include a method to generate data from a video. The method can include segmenting the video into video segments, extracting an audio file from a segment of the video segments, extracting a video frame file of still frames from the segment, detecting an image of an object in the still frames, recognizing the object as a specific object, updating an object-specific fractal with the image, and embedding metadata in the video about the specific object.

In some embodiments, the metadata can include a timestamp and/or a coordinate location of the object in one or more of the still frames. The metadata can include a recognition confidence score. The method can further include distributing the video segments across a plurality of processors. The method can include extracting a plurality of video frame files, such as all of the video segments, by a plurality of parallel processors.

In other embodiments, the video can be a stereoscopic three-dimensional video.

In yet other embodiments, the method can include generating text based on extracted audio file and/or applying natural language processing to the text. The method can include determining context associated with the video based on the natural language processing.

In some embodiments, the method can include processing the video frame file to extract image text. The object can be a face or a logo. The object can be recognized as a three-dimensional rotation of a known object.

In other embodiments, a three-dimensional fractal can be updated, e.g., with the image of the object. The method can include generating a content-rich video based on the video and the metadata.

Another aspect can include a system for generating data from a video. The system can include a coordinator, an image detector, and an object recognizer. The coordinator can be

communicatively coupled to a splitter and/or to a plurality of demultiplexer nodes. The splitter can be configured to segment the video. The demultiplexer nodes can be configured to extract audio files from the video and/or to extract still frame images from the video. The image detector can be configured to detect images of objects in the still frame images. The object recognizer can be configured to compare an object image of an object to a fractal. The recognizer can be further configured to update the fractal with the object image. The coordinator can be configured to generate one or more metadata streams corresponding to the images. The one or more metadata streams can include timestamps corresponding to the images. The coordinator can be configured to embed the metadata streams in the video.

In some embodiments, the metadata streams can be embedded in the video as subtitle resource tracks.

In other embodiments, the system can be accessible over a network via application program interfaces (APIs).

In yet other embodiments, the coordinator can be further configured to output the video according to multiple video formats. For example, the coordinator can be configured to automatically generate data files in a variety of formats for delivery independent of the video. The system in some embodiments can embed data as a stream, as a wrapper, and/or as a subtitle resource track. The coordinator can be configured to read/write to/from Media Asset Management Systems, Digital Asset Management Systems, and/or Content Management Systems.

In some embodiments, the system can be configured to capture the geolocation of objects in a video. The system can be configured to derive a confidence score for each instance of recognition. The system can be configured to apply natural language processing, for example, for associative terms and/or to apply contextual analysis of corresponding data points (such as audio, objects, etc.) to verify accuracy.

An aspect can include a method of creating data from a video by machine recognition. The method can include extracting an audio file from the video, segmenting the video into video frames of still images, distributing the video segments to N processors, wherein N is an integer greater than one, generating a timestamped transcript from the audio file, associating the timestamped transcript with corresponding video frames, deriving topics from the audio file based on natural language processing, recognizing an object from still images, using a reference

database to identify the object, and embedding, within the video, data based on a recognized object, the topics, and the timestamped transcript.

In some embodiments, the video can be a virtual reality video file or a traditional video file. Data based on the recognized object can include a geolocation.

In other embodiments, the method can include generating a plurality of video files. Each of the video files can include the video and the embedded data. Each of the plurality of video files can be generated in a different format.

In other embodiments, the method can include generating a confidence score. The score can be associated with the recognized object. The method can include analyzing the still images to determine context of the video.

DESCRIPTION OF THE DRAWINGS

The present invention is further described in the detailed description which follows, in reference to the noted plurality of drawings by way of non-limiting examples of certain embodiments of the present invention, in which like numerals represent like elements throughout the several views of the drawings, and wherein:

Figure 1 illustrates an exemplary workflow in certain embodiments.

Figure 2 illustrates an embodiment of image data processing.

Figure 3 illustrates aspects of image data processing.

Figure 4 illustrates aspects of audio data processing.

Figure 5 illustrates various exemplary aspects of embodiments of the present invention.

Figure 6 illustrates a flow diagram of a present embodiment

Figure 7 illustrates exemplary architecture of a present embodiment.

Figure 8 illustrates a flow diagram of an embodiment of image recognition.

Figure 9 illustrates an embodiment of a graphical user interface of the present invention.

Figure 10 illustrates exemplary system architecture with an exemplary process flow.

Figure 11 illustrates an exemplary process for distributed demultiplexing and preparation of source media files.

Figure 12 illustrates exemplary distributed processing and aggregation.

Figure 13 illustrates an exemplary process for improved recognition based on near frame proximity.

Figure 14 illustrates an exemplary process for improved recognition based on partial three-dimensional matching.

Figure 15 illustrates an exemplary process for embedding extracted data to original source files as metadata.

Figure 16 depicts an exemplary interface showing a 360° image from a virtual reality video file and embedded metadata.

Figure 17 is an image of the Kress Building in Ft. Worth Texas as taken by a fisheye lens, as used in virtual reality images.

Figure 18 depicts a distorted image after calibration according to present embodiments.

DETAILED DESCRIPTION

A detailed explanation of the system and method according to exemplary embodiments of the present invention are described below. Exemplary embodiments described, shown, and/or disclosed herein are not intended to limit the claims, but rather, are intended to instruct one of ordinary skill in the art as to various aspects of the invention. Other embodiments can be practiced and/or implemented without departing from the scope and spirit of the claimed invention.

The present invention is generally directed to system, device, and method of generating data from source media, such as images, video, and audio. Video can include two-dimensional video and/or stereoscopic three-dimensional video such as virtual reality (VR) files. The generated data can include text and information relating to context, symbols, brands, features, objects, faces and/or topics found in the source media. In an embodiment, the video-to-data engine can perform the functions directed by programs stored in a computer-readable medium. That is, the embodiments can include hardware (such as circuits, processors, memory, user and/or hardware interfaces, etc.) and/or software (such as computer-program products that include computer-useable instructions embodied on one or more computer-readable media).

The various video-to-data techniques, methods, and systems described herein can be implemented in part or in whole using computer-based systems and methods. Additionally, computer-based systems and methods can be used to augment or enhance the functionality described herein, increase the speed at which the functions can be performed, and provide additional features and aspects as a part of, or in addition to, those described elsewhere herein.

Various computer-based systems, methods, and implementations in accordance with the described technology are presented below.

A video-to-data engine can be embodied by a computer or a server and can have an internal or external memory for storing data and programs such as an operating system (e.g., DOS, Windows 2000™, Windows XP™, Windows NT™, OS/2, UNIX, Linux, Xbox OS, Orbis OS, and FreeBSD) and/or one or more application programs. The video-to-data engine can be implemented by a computer or a server through tools of a particular software development kit (SDK). Examples of application programs include computer programs implementing the techniques described herein for lyric and multimedia customization, authoring applications (e.g., word processing programs, database programs, spreadsheet programs, or graphics programs) capable of generating documents, files, or other electronic content; client applications (e.g., an Internet Service Provider (ISP) client, an e-mail client, or an instant messaging (IM) client) capable of communicating with other computer users, accessing various computer resources, and viewing, creating, or otherwise manipulating electronic content; and browser applications (e.g., Microsoft's Internet Explorer) capable of rendering standard Internet content and other content formatted according to standard protocols such as the Hypertext Transfer Protocol (HTTP). One or more of the application programs can be installed on the internal or external storage of the computer. Application programs can be externally stored in or performed by one or more device(s) external to the computer.

The computer or server can include a central processing unit (CPU) for executing instructions in response to commands, and a communication device for sending and receiving data. One example of the communication device can be a modem. Other examples include a transceiver, a communication card, a satellite dish, an antenna, a network adapter, or some other mechanism capable of transmitting and receiving data over a communications link through a wired or wireless data pathway.

The computer or server can also include an input/output interface that enables wired or wireless connection to various peripheral devices. In one implementation, a processor-based system of the computer can include a main memory, preferably random access memory (RAM), and can also include a secondary memory, which can be a tangible computer-readable medium. The tangible computer-readable medium memory can include, for example, a hard disk drive or a removable storage drive, a flash based storage system or solid-state drive, a floppy disk drive, a

magnetic tape drive, an optical disk drive (Blu-Ray, DVD, CD drive), magnetic tape, paper tape, punched cards, standalone RAM disks, Iomega Zip drive, etc. The removable storage drive can read from or write to a removable storage medium. A removable storage medium can include a floppy disk, magnetic tape, optical disk (Blu-Ray disc, DVD, CD) a memory card (CompactFlash card, Secure Digital card, Memory Stick), paper data storage (punched card, punched tape), etc., which can be removed from the storage drive used to perform read and write operations. As will be appreciated, the removable storage medium can include computer software or data.

In alternative embodiments, the tangible computer-readable medium memory can include other similar means for allowing computer programs or other instructions to be loaded into a computer system. Such means can include, for example, a removable storage unit and an interface. Examples of such can include a program cartridge and cartridge interface (such as found in video game devices), a removable memory chip (such as an EPROM or flash memory) and associated socket, and other removable storage units and interfaces, which allow software and data to be transferred from the removable storage unit to the computer system.

An embodiment of video-to-data engine operation is illustrated in Figure 1. At 110, a video stream is presented. The video stream can be in one or more of the formats (but not limited to): Advanced Video Codec High Definition (AVCHD), Audio Video Interlaced (AVI), Flash Video Format (FLV), Motion Picture Experts Group (MPEG), Windows Media Video (WMV), or Apple QuickTime (MOV), h.264 (MP4).

The engine can extract audio data and image data (e.g. images or frames forming the video) from the video stream. The engine can detect and identify objects, faces, logos, text, music, sounds and spoken language in video by means of demultiplexing and extracting features from the video and passing those features into a distributed system as the video loads into the network I/O buffer. In some embodiments, the video stream and the extracted image data can be stored in a memory or storage device such as those discussed above. A copy of the extracted image data can be used for processing.

The system and method can include dialog extraction. Language and vocabulary models can be included in the system to support desired languages. Multiple languages can be incorporated into the system and method. The engine can process audio media containing multiple audio tracks as separate tracks or as a single track. Text extraction can be optimized by

utilizing audio segments of various lengths in time. For example, if a segment of audio is greater than one minute, the engine can split the audio track in half. In this case, the engine can first analyze that specific sequence for dialog at the timestamp of the potential split. If the segment at the split contains audio, the system can split the audio at the next silent point in the track to avoid splitting tracks mid-word. Each segment is processed using the Kaldi process for speech recognition and dialog extraction. Segments can be subsequently processed through, for example, LIUM speaker diarization. Results can be applied to a result datastore for analysis or later processing.

An example of the image data processing is illustrated in Figure 3. The video-to-data engine can segment the video into chunks for distributed, or parallel, processing as shown schematically in Figure 3. Distributed processing in this context can mean that the processing time for analyzing a video from beginning to end is a fraction of the play time of the video. This can be accomplished by breaking the processes into sections and processing them simultaneously. The images and audio can each be broken up into pieces such that the meaning of a continuous message is preserved. At 120, the video-to-data engine performs an image data processing on the video stream. In Figure 3, the image data 310 can be segmented into N segments and processed in parallel (e.g., distributed processing 320-1 to 320-N), allowing for near real-time processing.

An example of the video image data processing can be symbol (or object) based. Using an image processing technique such as color edge detection, a symbol of a screen or an image of the video can be isolated. The symbol can be identified using an object template database. For example, the symbol includes 4 legs and a tail, and when matched with the object template database, the symbol may be identified as a dog. The object template database can be adaptive and therefore, the performance would improve with usage.

Other image data processing techniques can include image extraction, high-level vision and symbol detection, figure-ground separation, depth and motion perception. These and/or other image data processing techniques can be utilized to build a catalogue and/or repository of extracted objects. Recognized information about the extracted objects – such as object type, context, brands/logos, vehicle type/make/model, clothing worn, celebrity name, etc. – can be added to a file associated with the extracted object and/or used to augment metadata in the video from which the image data was processed.

Another example of video image processing can be color segmentation. The colors of an image (e.g., a screen) of the video can be segmented or grouped. The result can be compared to a database using color similarity matching.

Based on the identified symbol, a plurality of instances of the symbol can be compared to a topic database to identify a topic (such as an event). For example, the result may identify the dog (symbol) as running or jumping. The topic database can be adaptive to improve its performance with usage.

Thus, using the processing example above, text describing a symbol of the video and topic relating to the symbol can be generated, as is illustrated in Figure 9. Data generated from an image and/or from audio transcription can be time stamped, for example, according to when it appeared, was heard, and/or according to the video frame from which it was pulled. The time-stamped data can be physically associated with the video as metadata embedded at the relevant portion of video.

At 330, the engine combines the topics as an array of keys and values with respect to the segments. The engine can segment the topics over a period of time and weight the strength of each topic. Further, the engine applies the topical metadata to the original full video. The image topics can be stored as topics for the entire video or each image segment. The topic generation process can be repeated for all identifiable symbols in a video in a distributed process. The outcome would be several topical descriptors of the content within a video. An example of the aggregate information that can be derived using the above example would be a determination that the video presented a dog, which was jumping, on the beach, with people, by a resort.

Although further described herein, image detection can be considered a process of determining if a pattern or patterns exist in an image and whether the pattern or patterns meet criteria of a face, image, and/or text. If the result is positive, image recognition can be employed. Image recognition can generally be considered matching of detected objection to known objects and/or matching through machine learning. Generally speaking, detection and recognition, while sharing various aspects, are distinct.

Identifying various objects in an image can be a difficult task. For example, locating or segmenting and positively identifying an object in a given frame or image can yield false positives – locating but wrongfully identifying an object. Therefore, present embodiments can be utilized to eliminate or reduce false positives, for example, by using context. As one example, if

the audio soundtrack of a video is an announcer calling a football game, then identification of ball in a given frame as a basketball can be assigned a reduced probability or weighting. As another example of using context, if a given series of image frames from a video is positively or strongly identified as a horse race, then identifying an object to be a mule or donkey can be given a reduced weight.

Using the context or arrangement of certain objects in a given still or static image to aid in computer visual recognition accuracy can be an extremely difficult task given certain challenges associated with partially visible or self-occluded objects, lack of objects, and/or faces, and/or words or an overly cluttered image, etc. However, the linear sequencing of frames from a video – as opposed to a stand-alone image – avails itself to a set images {images x-y} from which context can be derived. This contextual methodology can be viewed as systematic detection of probable image false positives by identifying an object from one video frame (or image) as an anomaly when compared to and associated with a series of image frames both prior and subsequent to the purported anomaly. According to the objects, faces, words, etc. of a given set of frames (however defined), a probability can be associated with an identified anomaly to determine whether an image is a false positive and, if so, what other likely results can be.

In certain instances, identification of an individual can be a difficult task. For example, facial recognition can become difficult when an individual's face is obstructed by another object like a football, a baseball helmet, a musical instrument, or other obstructions. An advantage of some embodiments described herein can include the ability to identify an individual without identification of the individual's face. Embodiments can use contextual information such as associations of objects, text, and/or other context within an image or video. As one example, a football player scores a touchdown but rather than identifying the player using facial recognition, the player can be identified by object recognition of, for example, the player's team's logo, text recognition of the player's jersey number, and by cross referencing this data with that team's roster (as opposed to another team, which is an example of why the logo recognition can be important). Such embodiments can further learn to identify that player more readily and save his image as data.

Similarly, the audio transcript of a video can be used to derive certain context helpful in identifying and correcting or eliminating image false positives. In this way, an image anomaly or anomalies identified in a given video frame(s) are associated with time (time stamped) and

correlated with a time range from the transcribed audio to establish certain probabilities of accuracy.

Moreover, the aforementioned methodologies – establishing probabilities of accuracy of image identification from a set of frames and from the audio transcription – can be combined to improve the results. Improved results can be embedded in a video – or an audio file and/or an image file – as metadata, as can probabilities of accuracy.

In some embodiments, a similar context methodology can be used to identify unknown objects in a given image by narrowing a large, or practically infinite, number of possibilities to a relatively small number of object possibilities and assigning probabilities. For example, neuro-linguistic programming (NLP), neural network programming, or deep neural networks can be utilized to achieve sufficient narrowing and weighting. For further example, based on a contextual review of a large number of objects over a period of time, a series of nodes in parallel and/or in series can be developed by the processor. Upon initial recognition of objects and context, these nodes can assign probabilities to the initial identification of the objection with each node in turn using context and further description to narrow the probabilistic choices of an object. Other methodologies can be utilized to determine and/or utilize context as described herein.

Natural language processing can be useful in creating an intuitive and/or user-friendly computer-human interaction. In some embodiments, the system can select semantics or topics, following certain rules, from a plurality of possible semantics or topics, can give them weight based on strength of context, and/or can do this in a distributed environment. The natural language processing can be augmented and/or improved by implementing machine-learning. A large training set of data can be obtained from proprietary or publicly available resources. For example, CBS News maintains a database of segments and episodes of “60-Minutes” with full transcripts, which can be useful for building a training set and for unattended verification of audio segmentation. The machine learning can include ensemble learning based on the concatenation of several classifiers, i.e. cascade classifiers.

At 130, an optional step of natural language processing can be applied to the image text. For example, based on dictionary, grammar, and a knowledge database, the text extracted from video images can be modified as the video-to-data engine selects primary semantics from a plurality of possible semantics. In some embodiments, the system and method can incorporate a

Fourier transform of the audio signal. Such filtering can improve silence recognition, which can be useful for determining proper placement of commas and periods in the text file. In some embodiments, a text extraction step can include analyzing each image using optical character recognition (OCR) to identify possible text matches and the location of the text within the image; character sequences can be identified for each possible text match, and for sequences with the same spatial separation, an entry can be created in a result set for that sequence of characters or words. In parallel, at 140, the video-to-data engine can perform audio-to-text processing on audio data associated with the video. For example, for a movie video, the associated audio can be the dialog or even background music.

In addition to filtering of the audio signal, images from the video signal can be processed to address, for example, the problem of object noise in a given frame or image. Often images are segmented only to locate and positively identify one or very few main images in the foreground of a given frame. The non-primary or background images are often treated as noise. Nevertheless, these can provide useful information, context, and/or branding for example. To fine-tune the amount of object noise cluttering a dataset, it can be useful to provide a user with an option to dial image detection sensitivity. For certain specific embodiments, identification of only certain clearly identifiable faces or large unobstructed objects or band logos can be required with all other image noise disregarded or filtered, which can require less computational processing and image database referencing, in turn reducing costs. However, it may become necessary or desirable to detect more detail from a frame or set of frames. In such circumstances, the computational thresholds for identification of an object, face, etc. can be altered according to a then stated need or desire for non-primary, background, obstructed and/or grainy type images. Such image identification threshold adjustment capability can be implemented, for example, as a user-controlled interface, dial, slider, or button, which enables the user to make adjustments to suit specific needs or preferences.

An example of the audio data processing is illustrated in Figure 4. In Figure 4, the audio data 410 can be segmented into N segments and processed in parallel (e.g., distributed processing 420-1 to 420-N), allowing for near real-time processing.

In some embodiments, the segmentation can be performed by a fixed period of time. In another example, quiet periods in the audio data can be detected, and the segmentation can be defined by the quiet periods. For example, the audio data can be processed and converted into a

spectrum. Locations where the spectrum volatility is below a threshold can be detected and segmented. Such locations can represent silence or low audio activities in the audio data. The quiet periods in the audio data can be ignored, and the processing requirements thereof can be reduced.

Audio data and/or segments of audio data can be stored in, for example, memory or a storage device discussed above. Copies of the audio segments can be sent to audio processing. The audio data can be saved to a file with processed data and/or processed data can be added back to the source of the audio data, for example as metadata.

The audio data for each segment can be translated into text in parallel, for example through distributed computing, which can reduce processing time. Various audio analysis tools and processes can be used, such as audio feature detection and extraction, audio indexing, hashing and searching, semantic analysis, and synthesis.

At 430, text for a plurality of segments can then be combined. The combination can result in segmented transcripts and/or a full transcript of the audio data. In an embodiment, the topics in each segment can be extracted. When combined, the topics in each segment can be given a different weight. The audio topics can be stored as topics for the entire video or each audio segment.

At 150, an optional step of natural language processing can be applied to the text. For example, based on dictionary, grammar, and/or a knowledge database, the text extract from the audio stream of a video can be given context, an applied sentiment, and topical weightings.

At 160, the topics generated from an image or a frame and the topics extracted from audio can be combined. The text can be cross-referenced, and topics common to both texts would be given additional weights. At 170, the video-to-data engine generates video text, such as text describing the content of the video, using the result of the combined texts and cross reference. For example, key words indicating topic and semantic that appear in both texts can be selected or emphasized. The output can also include metadata that can be time-stamped with frame references. The metadata can include the number of frames, the range of frames, and/or timestamp references.

Figure 2 illustrates another embodiment of the present invention. User equipment (UE) 210 can communicate with a server or servers 220 via a network 230. An exemplary embodiment of the system can be implemented over a cloud computing network.

For exemplary purposes only, and not to limit one or more embodiments herein, Figure 6 illustrates a flow diagram of an embodiment. A video file is first split into video data and audio data. A data pipeline, indicated in the figure as Video Input/Output, can extract sequences of image frames and can warehouse compressed images in a distributed data store as image frame data. A distributed computation engine can be dedicated to image pre-processing, performing e.g. corner and/or edge detection and/or image segmentation. The engine can also be dedicated to pattern recognition, e.g. face detection and/or logo recognition, and/or other analysis, such as motion tracking. Processed data can be sent to one or more machines that can combine and/or sort results in a time-ordered fashion. Similarly, the Audio Input/Output represents a data pipeline for e.g. audio analysis, compression, and/or warehousing in a distributed file system. The audio can be, for example but not limited to WAV, .MP3, MP4, MOV, or other known formats. Also similarly to the video branch, a distributed computation engine can be dedicated to audio pre-processing, e.g. noise removal and/or volume adjustment, pattern recognition, e.g. transcription and/or keyword detection, and/or other analysis, e.g. identifying unique speakers. Processed audio data can be sent to one or more machines that reassemble transcript segments in their correct time-order. A time-stamped transcript can be sent through an NLP, or other preferred system or analysis, which can transform the data in time-ordered topics and/or subject matter. Both branches converge to output data from parallel video and audio pipelines. The output data can be synced into one or more machines that can combine image and audio generated topics and/or tags which can be applied towards a number of user experiences or user-defined outputs. Such experiences can include search engine optimization, video categorization, recommendation engines, advertisement targeting, content personalization, analytics, etc. The output can include metadata that is time-stamped with frame references. The metadata can include the number of frames, the range of frames, and/or timestamp references.

The UE 210 can include, for example, a laptop, a tablet, a mobile phone, a personal digital assistant (PDA), a keyboard, a display monitor with or without a touch screen input, and an audiovisual input device. In another implementation, the peripheral devices can themselves include the functionality of the computer. For example, the mobile phone or the PDA can include computing and networking capabilities and function as a general purpose computer by accessing a network and communicating with other computer systems.

The server 220 can include the general purpose computer discussed above.

The network 230 includes, for example, the Internet, the World Wide Web, WANs, LANs, analog or digital wired and wireless telephone networks (e.g., Public Switched Telephone Network (PSTN), Integrated Services Digital Network (ISDN), and Digital Subscriber Line (xDSL)), radio, television, cable, or satellite systems, and other delivery mechanisms for carrying data. A communications link can include communication pathways that enable communications through one or more networks.

In some embodiments, a video-to-data engine can be embodied in a server or servers 220. The UE 210, for example, requests an application relating to the video stream. The servers 220 perform the audio-to-text process on the segmented audio in parallel. The distributed audio-to-text processing reduces the overall response time. This method allows real-time audio-to-text conversion.

The UE 210 communicates with the server 220 via the network 230 for video stream application. The video-to-data engine can generate the video text as illustrated in Figure 2. The server 220 then generates advertisement (text, images, or animation) based on the video text. In some embodiments, the server adds the advertisement to a specific symbol, image, frame, or a specific time in the video stream. The specific symbol, image, frame, or the specific time in the video stream can be selected based on the video text.

The server 220 can add the audio text to the video stream in real time (i.e. real time close caption). The server 220 can generate video recommendation based on a database of the video text. In some embodiments, the server 220 can search videos based on the video text (e.g., via a database of video text). In this fashion, video search can be optimized. Applications for the video search optimization can include search engine optimization (SEO), search engine marketing (SEM), censorship and removal of copyrighted materials.

The video streams can be videos viewed by a user, and the server 220 generates a preference profile for the user using the video data. For example, a user's video can be from a data storage device (such as a disc, a drive, an FTP site, etc.), from a streaming source (such as Netflix, Apple, Amazon, etc.), from a web browser plugin (such as YouTube, Vimeo, etc.), and/or from other sources. Videos can be provided to the server by the user, and/or videos can be provided by the server to the user.

In an embodiment, as shown in Figure 5 for example, a server node can fetch a video file. For example, a URL can be used to fetch the video file from a website such as YouTube, and

from such URL the video can be scraped. The server can divide the video into chunks of smaller data files for processing on several nodes of a cluster in parallel. For example, the video file can be separated into audio files and image frame files. Each of the types of files can be normalized.

The normalized audio files can be split into constituent files for processing and reduction in parallel by various nodes. Various reduction processes can be performed on the constituent audio files such as phoneme detection and assembly as well as grammar assembly. An output of the audio processing steps can be an extracted text map.

The normalized image frame files can be processed in order to extract various data maps, such as a text map, a tag map, a brand, an object map, a feature map, and/or a tracking map. Such maps can be achieved through various extraction steps. For example, the normalized image frame files can be analyzed for text identification and/or by optical character recognition. The data can be improved through a dictionary verification step. Various maps can be created based on edge detection and/or image segmentation techniques. Such techniques can be improved by focusing on regions of interest, for example based on brands, logos, objects, and/or features of interest. Additionally, or alternatively, pixel gradients of the normalized image frame files can be analyzed and/or the files can be segmented by temporal and/or spatial components, and thus, for example, allow extraction of motion within the video images, which in turn can be used for tracking.

Identification of motion or action in a still image can be a challenge in the vision science field. However, the linear sequencing of frames from a video – as opposed to a stand-alone image – avails itself to motion detection. A series of sequential frames can be analyzed in groups to identify actions, rather than merely objects, or, as a manifestation of data, verbs rather than nouns. For example, an object found across several frames can be identified and the object's motion can be determined with a high degree of accuracy. For further example, a processor can analyze a collection of x sequential frames to identify a basketball found in each frame. The processor then can analyze the motion of the basketball to determine that a basket was made by slam-dunking. Or, a certain automobile may be identified in frame α , with a crashed automobile identified in frame z , with the sequential frames in between α and z identifying the action of said car crashing. The accuracy of the action-identification can be improved by utilizing contextual recognition methodologies discussed herein. For example, the probability of positively identifying a slam-dunk action can be increased if Michael Jordan is identified in the context of

the video and/or images. Action identification can be further improved, in addition to modeling context of objects, by analyzing human poses, for example by building a learning set of still images capturing known actions.

In an embodiment, as shown in Figure 7 for example, to generate metadata, several sub-systems can operate on the video. An image recognition sub-system 750 can take frames from the video, and isolate and identify objects present in the frame. An audio recognition sub-system 760 can include automatic speech recognition, sound identification and music identification. A natural language processing (NLP) sub-system 770 can annotate and assign meaning to keywords that are generated by the image and audio sub-systems.

The automatic speech recognition (ASR) model can be a set of statistical structures and operation used for determining words from expected audio signals. The ASR model can consist of an acoustic model (AM) and a language model (LM) between which there is near perfect overlap. The acoustic model can map audio speech features to sounds/word-parts. For example, a series of features might be mapped to the “ah” sound in “bath.” The language model can consist of a dictionary of known words and their phonetic mappings to sounds/word-parts and a statistical weighting of likelihood of a given word occurring given the previous one or two words. Speech may contain words and phrases not commonly used in “regular” language, e.g., double dribble, free throw, slap shot, high-sticking, etc. Accordingly, the language model can also consist of a topic-specific dictionary, with associated phonetic variants for each word, and may also consist of a statistical N-gram model of word probabilities, e.g., “slam dunk” is a common phrase but will be used more frequently in sports reporting than in general language.

The acoustic model can process audio waveforms to generate a series of speech features based on Mel-Frequency Cepstral Coefficients (MFCCs) that are generated using a series of signal processing techniques including pre-emphasis, cosine or hamming windowing, FFT, Mel-filtering, log power spectrum, DCT and the computation of delta and delta-delta coefficients. The automatic speech recognition can encompass a wide variety of tasks, e.g., connected digit recognition, dialogue systems, large vocabulary continuous speech recognition (LVCSR). Automatic speech recognition can work in part by having a statistical understanding of what words can follow other words.

The following operational sub-systems (710, 720, 730, 740, 780, 790, and 795) can be utilized to support the metadata generation process. Web application servers 710 can provide

clients with the ability to use the service provided by the system, e.g., upload, monitor progress and receive outcomes. A video processing sub-system 720 can transform the video file into data on which the metadata generating sub-systems operate. An auditing/coordination sub-system 730 can monitor the overall system performance, and can generate operational and business analytic data. An operational data storage sub-system 740 can store the generated metadata as well as operational and business analytic data for use in active, online processes. A search sub-system 780 can index client results, and can make them searchable via the web application. An offline data storage system 795 can hold the history of all operations performed in the system including business and operational data. An extract-transform-load (ETL) subsystem 790 can regularly write to the offline data storage sub-system.

An architecture based on distributed message queuing and distributed data storage 700 can be utilized to build a scalable system, to optimally allocate resources for performance, and to enhance failure and overload resiliency. A distributed message queuing system can produce data that gets delivered to a particular queue at which time it gets consumed by a component that watches that queue. The distributed queuing system can be removed.

For exemplary purposes only, and not to limit one or more embodiments herein, Figure 8 illustrates a flow diagram of an embodiment of image recognition. Images can be classified as faces and/or objects. Image recognition can include two components: image detection 800 and image recognition 810. Image detection can be utilized to determine if there is a pattern or patterns in an image that meet the criteria of a face, image, or text. If the result is positive, the detection processing then moves to recognition, i.e. image matching. Fractal computations can occur in recognition. Recognition processing can include creating a fractal representation of the face or object that was detected, performing a match to an existing database of faces and objects, and assigning a value (or a name) to the face or object and then returning to the requesting program.

The system can utilize facial recognition algorithms to identify facial fractals by extracting landmarks from an image of the subject's face. For example, the algorithm can analyze the relative position, size, and/or shape of the eyes, nose, cheekbones, and jaw. These features can then be used to search for other images with matching features. Other algorithms can normalize a gallery of face images and then compress the face data, only saving the fractal data in the image that is useful for face recognition. A probe image can then be compared with the

face data. Two exemplary approaches to recognition algorithms can be generally divided into two: geometric, which looks at distinguishing features; and photometric, which is a statistical approach that distills an image into values and compares the values with templates to eliminate variances.

The recognition algorithms of some embodiments can include principal component analysis using eigen faces, linear discriminate analysis, elastic bunch graph matching using the Fisherface algorithm, hidden Markov model, multi-linear subspace learning using tensor representation, and neuronal motivated dynamic link matching. A hybrid using, for example, fractal genesis can be constructed to detect the face with one or more of the elements described above.

Three-dimensional face recognition can also be used. This technique can use 3D sensors to capture fractal information about the shape of a face. This information can then be used to identify distinctive features on the surface of a face, such as the contour of the eye sockets, the nose, and/or the chin. An advantage of 3D facial recognition is that it is not affected by changes in lighting. It can also identify a face from a range of viewing angles, including a profile view. Three-dimensional data points from a face can vastly improve the precision of facial recognition. Although called “facial” recognition, the algorithms can be used to detect other objects, animate or inanimate.

To improve the accuracy of detection, the hybrid can also use the visual details of the skin or other surfaces. This technique, called skin texture analysis, turns the unique lines, patterns, and spots apparent in a person’s skin or an object’s surface into a mathematical fractal space. With the addition of skin texture analysis, performance in recognizing faces can increase roughly 20 to 25 percent.

Although not a requirement of any embodiment, the following recognition models can be utilized, alone or in combination, and are provided to illustrate exemplary alternative embodiments.

PCA: Principal component analysis (PCA) is derived from Karhunen-Loeve's transformation. Given an s -dimensional vector representation of each face in a training set of images, PCA can find a t -dimensional subspace whose basis vectors correspond to the maximum variance direction in the original image space. This new subspace can typically have a lower dimensionality (often $t \ll s$). If the image

elements are considered as random variables, the PCA basis vectors are defined as eigenvectors of the scatter matrix.

- LDA: Linear discriminant analysis can find vectors in an underlying space that best discriminate among classes. For all samples of all classes the between-class scatter matrix S_B and the within-class scatter matrix S_W are defined. A goal can be to maximize S_B while minimizing S_W , in other words, maximize the ratio $\det[S_B]/\det[S_W]$. This ratio can be maximized when the column vectors of the projection matrix are the eigenvectors of $(S_W^{-1} \times S_B)$.
- EAA: An eigenspace-based adaptive approach (EAA) can search for a best set of projection axes in order to maximize a fitness function, measuring at the same time the classification accuracy and generalization ability of the system. Because the dimension of the solution space of this problem can be large, EAA can be solved using a specific kind of genetic algorithm, for example, evolutionary pursuit (EP).
- EBGM: Elastic bunch graph matching (EBGM) can be utilized. Human faces share similar topological structures. Faces can be represented as graphs, with nodes positioned at fiducial points. Edges can be labelled with 2-D distance vectors. Each node can contain a set of complex Gabor wavelet coefficients, for example 40 coefficients, at different scales and orientations, which can represent phase and/or amplitude, called "jets". Recognition can be based on labelled graphs. A labelled graph is a set of nodes connected by edges; nodes are labelled with jets; edges are labelled with distances.
- KM: The face manifold in subspace need not be linear. Kernel methods (KM) are a generalization of linear methods. Direct non-linear manifold schemes can be exploited to learn the non-linear manifold.
- TT: Trace transform (TT), a generalization of the Radon transform, is a tool for image processing which can be used for recognizing objects under transformations, e.g. rotation, translation, and/or scaling. A trace transform can be produced by computing functionals of the image function along lines crisscrossing its domain and/or along tracing lines of an image. Different trace transforms can be produced from an image using different trace functionals.
- 3-DMM: A human face is a surface lying in the 3-D space intrinsically. Therefore a 3-D model can be better for representing faces, especially to handle facial variations, such as

- pose, illumination, etc. A 3-D morphable model (3-DMM) can be utilized to encode shapes and textures in terms of model parameters. The 3-DMM algorithm can recover these parameters from a single image of a face.
- BF: The Bayesian framework can be utilized to determine and/or measure probabilistic similarities based on the image intensity differences characteristic of typical variations in appearance between individuals. Two classes of facial image variations can be defined: intrapersonal variations and extrapersonal variations. Similarity among faces can then be measured using Bayesian rule.
- HMM: Hidden Markov models (HMM) are a set of statistical models used to characterize the statistical properties of a signal. HMM can include two interrelated processes: (1) an underlying, unobservable Markov chain with a finite number of states, a state transition probability matrix, and an initial state probability distribution; and (2) a set of probability density functions associated with each state.
- FG-h: Image intensity differences are characteristic of typical variations in appearance of an individual. A human face is a surface lying in the fractal space intrinsically. Since many of the parameters are self-similar, the fractal model can better represent faces, especially in handling facial variations, such as pose, illumination, etc. An improvement, fractal genesis (hybrid) (FG-h), can integrate components of other algorithms into the fractal model to form fractal genesis.

An advantage of present embodiments includes the ability to provide real-time or faster-than-real-time content output. This can be achieved through one or more components and/or steps. For example, a video file can be distributed across at least two layers for processing. The audio can be converted to text on at least one layer, and the images can be processed on at least one other layer. In some embodiments, natural language processing can abstract topics, sentiments, temporal topic-tagging, and can be used for further optimization and/or machine learning. The layers can include node clusters for parallel processing chunks of the video file into the preferred content. In some embodiments, the files can be maintained and processed in parallel at each step, and then combined into a single data file as one of the terminal processing steps.

Present embodiments have wide application. For example, video indexing, reverse image lookup, video co-groupings and graph searches, and video similarity indexing, as described

herein, can be used for searching, for classification, and for recommendations regarding processed videos. Law enforcement and security industries can implement embodiments for object recognition and motion detection. Media, entertainment, and industrial entities can implement embodiments to monitor for trademark infringement, captioning, advertising and targeting, brand and product monitoring and data collection, and marketing analytics. These exemplary implementations are not intended to be limiting, merely exemplary.

Additionally, or alternatively, to actively fetch and scrape a video, the system and method can be automated as a push system and/or a web crawling system. For example, the server can monitor online content of specific providers, such as YouTube, Vimeo, Blip, the growing myriad of video-content creating websites, and/or other online video providers. The system and method can also be used in the context of specific databases and/or stored private video content. Monitoring of published videos can be tailored to search for extracted data relevant to specific requesters. For example, a purveyor of certain products can be apprised in real-time of new content relevant to the products. Such relevant content can include the context in which the products are found in the video, the appearance of competing products, verification of product placement, and other useful information.

An overview of an exemplary system architecture and process flow is illustrated in Figure 10. Source media can be provided to a coordinator, which can be a non-visual component that can perform one or more of several functions. For example, source media can be uploaded to a server via a supported protocol such as FTP, HTTPS, direct file copy, etc. The coordinator can be responsible for identifying new job requests and managing the routing of request input and result data output in the system. The coordinator can manage the entire lifecycle of a job from beginning to completion and can manage routing of request input and result data output throughout the system. However, in some embodiments, post processing and pre-processing may be advantageously performed outside of the system. Based on user and/or administrator preferences, the coordinator can be configured among several options, which can be provided to perform in a preferred way for a particular request and/or by default. Various configurations can be set through one of several configuration layers in the system. A user, for example through a web-based user interface, can specify which algorithms and/or processes are required for a specific job. In addition, other elements can be provided such as language preference, optimization for performance versus cost considerations, reference dataset to be used for

matching, etc. Asset configurations can also be set. The type of the asset (such as MP4, FAV, etc.), duration or play length, aspect ratio, resolution can all be used to modify system behavior. Other optimizations can also be used as preferred. Default configurations can also be chosen. For example, system level configurations can be chosen to help manage performance and job quality for a broad range of data or asset types, such as preferences for the number of frames per second and/or the desired split duration, such as one-minute splits. Splits can be by frame, by similarities between frames, or other desired splits.

As shown in Figure 10, the coordinator can send uploaded source media to a splitter and a demuxer/demultiplexer. These components can process the source media and return processed files to the coordinator. Segmented and demuxed files can be sent by the coordinator for further processing to extract data from the source media/processed files, such as faces, text, dialog, logos/branding, and other objects of interests. This processing can be performed by separate processors or by a single processor. Extraction in any one of the branches, or in a plurality of the branches, can be distributed and processed using parallel processing techniques. The source media/processed files and the extracted data can be sent through a filter to compare fractal located items, which is further described herein, for recognition. The recognition processor can further refine the fractal based on results of the fractal filtering, thereby updating the fractal training set, and can output the processed, extracted, and filtered data for aggregation.

With respect to virtual reality files, once images are extracted from a VR video feed, the process can follow a similar or different process as used for the other flows herein. Image extraction can be implemented somewhat differently. For example in a 3D approach, two images can be analyzed for each frame rather than one image. Some video uses a technique called SBS. For such video, each frame can be split down the middle to generate two images (one for the left eye, one for the right eye) and then process as normal. Some VR video uses an alternative technique called Frame Sequential. For such video, two concurrent frames, which constitute the left and right eye of the image, can be extracted to be analyzed and processed as described herein. Yet other VR video uses a stitched together panoramic or a fisheye aperture. For example, Figure 16 shows a 360° view, which can be captured by four or six camera angles which are stitched together, or similarly with two or three cameras that have fisheye lenses. Handling of VR content is discussed herein with greater detail, for example, with regard to calibration and processing.

As shown in Figure 11, the coordinator can receive media assets and recognize processing requests. The Coordinator can analyze attributes of the assets, such as VR, video, and/or audio media, to determine optimal processing configurations, and based upon such determination, invoke the splitter to “slice” the assets into media segments and/or multiple sub assets comprising the entire stream. The duration of the split assets can be optimized by, e.g., media asset type, format, resolution, load, etc. For example, a thirty minute video media asset of 4k resolution can be configured to split into sixty segments of thirty seconds each. A 1080p-resolution asset of the same content can be split into thirty one-minute segments or split into 120 15-second segments. The segments can then be distributed by the coordinator to the demultiplexer for processing. If a segment contains audio, a demultiplexer node can isolate audio tracks for processing. Once the audio track is isolated, or if the segment lacks audio, the demultiplexer can split the media segments into still images. The demultiplexer nodes can notify the coordinator when processing is complete. The coordinator can send additional image segments to demultiplexer nodes. Upon completion of the demultiplexer process, the coordinator can be responsible (based on the job specification) for determining which algorithms the job requires and sending the demuxed frames to those algorithms. Additionally, the coordinator can further output a processed file and/or generate a process report.

In an exemplary embodiment, the system can notify demultiplexer components that the source media segments are prepared for processing. For each media segment, initially a demultiplexer component can strip audio data from segments and store audio streams for future analysis. The demultiplexer can further convert media segments into individual image stills based upon system or account settings. Generally, the only limitations on the number of frames that can be extracted for a given segment are based on desired resolution. But, implementations can limit the number of frames for practical or preferred levels of precision. The coordinator can also be notified before demultiplexer processing is complete to, for example, improve processing speed. For example, when a demultiplexer component reaches 80% or 85% of capacity, the coordinator can be notified that additional processing resources are necessary. The coordinator can create additional demultiplexer nodes and can then add the additional nodes to the demultiplexer components to send processing requests to the newly created nodes. The coordinator can send processed media as each demultiplexer node completes its processing or after all demultiplexer processing has completed. The coordinator can create any of the types of

processing nodes discussed herein, e.g. logo nodes, etc., allowing scalability and improved overall processing times.

As shown in Figure 12, the coordinator can direct distributed processing and aggregation. The coordinator can analyze job requests and determine – for example, after receiving notification of completion from demultiplexer nodes and/or determining that there are no additional media segments available for processing – which processing tasks are to be completed. Job requests can be configured to use one or more of training, detection, recognition, text extraction, and dialog extraction. Dialog extraction can include analysis of audio stream information and/or recorded dialog (speech) from audio clips to determine the actual text of the dialog, rather than merely assessing whether key words are present in an audio stream. As shown in Figure 12, a step can include training. A training process can identify which training paradigms to use, such as face, object, and/or logo/branding training. Images can be sent to training processing nodes with attributed metadata. Face training can include adding identified reference data to the facial recognition dataset for use during the recognition process. Similarly, object training and logo/branding training can include adding identified reference data to the object recognition datasets and logo recognition datasets, respectively, for use during the recognition process. A fractal can be created (if a first instance) or refined by analyzing the images. The new or updated fractal can be stored with metadata in a reference dataset. The training processing can be iterative and/or distributed until training has completed.

Upon completion, or in the absence of, training, detection and/or recognition can be performed. Where recognition is not required or not desired, the image extraction can be performed, the results of which can be directly aggregated. Alternatively, objects can first be detected in the images. Possible objects of interest in the images can be stored and/or processed for possible comparison against a reference dataset (which can be the fractal itself). The comparison process can score confidence in a particular recognition analysis. The recognition score, the object of interest, and the image can be stored as a file or other associated dataset, and the set can be aggregated as results in a processed media asset.

When new images are available for processing, the coordinator can identify retrieved image data for analysis and conversion into fractal data. Fractal datasets can be stored in one of several distributed key-value datastores optimizing read/write performance using key algorithm of:

$$FT(s) = F_O + A$$

where FT is the frame timestamp in seconds, F_O is the frame offset (an integer), and A is the algorithm key that can allow multiple read write strategies to be optimized for training or recognition operations. Examples of an algorithm key, A , can be but are not limited to hashing the reverse timestamp, $A \bmod N$ (where A is a userID integer and N is the number of nodes), etc. The algorithm key, A , can be open-ended based on user preference and can allow organizing chronologically, by logos, alphabetically by key word, based on geotags, etc.

Upon updating the fractal, the original image can be purged from system memory leaving only fractal dataset as an entire data representation. The system can be configured to retrieve image data as streams from remote systems, which can alleviate memory and storage constraints by not requiring that the original image data come to rest on host systems.

For detection and/or recognition requests, fractal datasets can be compared to a reference dataset and/or scored with a probability of a match based on comparing individual fractal values against one another. A node can store a potential match, a match score, and an associated key of the match in the reference dataset. A processing node can notify the coordinator that processing tasks are complete. If additional training, detection, recognition, or extraction processing tasks are still required, the coordinator can send new requests to processing nodes.

Face training can create a reference dataset that is used for future comparison of image data for the purposes of facial recognition. These reference datasets can be enhanced and improved over time to increase the likelihood of accurately determining which faces are present in a given still frame. In addition, entire reference trained datasets can be swapped out for other sets to address domain and/or industry specific needs, such as, e.g., employee images, professional athletes, known criminals, etc. Users and/or administrators can also create entries for persons in the reference dataset, such as providing metadata associated with the entry, including but not limited to name, profession, gender, and other attributes. A series of images for the person can be uploaded, and the system can focus on a set of good quality face shots to be analyzed by the training system. Additional entries can be created and/or uploaded for further improving the fractal dataset.

In some embodiments, a user can initiate a training job request. For each image in the training request, the system can validate that at least one face can be detected by the system and can discard images that do not contain detectable faces. The system can extract detected facial

components for each image supplied for a given person entry and create an aggregated series of image entries for that person. The system can aggregate entries for all persons into a combined dataset, called a gallery. The system can create archives of gallery data, which can be used to support trained dataset rollback, swapping, and caching. The system can also notify users when training job requests are complete.

The facial detection and recognition subsystem can allow uploading, or otherwise capturing, digital video for analysis and/or processing. These subsystems can determine if and/or where faces can be detected in the video and whether the faces can be matched within a certain confidence with the face dataset produced during the training process. These subsystems can produce, e.g., timestamps, x- and y-coordinates, confidence scores, and other metadata associated with recognized faces. In an exemplary process, a face detection worker thread can be notified that an image is available for processing. The image can then be analyzed to determine if there are faces within the frame and discard any frame that does not contain detectable faces. For those with detectable faces, the system can then compare detected facial features such as landmark features and other elements to determine, within a configurable tolerance, whether detected persons are in the trained dataset. The system can generate results such as those discussed above (i.e. timestamps, coordinates, confidence, etc.) for each face detected in each frame.

Object training can rely upon training a series of images through two algorithms, support vector machine (SVM) and histograms of oriented gradients (HOG). This approach can be similar to other algorithms discussed herein in that a reference trained dataset can be created and used for comparative analysis and for future processing operations. An object entry can be created within the system that indicates, e.g., object name and type. A series of images can be uploaded of that object type (for example, firetruck, basketball, etc.) including different angles, sizes, and representations of the object type. Bounding boxes can be created to indicate x- and y-coordinate pairs containing the object type or part of the object type in each image. Training can be initiated, such as by a user request to the system.

SVM is a classifier that can be used to create a reference dataset or train a set of data. SVM training can be performed on a given set of images for the object type. For example, a subset of 100 of the best candidate images for each object type can be used. Best candidate images can be selected by, for example, removal of occluded or corrupt images from the

candidate list, removal of duplicate images, and/or inclusion of all images marked as preferred during the upload process. Remaining images can be determined by, e.g., selecting images with the largest bounding boxes for the object type being trained. SVM analysis can be performed for each image and the results can be stored in the trained dataset.

HOG is a feature descriptor for computer vision and image processing that can be used for image analysis and/or object detection. Generally, HOG can count occurrences of gradient orientation in localized portions of an image. This can be similar to other feature descriptors – which can be used by the system – such as edge orientation histograms, scale-invariant feature transform descriptors, and shape contexts. HOG can be computed on a dense grid of uniformly spaced cells and can use overlapping local contrast normalization for improved accuracy. HOG training can include multiple stages. For example, in a first HOG training stage, the system can analyze an image and create a dataset entry, combining annotated metadata with the image at the corresponding bounding box. This process can be repeated for each image indicating what and where the object is within each image. In a second HOG training stage, the image can be analyzed using a custom HOG algorithm. Results of the analysis can be added to trained datasets for analysis and/or future comparison.

Similar to object and facial training, the system can perform logo training. For example, images containing desired logos and/or branding can be uploaded to the system. Bounding boxes can be created around corresponding logos and can add corresponding metadata including logo name, effective dates, etc. After uploading the desired number of logos to be trained, a training request can be initiated. For each item identified in each image, fractal extraction can be performed for each item. Fractal data can be associated with uploaded metadata for each item in the gallery and persist in a datastore. The system can generate a notification when a logo training job has completed.

The object recognition subsystem can analyze each image to determine if the images contain known items and to determine whether, within a configurable confidence, an item matches a known item in the trained dataset. Trained datasets can also be generated for unknown items. This can allow highly refined fractals to be generated and ready for recognition upon discovery of the unknown item. For example, the system may not have a fractal dataset for a specific object, such as a submarine. But the system can detect submarines as an object in images, even though the system does not recognize the submarine for what it is. The system can

create a ghost fractal of the unknown object, in this example a submarine. As additional images of submarines are detected and confirmed by comparison to the ghost fractal dataset, the ghost fractal can update and improve. When the system subsequently learns that the ghost fractal is for submarines, the fractal is ready for immediate recognition analysis.

For object recognition, an image can be analyzed using the SVM process to decompose the image into an SVM dataset. The results can be compared to known SVM datasets. This process can be used to produce a forced rank list of potential candidate objects. HOG analysis can be performed on a source image. For each candidate image identified through the SVM process, the closest matches can be returned with a corresponding confidence score. Results can be stored in output dataset.

Similar to object and facial recognition, the system can recognize logo and branding. The system can load trained logo fractals into memory. For each image to be analyzed, the system can determine if there are words, symbols, or other logo/branding information present in the image. For each image, the system can also perform a minhash function to determine if the extracted fractals are similar to items in the trained dataset. The system can further perform spatial mapping analysis against fractals that passed the minhash step to determine possible matches and confidence scores. Possible matches can be stored and/or sorted in confidence score order in a result dataset.

Recognition can be improved based on near-frame proximity. This process can be used to improve recognition operations and reduce false positives using contextual information based upon near frame proximity of similar items. For example, when a specific face is recognized in a given frame against the reference dataset, there is a certain likelihood that the specific face will be in previous and/or subsequent frames. A recognition match can be identified against a reference dataset with a configurable but reasonably high probability confidence score.

Figure 13 shows a subroutine for improving recognition. In a first step, initial processing is completed. The exemplary system can identify and recognize matches. The system can flag any potential false positives. If the system identifies, for example, a single frame match, the system can flag the match as a probably false positive, and can update the fractal. If the system analyzes a range of frames prior and subsequent to the potential false positive and detects similar or identical matches, then the system can identify the border frames, i.e. the adjacent frames in which the matched item does not appear. The system can reprocess the border frames based on

the augmented reference set.

Frame identifications can also be improved. Upon completion of initial processing, a result set for a series of high confidence frame matches can be analyzed and utilized to identify previous and subsequent frames. These frames can be reprocessed for recognition with newly identified matches added to the reference set. Individual frames can be analyzed until no matches are returned. A result dataset can be updated to reflect the new frames to the original pass. Reduction of false positives can improve several aspects of the system and method. Potential false positive matches can be flagged. One way to reduce false positives is by analyzing the result set for single frame matches with no corresponding matches within a range of adjacent frames. Such analysis can be done, for example, during an initial processing pass or after completion of a detection step.

Recognition can also be improved based on partial three-dimensional matches. For example, recognition match percentage can be improved based on the ability to identify and/or upload three dimensional image representations to the reference dataset, which can be based upon results derived from initial or near frame matches as outlined above. In an exemplary embodiment, a system can identify recognition matches during initial processing. Near frame proximity matching can be performed, e.g., as outlined above. Flags for false positives can be generated for further analysis. If the confidence score for a given match is above a configurable value, the match can be determined and an indication generated that the match is a rotation. This information can be added to the 3D reference dataset for that image for future reference. If the confidence score is lower than a configurable value, the possible match can be discarded or is flagged for further analysis. Such further analysis can be performed by, e.g., an administrator, a user, or an additional machine learning module. Upon further inspection, if the flagged, suspect match is not a match, this information can be added to the reference dataset as a non-match to further refine the fractal for that item. Optionally, the original media asset can be reprocessed and/or media assets including similar images can be processed with the new reference dataset to ensure that mismatches do not reoccur.

Figure 14 shows a subroutine for improving recognition based on partial 3-D matching. The system can identify possible 3-D matches. If the confidence score for a specific item is high, the image data can be used to refine the 3-D fractal. Image data for those matches with low confidence scores can be flagged for analysis, and if it is determined that the item of interest is a

3-D rotation of a good match, the image data can be added to the 3-D fractal. The original media asset can then be reprocessed.

An exemplary process can utilize output text file of audio extraction, in addition to any post job modifications, to create industry standard files. An XMP file that can contain enhanced metadata can be added to the original asset when the media type supports embedded metadata, and an XMP sidecar file can be utilized when the destination format does not support the embedded metadata. Many assets in the original large form such as MKV, VOB, etc. support embedding data directly, and many tools exist today to do so. However, once the asset is compressed to a file type such as MP4, then an XMP sidecar can be required. Nevertheless, many media players can read the file if it is in the same location as the media itself. A benefit is that the audio track does not need to be displayed as only text, and this mechanism can be used to embed any data at specific timestamps and durations. As an example, a simple SRT entry not related to text can be as follows.

<i>1</i> <i>00:02:17,440-->00:02:20,375</i> <i>Titleist Golf Logo Identified</i> <i>2</i> <i>00:02:20,476-->00:02:22,501</i> <i>Coca-Cola Logo Identified</i>
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The system and method can embed extracted data within the original source media as metadata. The derived digital metadata can be embedded into the original media asset type so as to comply with industry standards for ancillary metadata files, which can be read by commercially available media players, and/or as proprietary data types. In some embodiments, the system can process aggregated results from a media asset. The system can generate metadata streams to be embedded in the original media asset, identifying timestamps, corresponding recognition information, and extraction data. An Extensible Metadata Platform (XMP) file can be generated as part of the result set (XMP Sidecar) if, for example, the target media type is not supported. The system can create one or more copies of the original media asset to, e.g., support closed captioning, such as Subtitle Resource Tracks (SRT) and/or WebSRT. The system can embed content of the XMP file into the close captioning stream compatible asset.

While the SRT protocol was designed for closed captioning, embodiments can advantageously utilize the SRT protocol in ways that were not previously utilized to achieve new functionalities discussed above and elsewhere herein.

In traditional, full-360° VR images, a camera is stationary creates a traditional full 360 panorama the camera is stationary and rotates around an axis and has plenty of time to get all of the way around. A different technique can use several images that have overlap and are stitched together to complete the panorama. In both cases, the images can be truly flattened. For such images, flattening the VR video file can be straight forward and can, in some cases, only require splitting the images into sub-frames. However, such VR video can be uncommon. Calibration, therefore, can be an important step prior to image detection and/or image recognition for VR images. While a fractal can be trained to recognize images that have been warped for VR, the increased information associated with a larger set of potential positive identifications can degrade efficiency of the fractal, albeit in some contexts more and in some less. Accordingly, various calibrations can be utilized to improve recognition and efficiency, or at least with minimal cost to efficiency. In some embodiments, each camera's view can be calibrated, and frames from each camera can be independently processed. In other embodiments, a predetermined range or degree of view of the images can be chosen to optimize the calibration's effect on image flattening and/or processing time. For such video, images can be calibrated to a reference image so that the platform can flatten the image for analysis. This can also be done to account for different lenses having distinct characteristics. Further, calibration settings for each lens type can be stored to be used for additional video from specific lenses.

An exemplary embodiment can include steps for calibrating distorted images that have been extracted from panoramas and/or fisheye lens captures of VR movie files. In some respects, this can be considered a reverse of stitching and can require input to aid flattening images. This can be accomplished by various standalone tools or can be incorporated with other aspects described herein.

Figures 17 shows a distorted image prior to calibration. VR video files including images, such as the image in Figure 17, can be broken down into individual frames similar to 2-D processes above. A calibration step can be performed to create the correct aspect ratio and reduce distortion to improve recognition capabilities. A reference image can be displayed to allow configuration of a baseline set of adjustments for converting fisheye, panorama, and/or other

wide angle views, which can be converted to rectilinear images for processing. The system, or a user, can adjust some or all of three pitch angles (roll, pitch, yaw). Roll calibration can establish base x- and y-coordinates relative to image boundaries. This can improve alignment of images, for example where a camera was tilted. Pitch (i.e. the camera's perspective across the y-coordinates) can be adjusted to establish a vertical central alignment point. This can offset certain wide angle distortions that can increase significantly at the image boundaries. Yaw calibration can establish camera perspective across the x-coordinates and can establish a horizontal central alignment point for reasons just discussed. Calibrating camera depth can also establish the field of view for the z-axis and can be leveraged, e.g., to crop unusable areas and to maximize viewable area for a given wide angle video capture. Additional distortion calibrations can be applied using image filters and techniques, for example, where known horizontal and vertical surfaces are independently adjusted using an image manipulation tool, e.g., Pixel Bender, Light Room, Photoshop, etc.

Figure 18 shows the distorted image of Figure 17 after calibration according to the above described steps. Once calibration settings have been determined for a reference image, such as the image in Figure 18, processing can begin on subsequent images with the specified settings. Setting profiles can be saved for future use and can be based on but are not limited to camera type, lens used, file format, and/or resolution. Once images have been transformed into rectilinear or near-rectilinear, identification and recognition steps as discussed herein can be utilized for each frame.

Calibration can be performed using known or typical properties of a VR video. For example, in Figure 16, objects near the center of the image are distorted only slightly compared to objects at the periphery, especially compared to objects at the top and bottom of the image. Specifically, people shown in the center of the image are substantially proportionally correct. On the other hand, the rectangular PGA logo at the bottom of the image is significantly distorted. This knowledge regarding the distortion in this particular image can be utilized for calibrating the rest of the image as well as the other frames in the video. For example, image detection and recognition can be performed on a sample portion of the VR video. Objects near the center of the VR sample are more likely to be recognized during this initial processing. Such recognized objects that move closer, but not all the way, to the periphery during the course of the video can have a relatively high recognition confidence score. The system can then determine the amount

of distortion between the two recognized objects. The system can then calibrate that portion of the frame for each frame of the sample according to the change in coordinate size of the object. In some cases, a rectangular shell in which the distorted object lies can be calibrated based on the amount of distortion measured. One or more additional steps can then be performed, such as reprocessing the sample to determine if additional objects are recognized and/or reprocess the sample to determine if the recognized object can be recognized in a partially-calibrated portion of the frame further from the center. In the latter case, an additional calibration can be performed to that farther region, and reprocessing can be performed. Interpolation can be performed based on the distance from the first location of the recognized object to the second location of the recognized object and the change in dimensions between the object at each location to further refine calibration of the sample. These steps can be iteratively performed until the entire frame is calibrated. Once calibration of a sample is complete (e.g. determination of mapping coefficients until a certain number of object are recognized, confidence scores reach a certain threshold, or per user preference of the calibrated image) the entire VR video can be corrected for distortion.

All of the methods disclosed and claimed herein can be made and executed without undue experimentation in light of the present disclosure. While the apparatus and methods of this invention have been described in terms of preferred embodiments, it will be apparent to those of skill in the art that variations may be applied to the methods and in the steps or in the sequence of steps of the method described herein without departing from the concept, spirit and scope of the invention. In addition, from the foregoing it will be seen that this invention is one well adapted to attain all the ends and objects set forth above, together with other advantages. It will be understood that certain features and sub-combinations are of utility and may be employed without reference to other features and sub-combinations. This is contemplated and within the scope of the appended claims. All such similar substitutes and modifications apparent to those skilled in the art are deemed to be within the spirit and scope of the invention as defined by the appended claims.

CLAIMS

1. A system for generating data from a video, comprising:
a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video;
an image detector configured to detect images of objects in the still frame images;
an object recognizer configured to compare an image of an object to a fractal, wherein the recognizer is further configured to update the fractal with the image; and
wherein the coordinator is configured to embed metadata about the object into the video.
2. The system of claim 1, wherein the metadata comprises a timestamp and a coordinate location of the object in one or more of the still frame images.
3. The system of claim 1, wherein the coordinator is configured to create additional demultiplexer processing capacity.
4. The system of claim 3, wherein the coordinator is configured to create additional demultiplexer nodes when the demultiplexer nodes reach at least 80% of processing capacity.
5. The system of claim 1, wherein the demultiplexer nodes generate a confidence score based on a comparison of the image and the fractal.
6. The system of claim 1, wherein the recognizer generates a confidence score based on a comparison of the image and the fractal.
7. A method to generate data from a video, comprising:
segmenting the video into video segments;
extracting an audio file from a segment of the video segments;
extracting a video frame file of still frames from the segment;

detecting an image of an object in the still frames;
recognizing the object as a specific object;
updating an object-specific fractal with the image; and
embedding metadata in the video about the specific object.

8. The method of claim 7, wherein the metadata comprises a timestamp and a coordinate location of the object in one or more of the still frames.
9. The method of claim 7, wherein the metadata comprises a recognition confidence score.
10. The method of claim 7, further comprising distributing the video segments across a plurality of processors.
11. The method of claim 10, further comprising extracting a plurality of video frame files, comprising all of the video segments, by a plurality of parallel processors.
12. The method of claim 7, wherein the video is a stereoscopic three-dimensional video.
13. The method of claim 7, further comprising generating text based on extracted audio file and applying natural language processing to the text.
14. The method of claim 13, further comprising determining context associated with the video based on the natural language processing.
15. The method of claim 7, further comprising processing the video frame file to extract image text.
16. The method of claim 7, wherein the object is a face or a logo.

17. The method of claim 7, wherein the object is recognized as a three-dimensional rotation of a known object.

18. The method of claim 17, wherein a three-dimensional fractal is updated with the image of the object.

19. The method of claim 7, further comprising generating a content-rich video based on the video and the metadata.

20. A system for generating data from a video, comprising:
a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video;

an image detector configured to detect images of objects in the still frame images;
an object recognizer configured to compare an object image of an object to a fractal, wherein the recognizer is further configured to update the fractal with the object image; and
wherein the coordinator is configured to generate one or more metadata streams corresponding to the images, wherein the one or more metadata streams include timestamps corresponding to the images, and wherein the coordinator is configured to embed the metadata streams in the video.

21. The system of claim 20, wherein the metadata streams are embedded in the video as subtitle resource tracks.

22. The system of claim 20, wherein the system is accessible over a network via application program interfaces.

23. The system of claim 20, wherein the coordinator is further configured to output the video according to multiple video formats.

24. A method of creating data from a video by machine recognition, comprising:
extracting an audio file from the video;
segmenting the video into video frames of still images;
distributing the video segments to N processors, wherein N is an integer greater than one;
generating a timestamped transcript from the audio file;
associating the timestamped transcript with corresponding video frames;
deriving topics from the audio file based on natural language processing;
recognizing an object from still images;
using a reference database to identify the object; and
embedding, within the video, data based on a recognized object, the topics, and the timestamped transcript.

25. The method of claim 24, wherein the video is a virtual reality video file.

26. The method of claim 24, wherein data based on the recognized object comprises a geolocation.

27. The method of claim 24, further comprising generating a plurality of video files, each comprising the video and the embedded data, wherein each of the plurality of video files is generated in a different format.

28. The method of claim 24, further comprising generating a confidence score associated with the recognized object and analyzing the still images to determine context of the video.

ABSTRACT

A method and system can generate video content from a video. The method and system can include a coordinator, an image detector, and an object recognizer. The coordinator can be communicatively coupled to a splitter and/or to a plurality of demultiplexer nodes. The splitter can be configured to segment the video. The demultiplexer nodes can be configured to extract audio files from the video and/or to extract still frame images from the video. The image detector can be configured to detect images of objects in the still frame images. The object recognizer can be configured to compare an image of an object to a fractal. The recognizer can be further configured to update the fractal with the image. The coordinator can be configured to embed metadata about the object into the video.

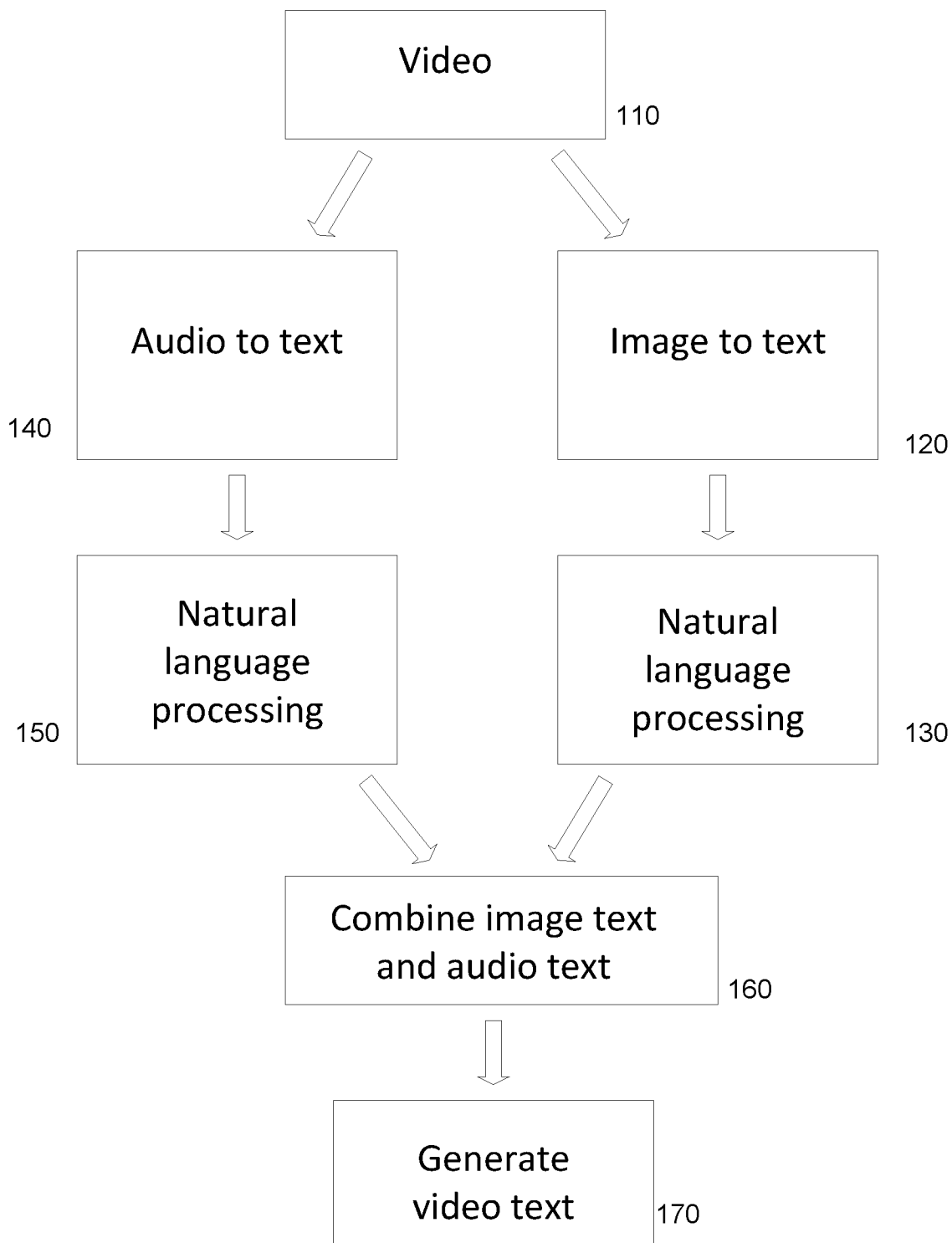


Figure 1

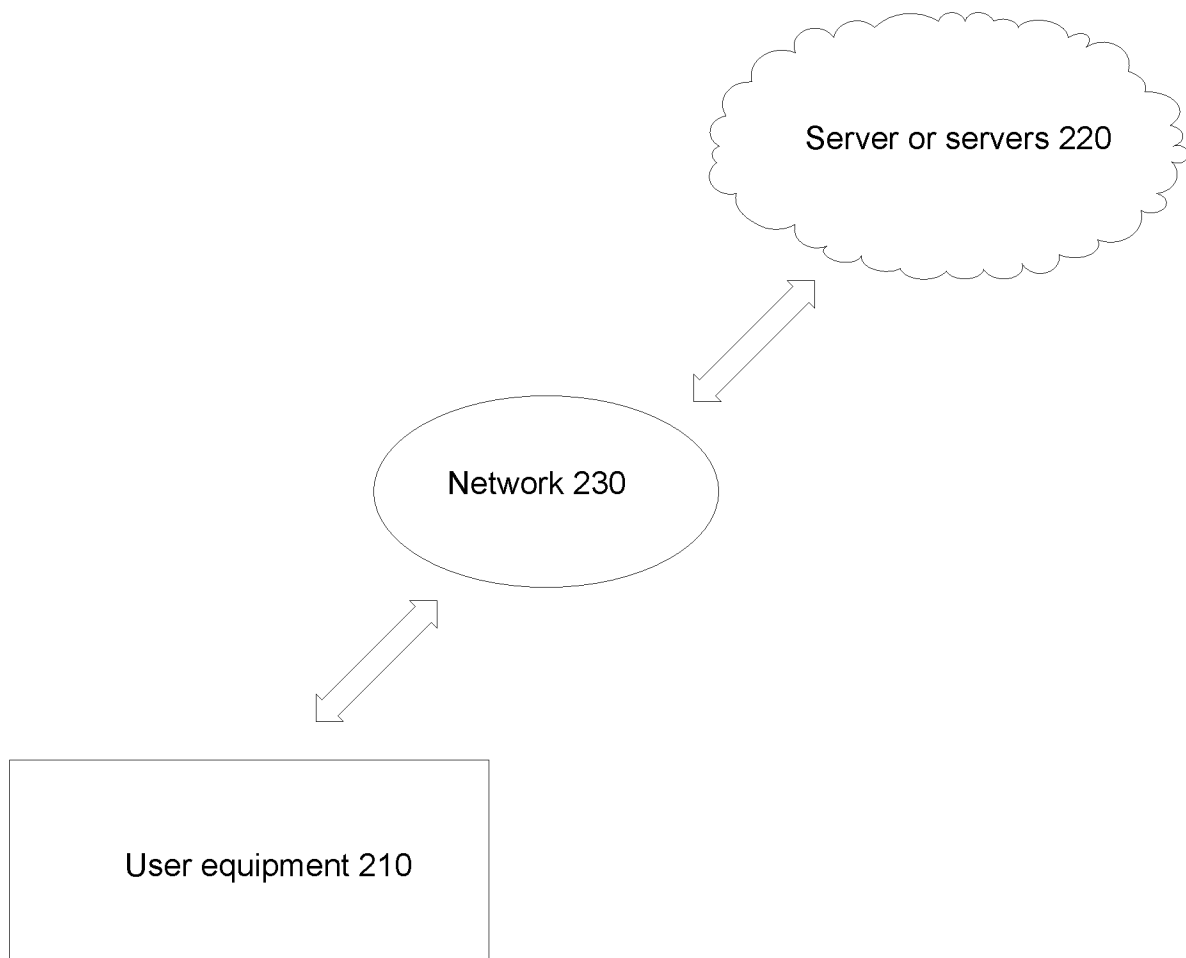


Figure 2

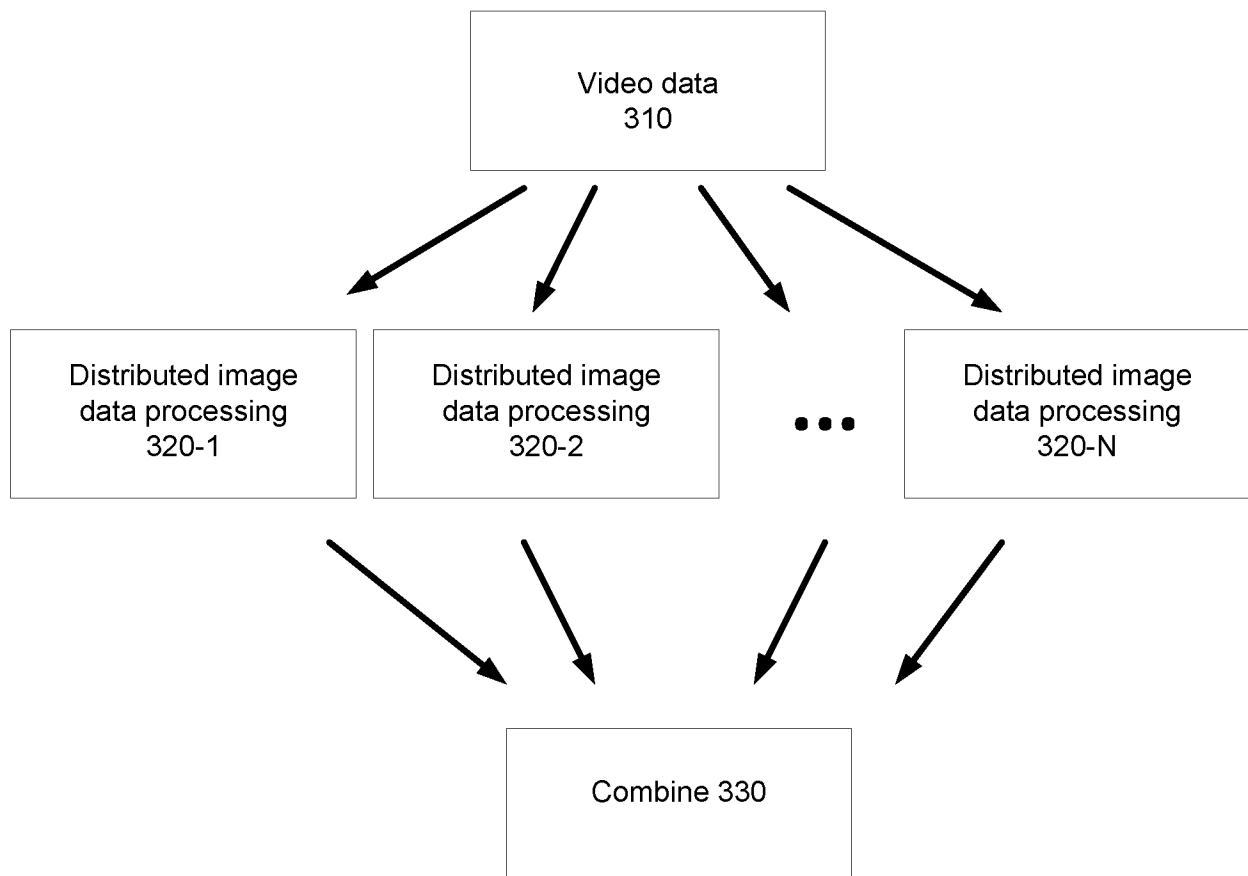


Figure 3

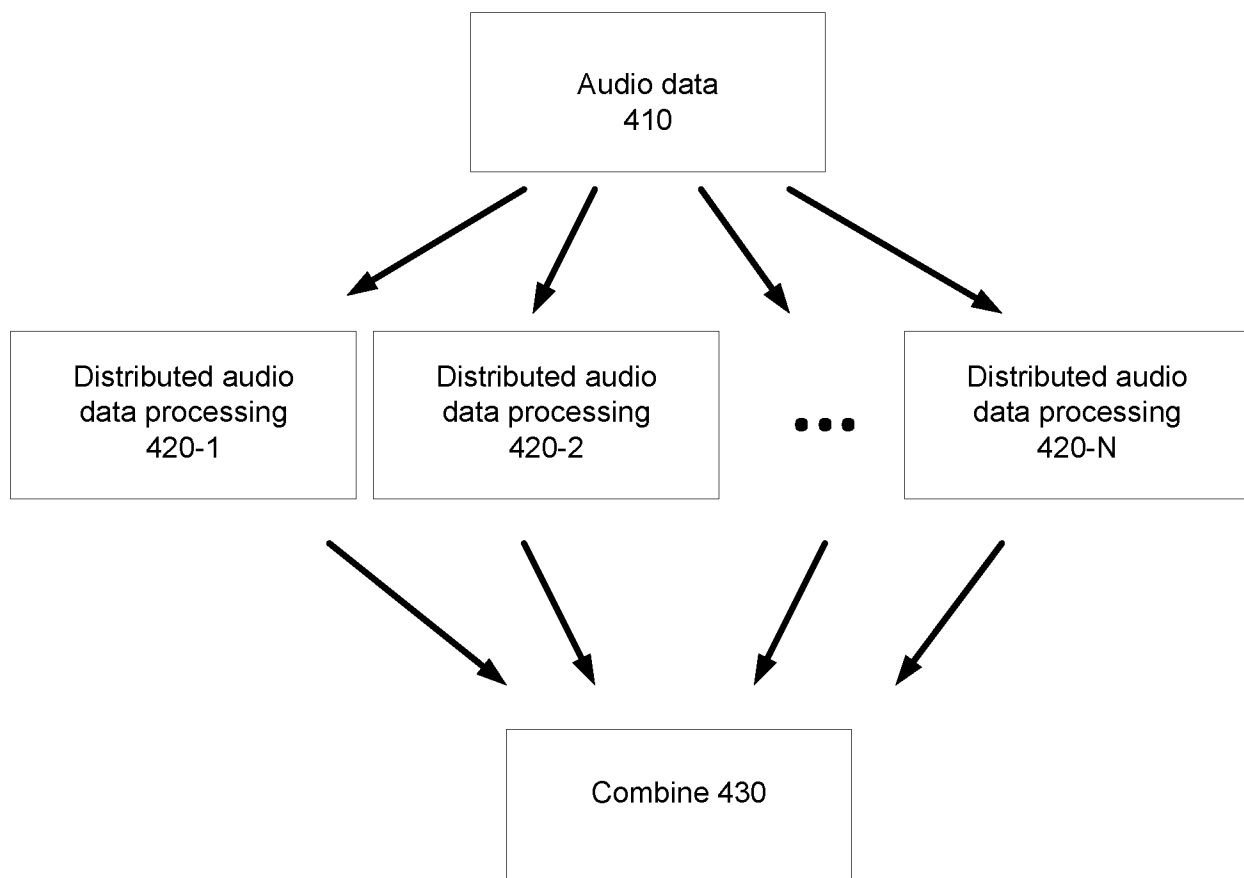


Figure 4

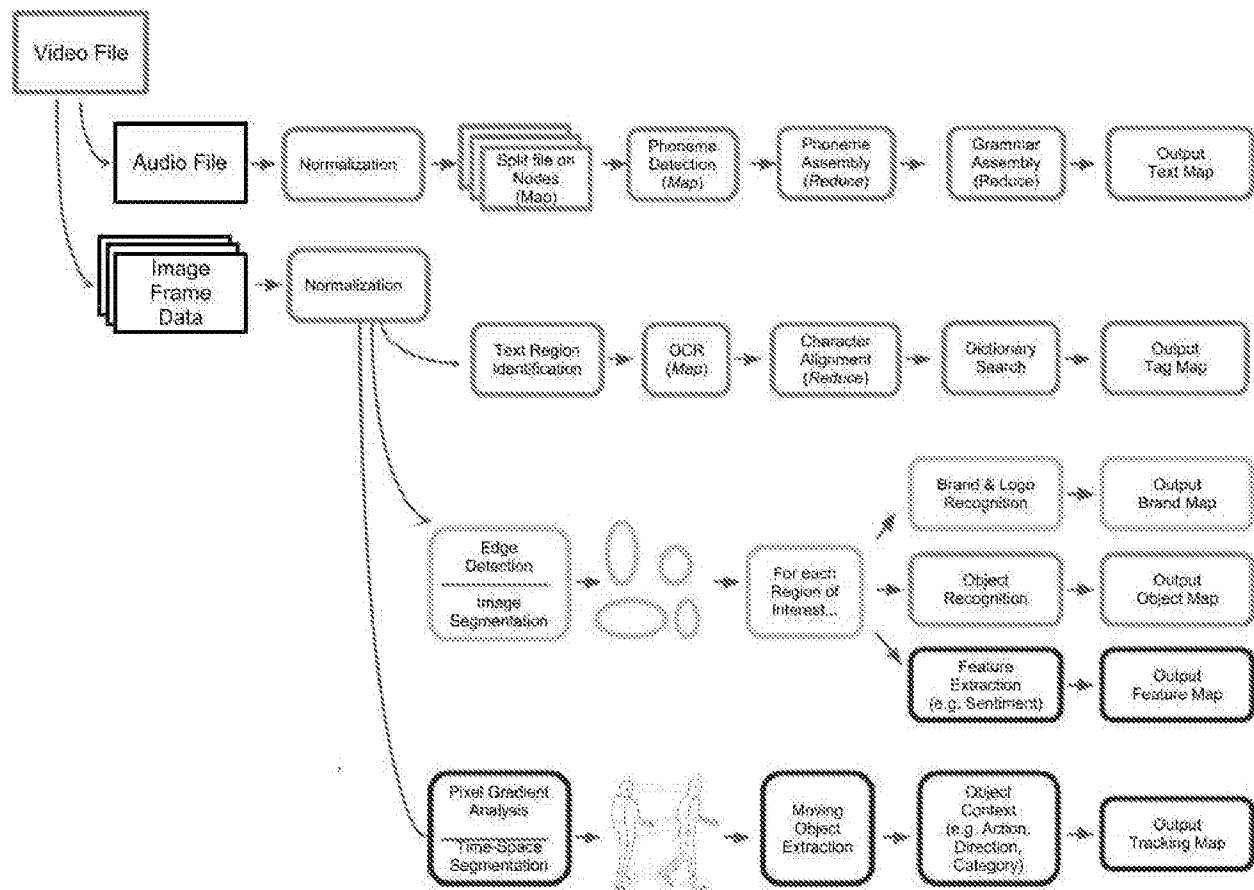
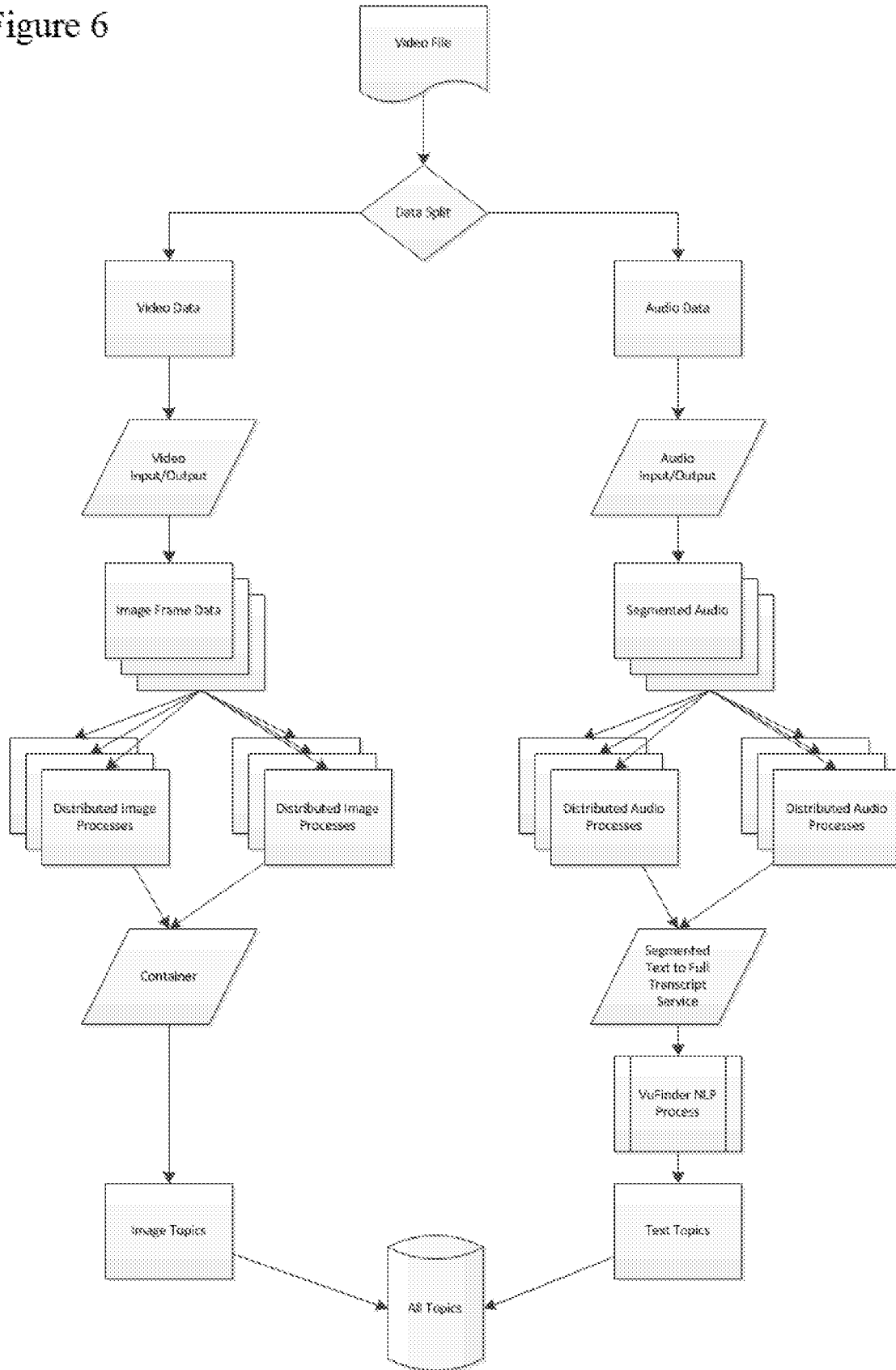


Figure 5

Figure 6



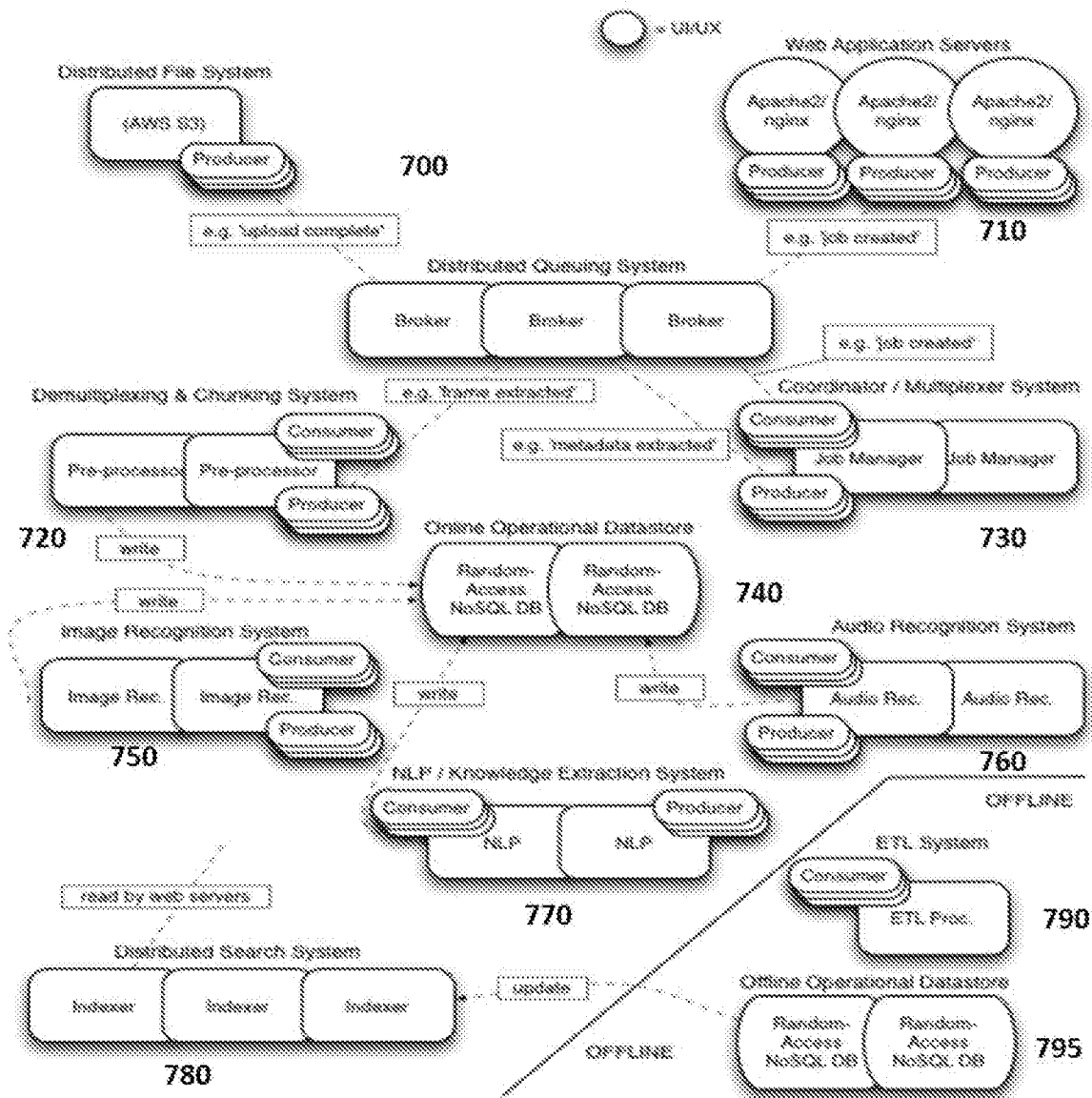


Figure 7

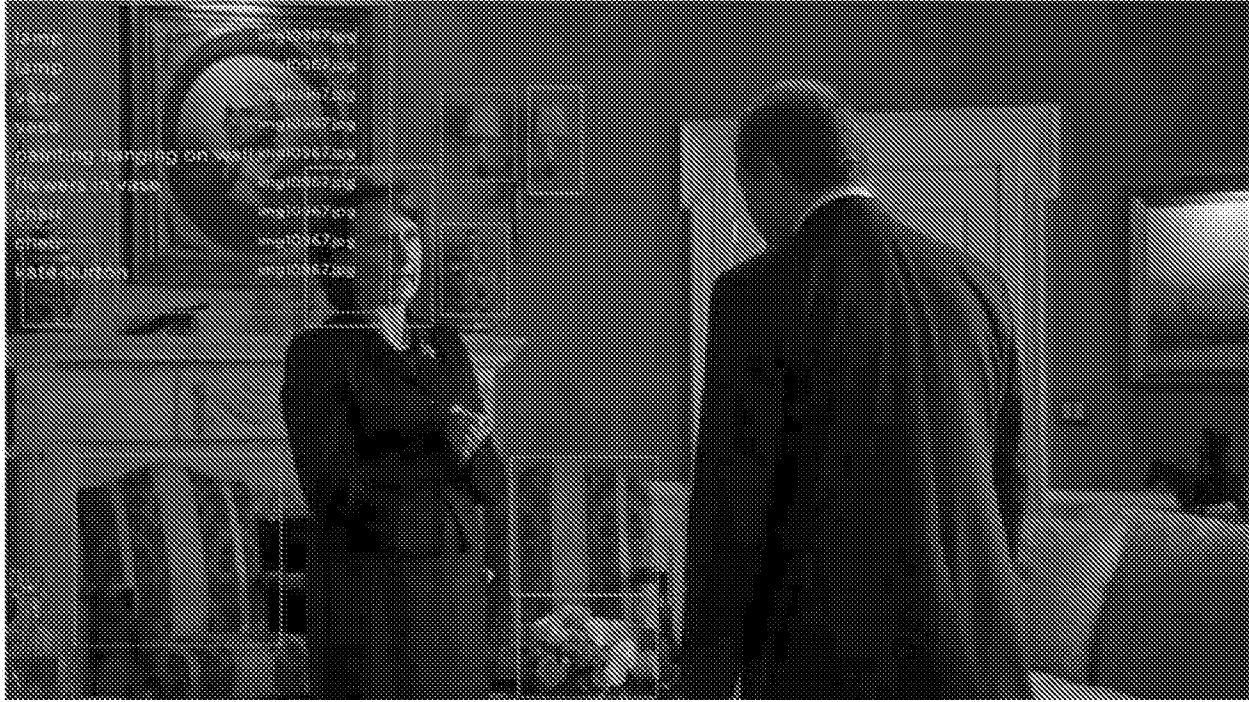


Figure 9

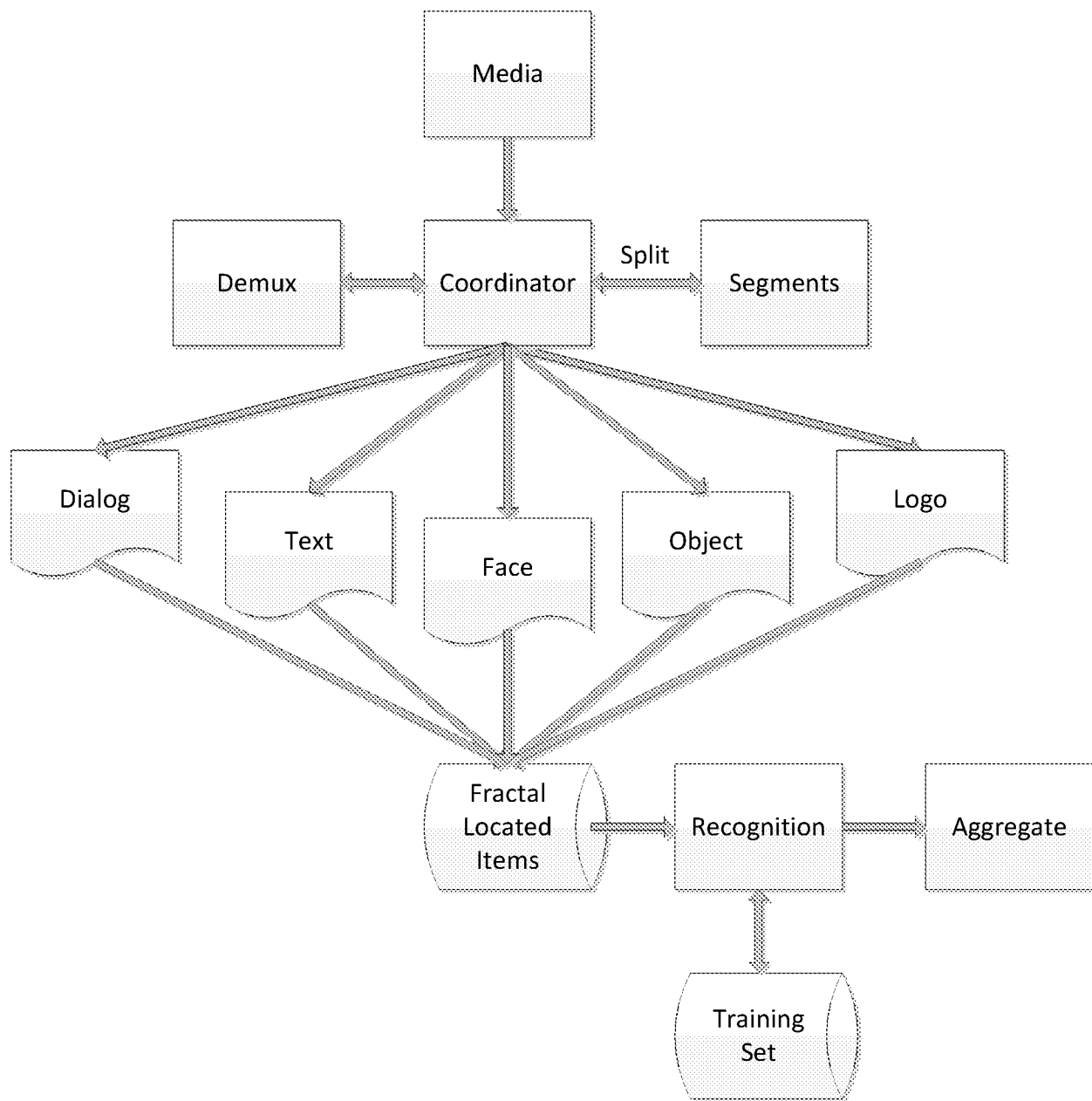


Figure 10

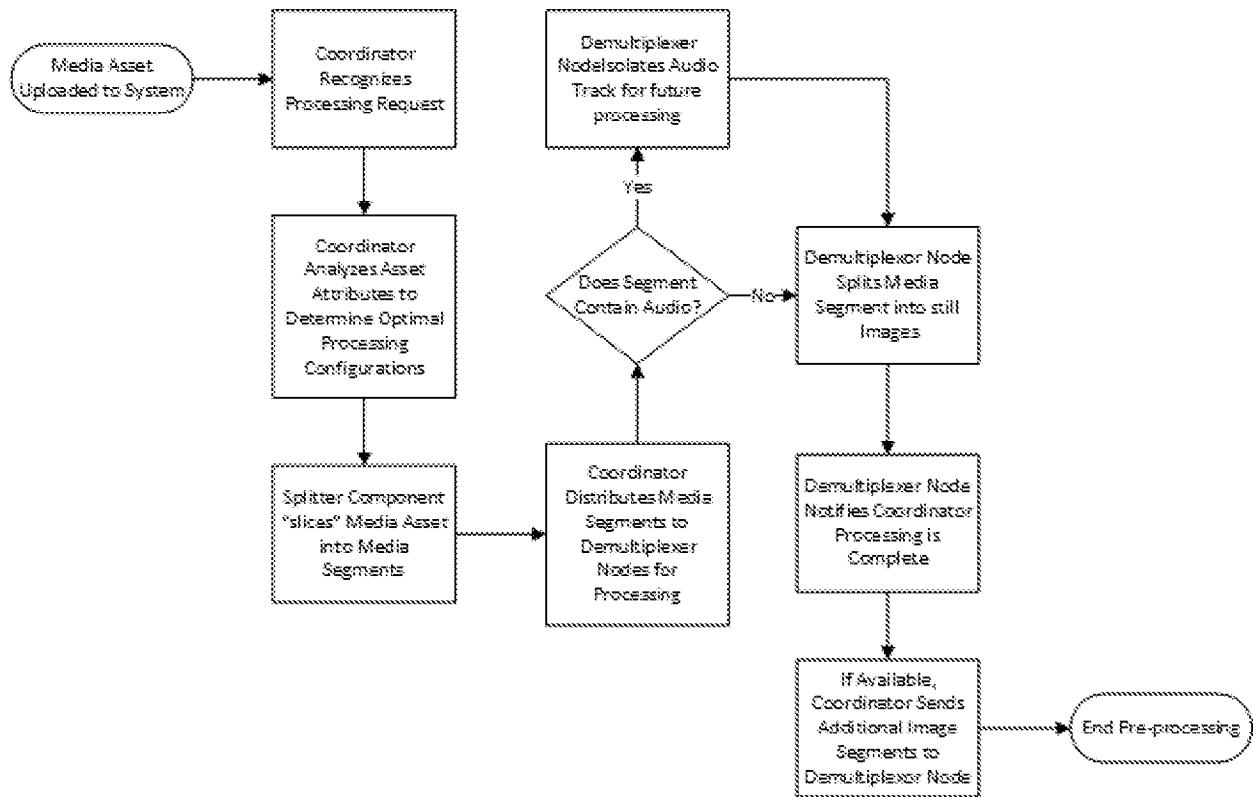


Figure 11

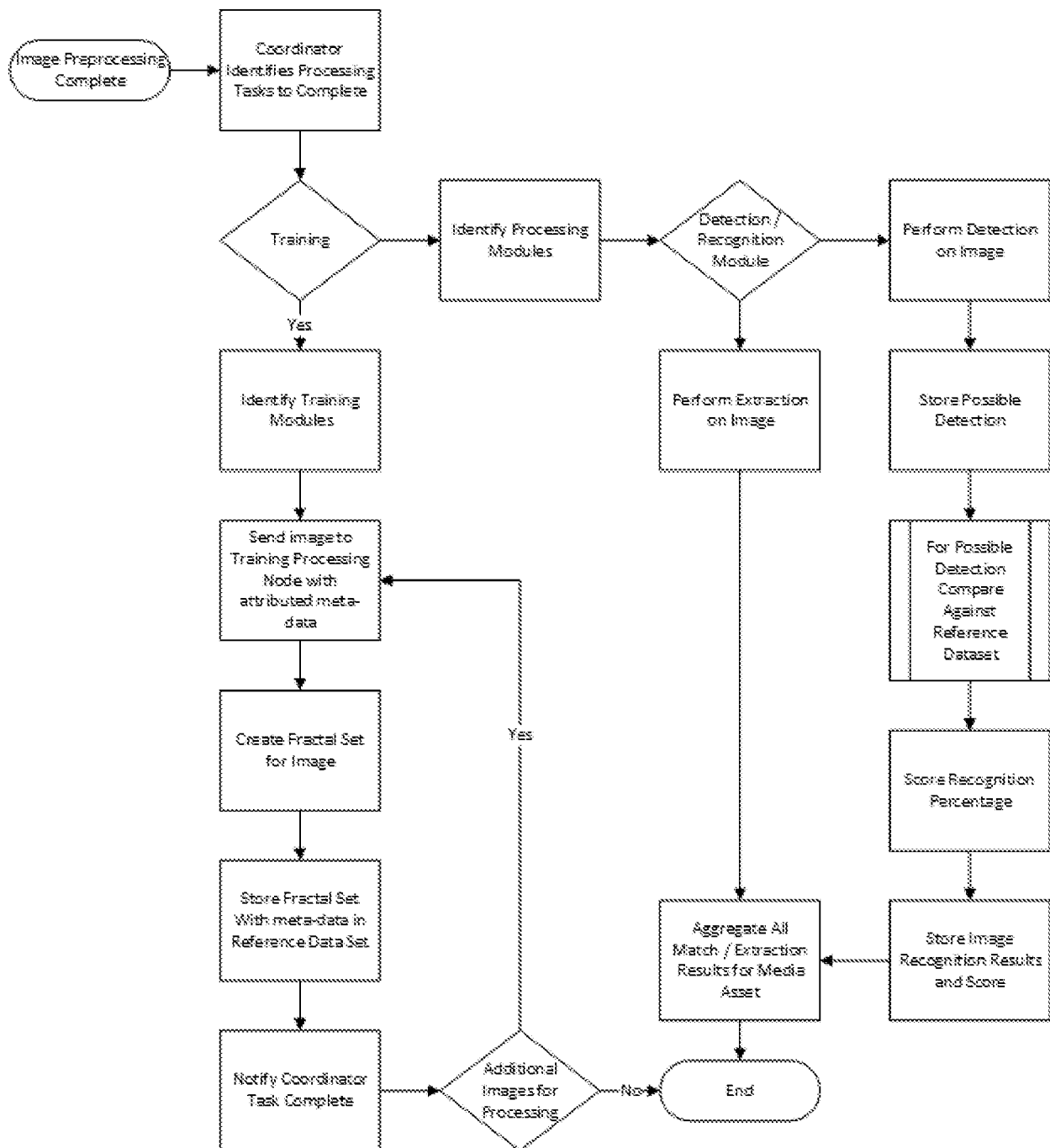


Figure 12

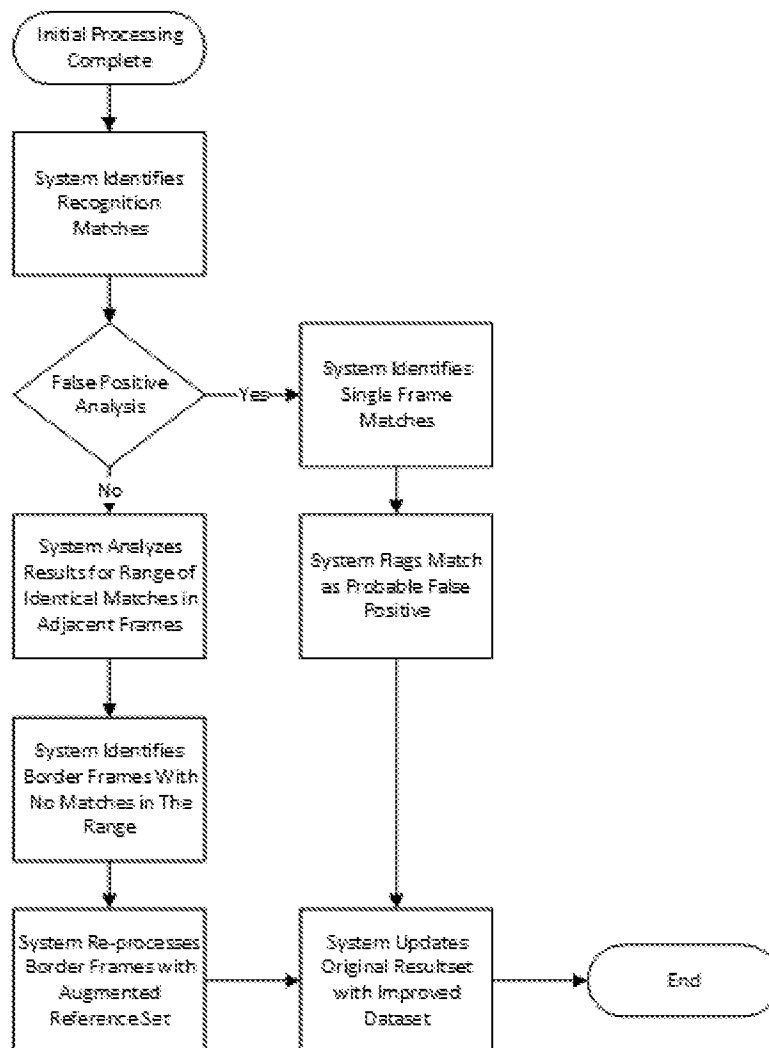


Figure 13

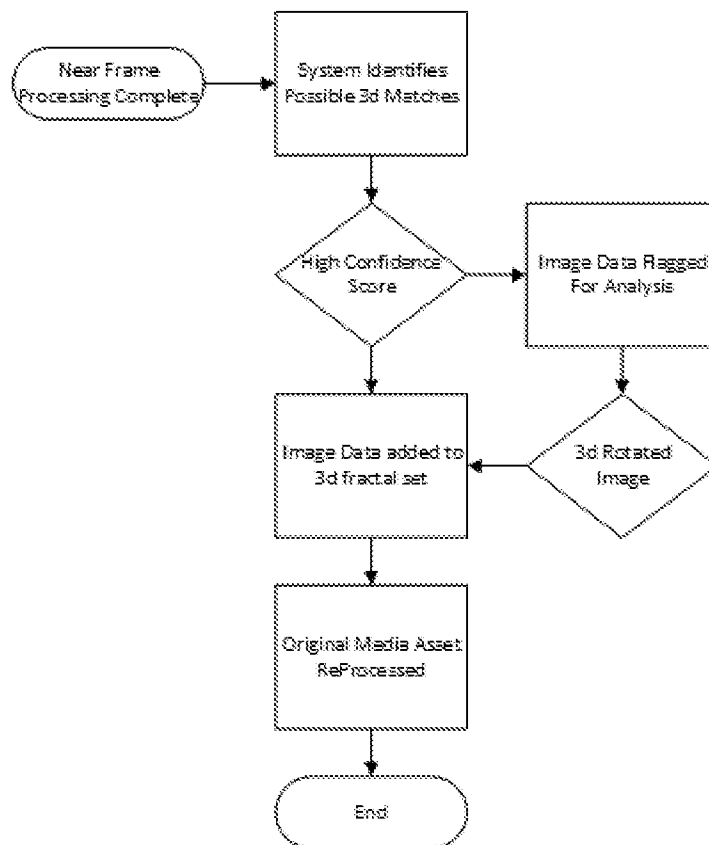


Figure 14

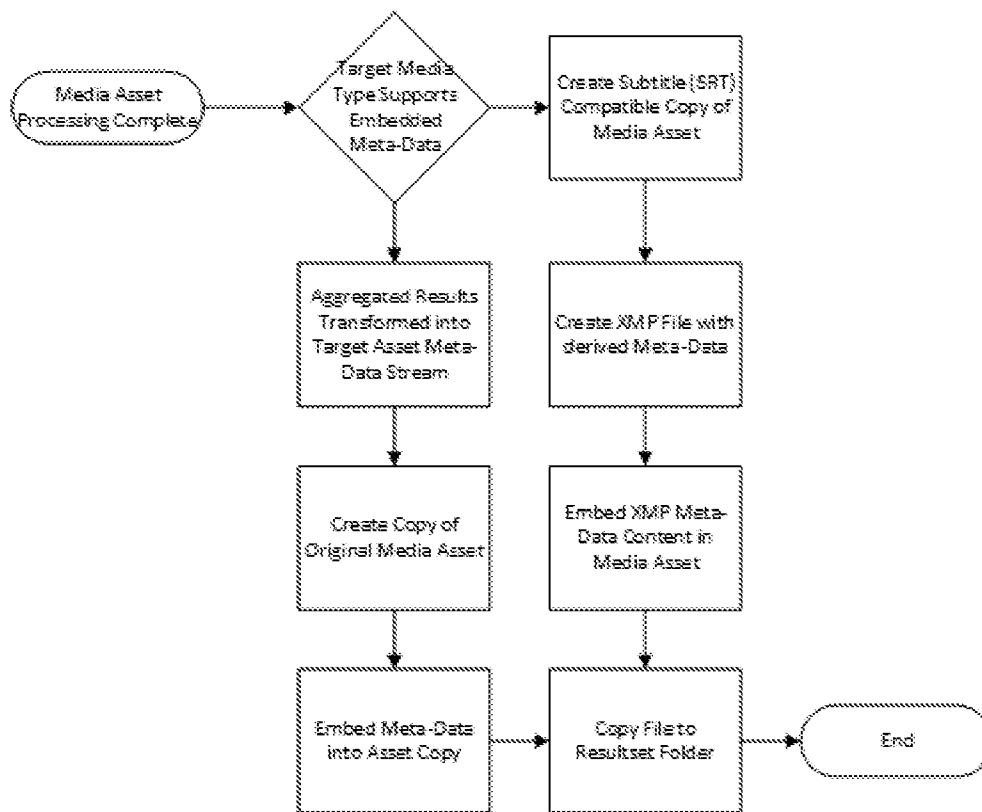


Figure 15



Figure 16



Figure 17



Figure 18

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

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

Application Number	
Filing Date	
First Named Inventor	Bartlett Wade Smith, IV
Title	VIDEO TO DATA
Art Unit	
Examiner Name	
Attorney Docket Number	19299.0009C1

SIGNATURE of Applicant or Patent Practitioner

Signature	/Harold H Fox, Reg.# 41498/	Date (Optional)	2019-02-08
Name	Harold H. Fox	Registration Number	41,498
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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

☐

*Total of _____ forms are submitted.

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

POWER OF ATTORNEY BY APPLICANT

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

Application Number

Filing Date

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



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

27890

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



The address associated with the above-mentioned Customer Number

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The address associated with Customer Number:

OR

Firm or
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City

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

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS



Inventor or Joint Inventor (title not required below)



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



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



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

SIGNATURE of Applicant for Patent

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

Signature

Date (Optional)

Name

Wesley Goings

Title

Treasurer/Secretary

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



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Google Exhibit 1015 - Google v. CSI

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

Title of
Invention

VIDEO TO DATA

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 15/197,727filed on June 29, 2016

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.

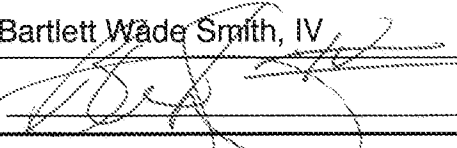
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LEGAL NAME OF INVENTOR

Inventor: Bartlett Wade Smith, IV

Date (Optional): _____

Signature: 

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

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

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

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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.
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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 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.

DECLARATION (37 CFR 1.83) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of
Invention **VIDEO TO DATA**

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 15/197,727
filed on June 29, 2016

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:

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LEGAL NAME OF INVENTOR

Inventor: Allison A. Talley

Date (Optional): _____

Signature: Allison A. Talley

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 1.83. 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-9198 and select option 2.

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Google Exhibit 1015 - Google v. CSI

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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.

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**

VIDEO TO DATA

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 15/197,727filed on June 29, 2016

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.

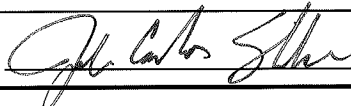
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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 INVENTORInventor: John Carlos Shields

Date (Optional) : _____

Signature: 

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

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

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

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).
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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.
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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 Acknowledgement Receipt

EFS ID:	35106041
Application Number:	16271773
International Application Number:	
Confirmation Number:	2215
Title of Invention:	VIDEO TO DATA
First Named Inventor/Applicant Name:	Bartlett Wade Smith, IV
Customer Number:	27890
Filer:	Harold H. Fox
Filer Authorized By:	
Attorney Docket Number:	19299.0009C1
Receipt Date:	08-FEB-2019
Filing Date:	
Time Stamp:	23:19:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	0009C1Trans.pdf	808710	no	2
			106577a412f960818ff79e275b6e44163e150103		

Warnings:

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Information:					
2		0009C1PreliminaryAmendment.pdf	214094	yes	4
			f2fa3cd56f87289e0317976c0ea33bbd2cf305f8		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Preliminary Amendment	1	1		
	Specification	2	2		
	Claims	3	3		
	Applicant Arguments/Remarks Made in an Amendment	4	4		
Warnings:					
Information:					
3	Application Data Sheet	0009C1ADS.pdf	1823429	no	9
			a51a9fce7e8af1d49bd83d3427ff65fc77a4aa98		
Warnings:					
Information:					
4		0009C1Applicationasfiled.pdf	3652591	yes	57
			f46fd8bf69af6228d4f72559324a75484f601e4a		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Specification	1	34		
	Claims	35	38		
	Abstract	39	39		
	Drawings-other than black and white line drawings	40	57		
Warnings:					
Information:					
5	Power of Attorney	0009C1POATrans.pdf	355994	no	1
			2c9e6629b67d078e286c35fa94c965a87bf043d2		

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Warnings:					
Information:					
6	Power of Attorney	0009C1POA.pdf	171761 9e81c3c4874a8576bead52c896475e36e1b1f4dc	no	1
Warnings:					
Information:					
7	Oath or Declaration filed	0009C1InventorDecs.pdf	633650 f35801e04108940c534e6cf0996e2d1f570efaf6	no	6
Warnings:					
Information:					
Total Files Size (in bytes):			7660229		
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.					

SCORE Placeholder Sheet for IFW Content

Application Number: 16271773

Document Date: 02/08/2019

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via eDAN using the Supplemental Content tab, or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.



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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
16/271,773	02/08/2019		0.00	19299.0009C1	1	1

CONFIRMATION NO. 2215

FILING RECEIPT

27890
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036



Date Mailed: 02/28/2019

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)

Bartlett Wade Smith IV, Madison, MS;
Allison A. Talley, Ridgeland, MS;
John Carlos Shields IV, Fort Worth, TX;

Applicant(s)

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS;

Assignment For Published Patent Application

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS

Power of Attorney: The patent practitioners associated with Customer Number 27890

Domestic Priority data as claimed by applicant

This application is a CON of 15/197,727 06/29/2016 PAT 10204274

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

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

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 02/27/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/271,773**

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

Non-Publication Request: No

Early Publication Request: No
Title

VIDEO TO DATA

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.

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

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

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

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/271,773	
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	300
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(j))	1	minus 20 = *			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *				x 460 =	0.00
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	1720
* 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	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	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	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	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.							



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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1

CONFIRMATION NO. 2215

FORMALITIES LETTER



OC000000106193226

27890
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

Date Mailed: 02/28/2019

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

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

- The statutory basic filing fee is missing.
- The application search fee must be submitted.
- The application examination fee must be submitted.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

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

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings submitted to the Office are not electronically reproducible because portions of figures 5-8 are missing and/or blurry.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.

The surcharge is due for any one of:

- late submission of the basic filing fee, search fee, or examination fee,
- late submission of inventor's oath or declaration,
- filing an application that does not contain at least one claim on filing, or
- submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of

small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ **300** basic filing fee.
- \$ **160** surcharge.
- \$ **660** search fee.
- \$ **760** examination fee.
- \$ **(0)** previous unapplied payment amount.
- \$ **1880** TOTAL FEE BALANCE DUE.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
John Carlos Shields IV

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

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

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

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

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

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.

/sudenboba/

SCORE Placeholder Sheet for IFW Content

Application Number: 16271773

Document Date: 07/09/2019

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

At the time of document entry (noted above):

- USPTO employees may access SCORE content via DAV or via the SCORE web page.
- External customers may access SCORE content via PAIR using the Supplemental Content tab.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bartlett Wade Smith, IV, et al.
Serial No. : 16/271,773
Filing Date: February 8, 2019
Title : VIDEO TO DATA

Art Unit : Unknown
Examiner : Unknown
Confirmation No.: 2215

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

SUPPLEMENTAL PRELIMINARY AMENDMENT

Prior to examination, please amend the application as indicated on the following pages.

Electronic Patent Application Fee Transmittal

Application Number:	16271773			
Filing Date:	08-Feb-2019			
Title of Invention:	VIDEO TO DATA			
First Named Inventor/Applicant Name:	Bartlett Wade Smith			
Filer:	Harold H. Fox			
Attorney Docket Number:	19299.0009C1			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	1051	1	160	160
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with \$0 paid	1253	1	1400	1400
Miscellaneous:				
Total in USD (\$)				3280

Electronic Acknowledgement Receipt

EFS ID:	36537439
Application Number:	16271773
International Application Number:	
Confirmation Number:	2215
Title of Invention:	VIDEO TO DATA
First Named Inventor/Applicant Name:	Bartlett Wade Smith
Customer Number:	27890
Filer:	Harold H. Fox
Filer Authorized By:	
Attorney Docket Number:	19299.0009C1
Receipt Date:	09-JUL-2019
Filing Date:	08-FEB-2019
Time Stamp:	22:01:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 3280
RAM confirmation Number	071019INTEFSW00006717194293
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	Extension of Time	0009C1EOT.pdf	563840	no	2
			4271d0ff4e83ec1bca4758da2de6abed22613ad8		
Warnings:					
Information:					
2	Drawings-other than black and white line drawings	0009C1replacementfigs.pdf	434300	no	4
			40a96610e84587a448aa5c1498bc58790b5d3e7b		
Warnings:					
Information:					
3	Applicant Response to Pre-Exam Formalities Notice	0009C1ResponsetoMissingParts.pdf	202275	no	1
			037770fd2611b863a471a9ffbc36f9167e86f694		
Warnings:					
Information:					
4		0009C1SupplementalPreliminaryAmendment.pdf	267412	yes	5
			e4cda34457b053ff2af4308ed41720a7955d9961		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Applicant Arguments/Remarks Made in an Amendment		5	5	
	Claims		3	4	
	Drawings-other than black and white line drawings		2	2	
	Preliminary Amendment		1	1	
Warnings:					
Information:					

5	Fee Worksheet (SB06)	fee-info.pdf	39179	no	2
			75e8c6f4a106d66ad49d2f640b987f8419189174		

Warnings:

Information:

Total Files Size (in bytes):	1507006
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

19299.0009C1

Application Number 16/271,773

Filed February 8, 2019

For **VIDEO TO DATA**

Art Unit

Examiner

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☐ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ _____
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____
☒ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ 1,400
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____

☐ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to
Deposit Account Number 19-4293

☐ Payment made via EFS-Web.

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

I am the

☐ applicant.

☒ attorney or agent of record. Registration number 41,498

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____

/Harold H. Fox, Reg.# 41498/

July 9, 2019

Signature _____

Date _____

Harold H. Fox

202-429-3000

Typed or printed name

Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

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

Privacy Act Statement

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

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

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

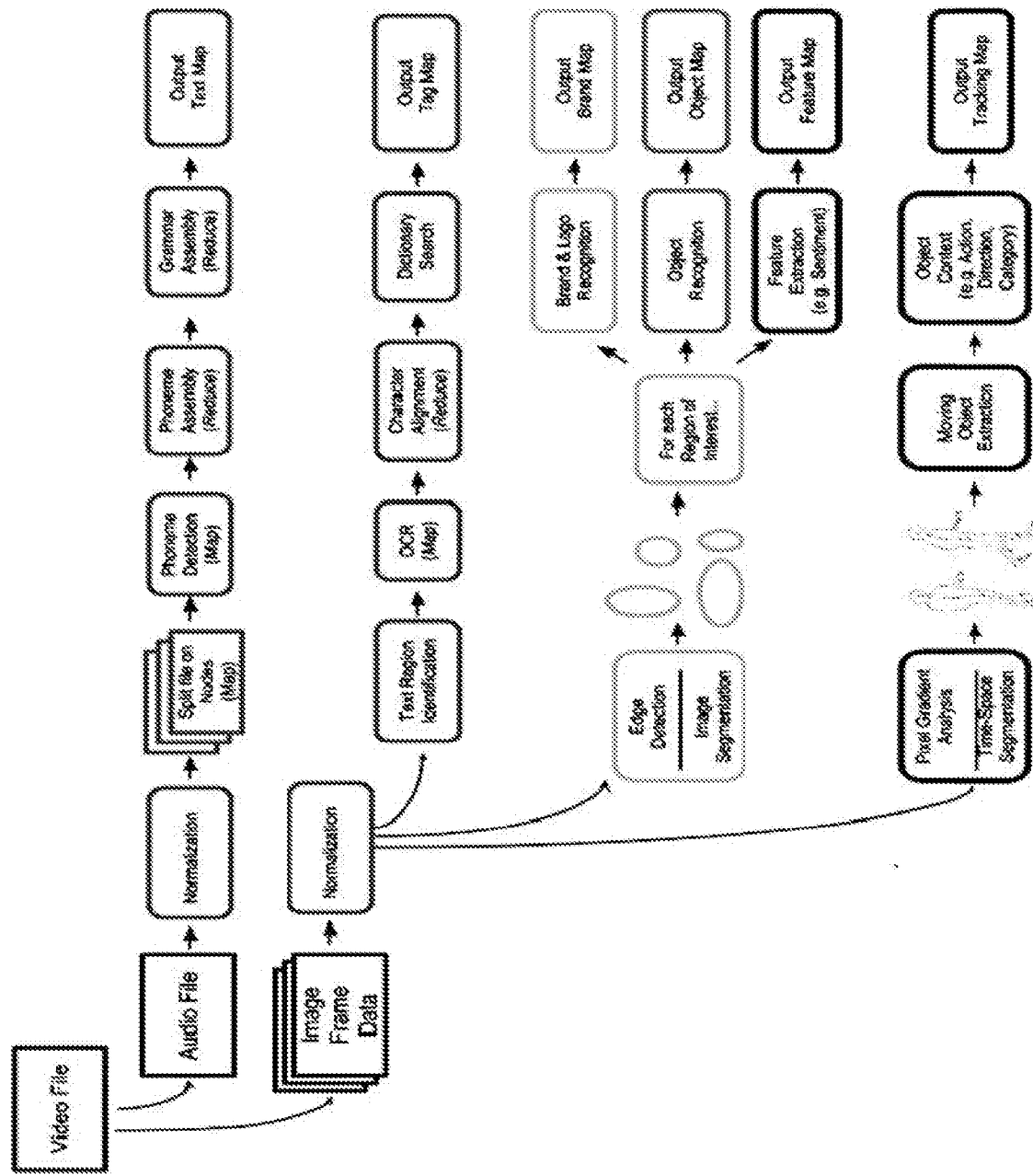
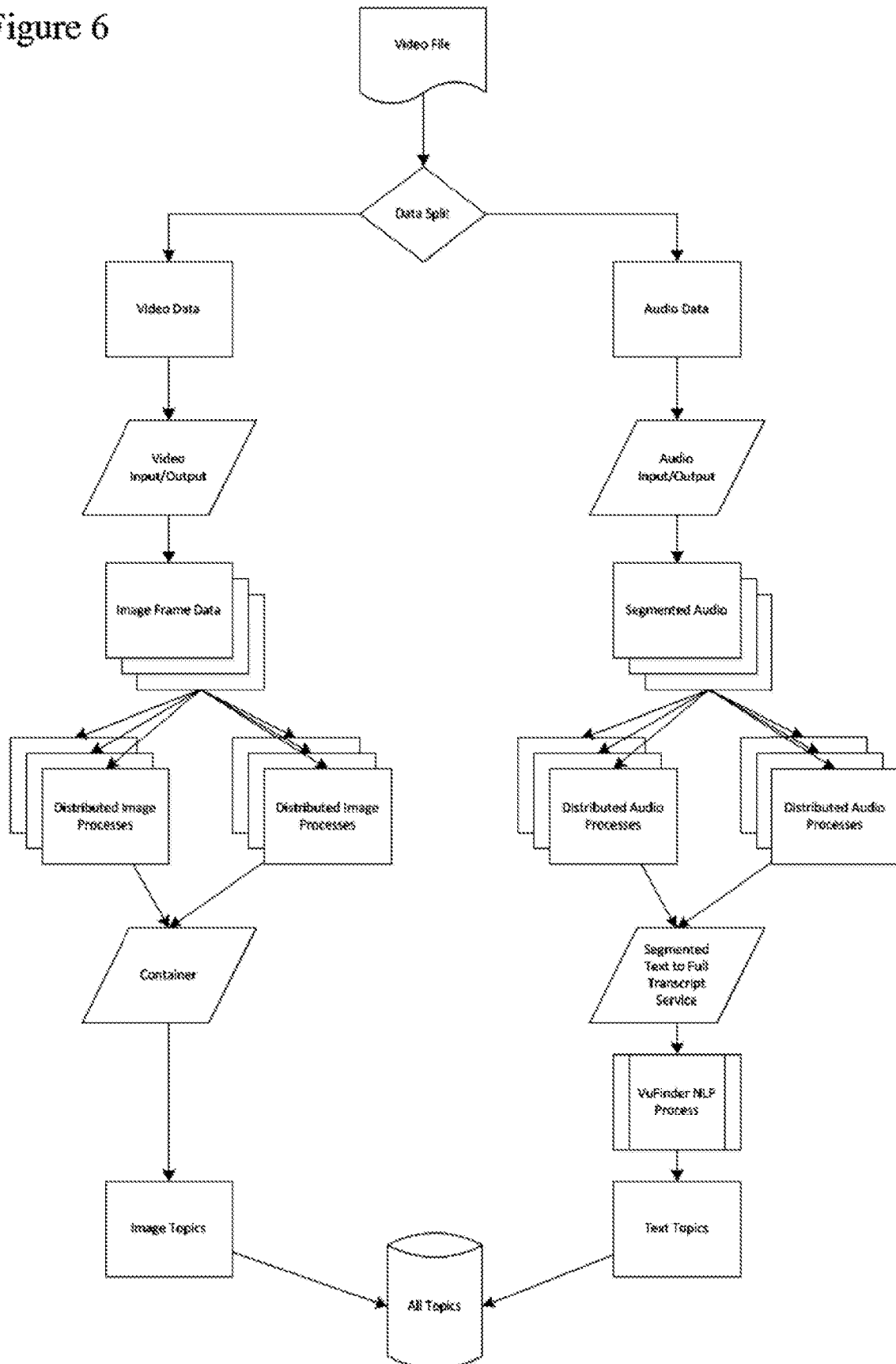


Figure 5

Figure 6



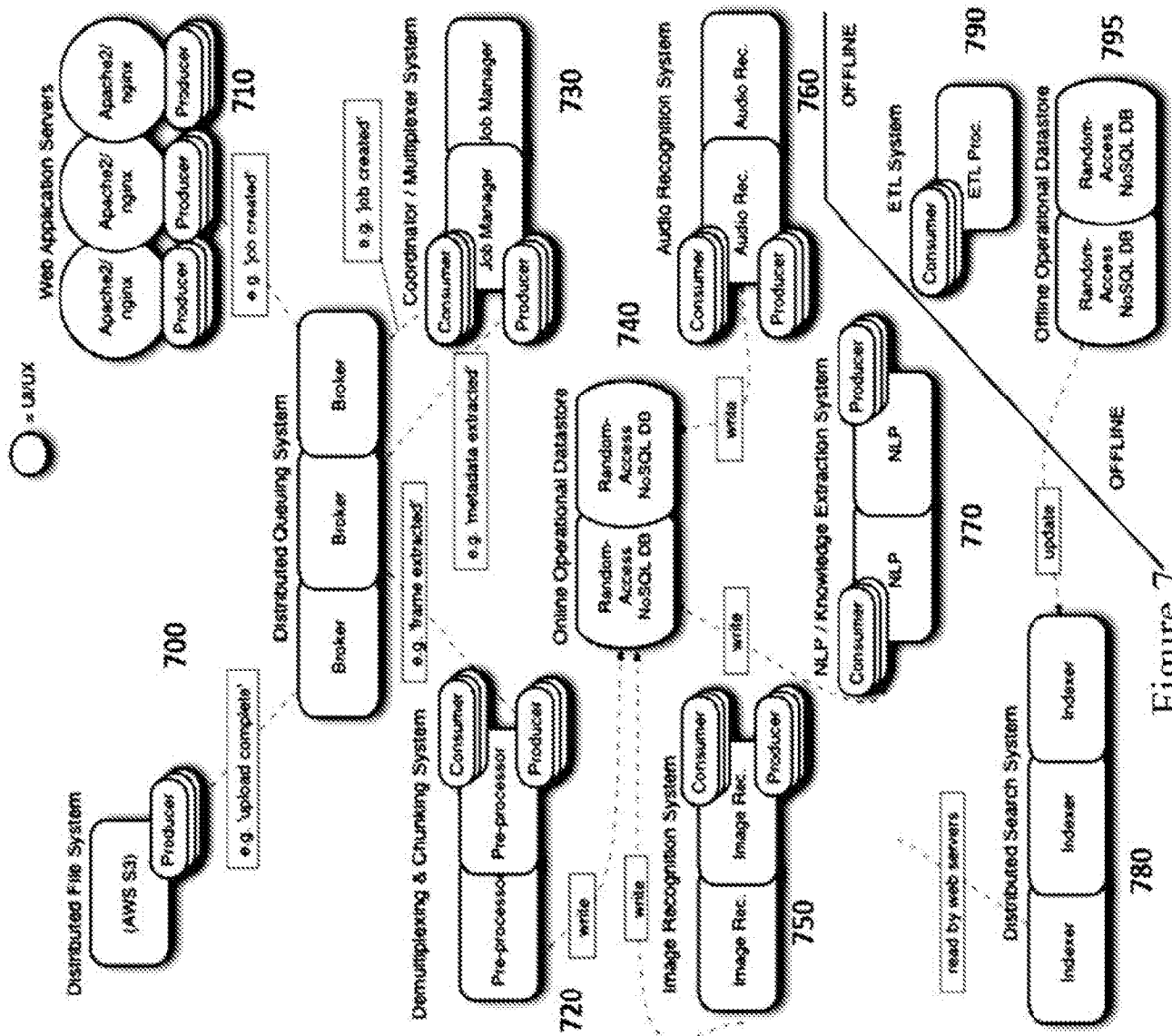


Figure 7

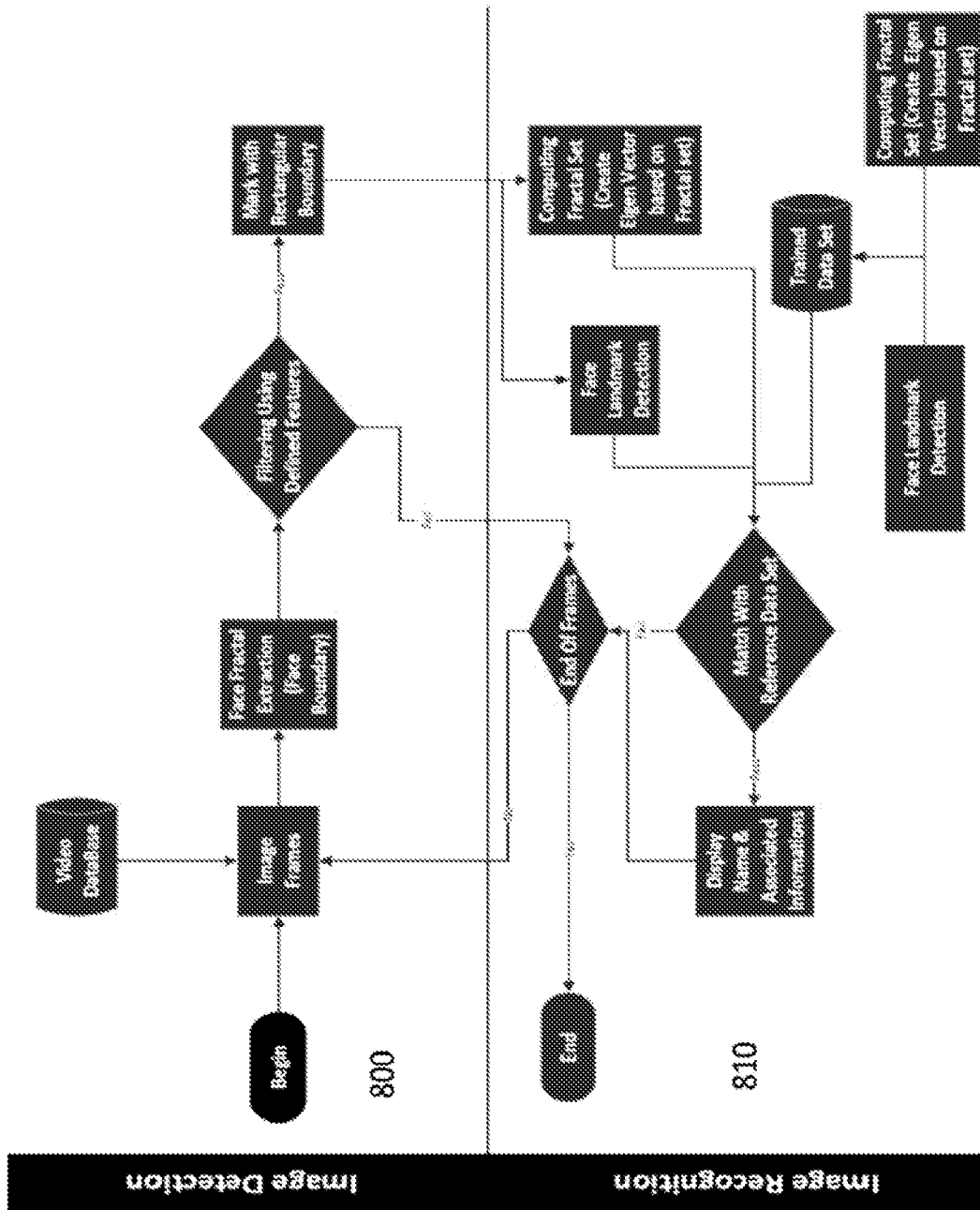


Figure 8

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Bartlett Wade Smith, et al. Examiner: Unknown
Serial No.: 16/271,773 Group Art Unit: Unknown
Filed: February 8, 2019 Docket No.: 19299.0009C1
For: VIDEO TO DATA

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

RESPONSE TO NOTICE TO FILE MISSING PARTS

In response to the Notice to File Missing Parts of Non-provisional Application mailed February 28, 2019, Applicants hereby submit the outstanding filing fees, Supplemental Preliminary Amendment and Replacement Drawings. No new matter has been added.

The Director is authorized to charge \$1880 for filing fees. The Director is further authorized to charge any additional fee or credit any overpayment to Deposit Account 19-4293, referencing attorney docket number 19299.0009C1.

Respectfully submitted,

Date: July 9, 2019

/Harold H Fox, Reg.# 41498/

Harold H. Fox

Reg. No. 41,498

Customer No. 27890
STEPTOE & JOHNSON LLP
1330 Connecticut Ave. NW
Washington, DC 20036
Telephone: (202) 429-3000
Facsimile: (202) 429-3902

Applicant : Bartlett Wade Smith, IV, et al.
Serial No. : 16/271,773
Filed : February 8, 2019
Page : 5 of 5

Attorney Docket No.: 19299.0009C1

REMARKS

Claim 1 has been amended. New claims 29-38 have been added. Replacement sheets for FIGS. 5-8 are submitted herewith. No new matter has been added.

Applicants respectfully request these amendments be entered.

Respectfully submitted,

Date: July 9, 2019

/Harold H Fox, Reg. #41498/

Harold H. Fox
Reg. No. 41,498

Customer No. 27890
Steptoe & Johnson LLP
1330 Connecticut Avenue, NW
Washington, DC 20036-1795
Phone: 202-429-3000
Fax: 202-429-3902

In the claims:

1. (Currently Amended) A system for generating data from a video, comprising:
a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video;

an image detector configured to detect an image images of an object objects in the still frame images; and

an object recognizer configured to compare [[an]] the image of [[an]] the object to a fractal, wherein the fractal includes a representation of the object based on landmarks associated with the object, wherein the recognizer is further configured to update the fractal with the image; and

wherein the coordinator is configured to embed metadata about the object into the video.

2-28. (Canceled)

29. (New) The system of claim 1, wherein the image detector can be adjusted to vary its ability to detect non-primary images in the video.

30. (New) The system of claim 1, wherein the recognizer is configured to determine distinguishing geometric features of the object.

31. (New) The system of claim 30, wherein the distinguishing geometric features comprise a contour of eye sockets, a nose, and a chin.

32. (New) The system of claim 31, wherein the recognizer is configured to determine skin textures of the object.

33. (New) The system of claim 32, wherein the distinguishing geometric features or the skin textures are determined based on a three-dimensional model.

34. (New) The system of claim 33, wherein the three-dimensional model is a three-dimensional morphable model.

35. (New) The system of claim 1, further comprising a processor and a camera for capturing the video.

36. (New) The system of claim 35, wherein the processor is configured to transform the video into a rectilinear format.

37. (New) The system of claim 1, wherein the coordinator is configured to embed metadata about the object into the video, and wherein the metadata comprises a timestamp and a coordinate location of the object in the still frame images.

38. (New) The system of claim 1, wherein the coordinator is configured to generate a metadata stream corresponding to the image, wherein the metadata stream includes one or more timestamps corresponding to the image, and wherein the coordinator is configured to embed the metadata stream in the video.

Applicant : Bartlett Wade Smith, IV, et al.
Serial No. : 16/271,773
Filed : February 8, 2019
Page : 2 of 5

Attorney Docket No.: 19299.0009C1

In the drawings:

Please replace FIGS. 5-8 with the attached replacement sheets FIGS. 5-8.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/271,773				
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	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(j))	11	minus 20 = *			OR	x 100 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *				x 460 =	0.00			
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	1720			
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	
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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1

CONFIRMATION NO. 2215

FORMALITIES LETTER



OC000000109548416

27890
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

Date Mailed: 07/11/2019

NOTICE OF INCOMPLETE REPLY (NONPROVISIONAL)

Filing Date Granted

The U.S. Patent and Trademark Office has received your reply on 07/09/2019 to the NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION (Notice) mailed 02/28/2019 and it has been entered into the application. The reply, however, is not a complete reply for the reason(s) listed below. A complete reply must be timely filed to prevent ABANDONMENT of the above-identified application. Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O.Box 1450, Alexandria VA 22313-1450.

The period for reply continues to run from the date of the Notice mailed 02/28/2019. Applicant must submit all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the appropriate extension fee under the provisions of 37 CFR 1.136(a).

Applicant's reply to the Notice mailed on 02/28/2019 was received in the U.S. Patent and Trademark Office on 07/09/2019, after the expiration of the two month period for reply set forth in the Notice. The application will become abandoned unless applicant obtains an extension of the period for reply, as above. The petition must be accompanied by the appropriate fee as set forth in 37 CFR 1.17 (see the current fees below). The date on which the reply, the petition, and the fee have been filed is the date of the reply and also the date for purposes of determining the period of extension and the corresponding amount of the fee due. The expiration of the time period is determined by the amount of the fee paid. Applicant is advised that extensions may not be granted under 37 CFR 1.136(a) for more than FIVE MONTHS beyond the time period set in the Notice.

Items Required to Avoid Abandonment:

The required items noted below SHOULD be filed along with any items required above.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

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

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
 - The drawings submitted to the Office are not electronically reproducible because portions of figures 5-8 are missing and/or blurry.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
John Carlos Shields IV

Mail date of Notice: 02/28/2019

Last date that extension may be obtained: (Note: The petition and fee must be received 09/28/2019 by this date, or include a proper certificate of mailing under 37 CFR 1.8 with a date on or before this date, and extend the time to include this date.)

Length of Extension of Time (response due on or before)	Fee under 37 CFR 1.17(a) effective March 19, 2013		
	Undiscounted	Small Entity	Micro Entity
Three Months (07/28/2019)	\$1400	\$700	\$350
Four Months (08/28/2019)	\$2200	\$1100	\$550
Five Months (09/28/2019)	\$3000	\$1500	\$750

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

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

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://portal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

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

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.

/cnguyen/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Bartlett Wade Smith, et al. Examiner: Unknown
Serial No.: 16/271,773 Group Art Unit: Unknown
Filed: February 8, 2019 Docket No.: 19299.0009C1
For: VIDEO TO DATA

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

RESPONSE TO NOTICE OF INCOMPLETE REPLY

In response to the Notice of Incomplete Reply of Non-provisional Application mailed July 11, 2019, Applicants hereby submit Replacement Drawings. No new matter has been added.

Applicants believe that no fees are due. If Applicants have reached this conclusion in error, the Director is authorized to charge any additional fee or credit any overpayment to Deposit Account 19-4293, referencing attorney docket number 19299.0009C1.

Respectfully submitted,

Date: July 29, 2019

/Harold H Fox, Reg.# 41498/

Harold H. Fox

Reg. No. 41,498

Customer No. 27890
STEPTOE & JOHNSON LLP
1330 Connecticut Ave. NW
Washington, DC 20036
Telephone: (202) 429-3000
Facsimile: (202) 429-3902

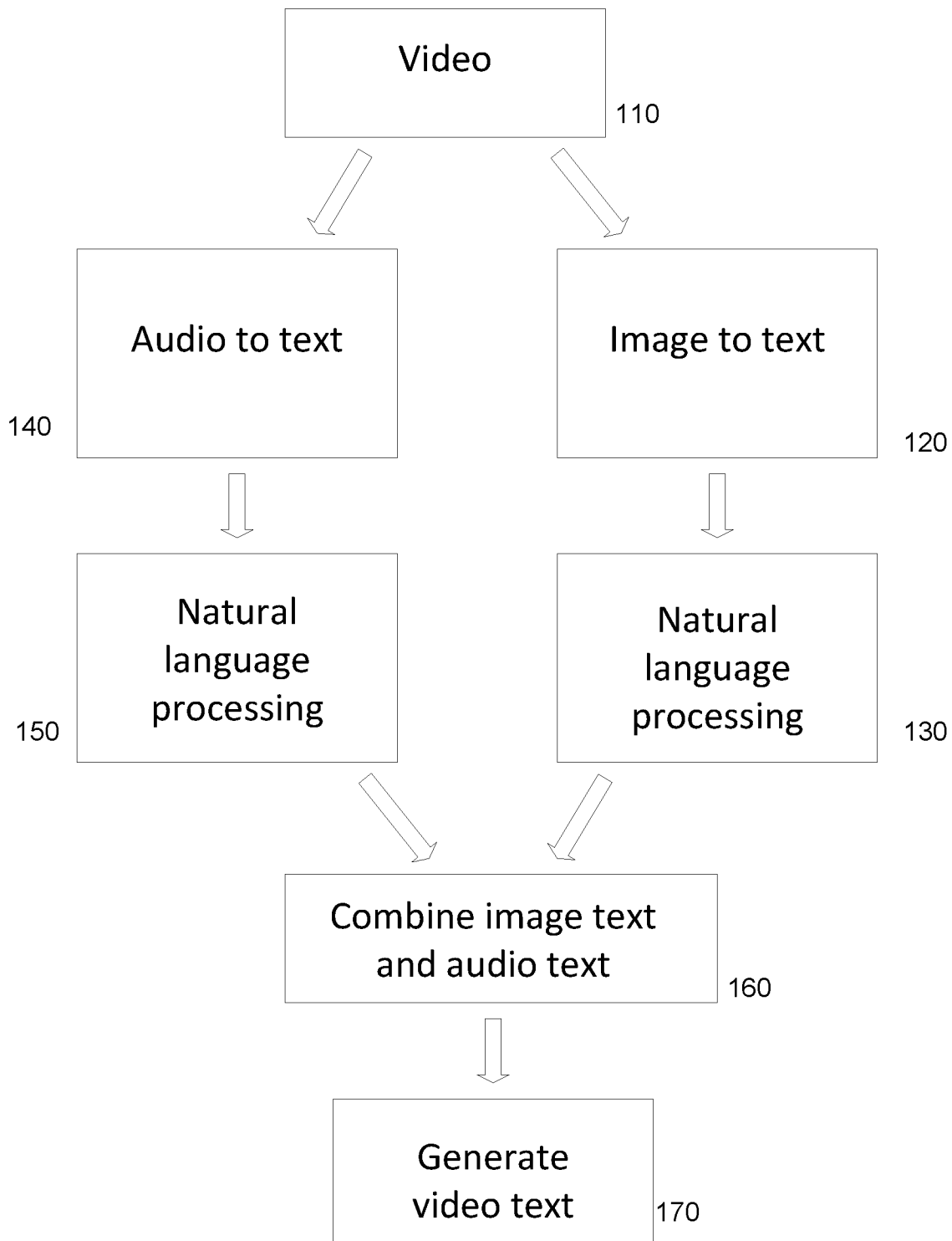


Figure 1

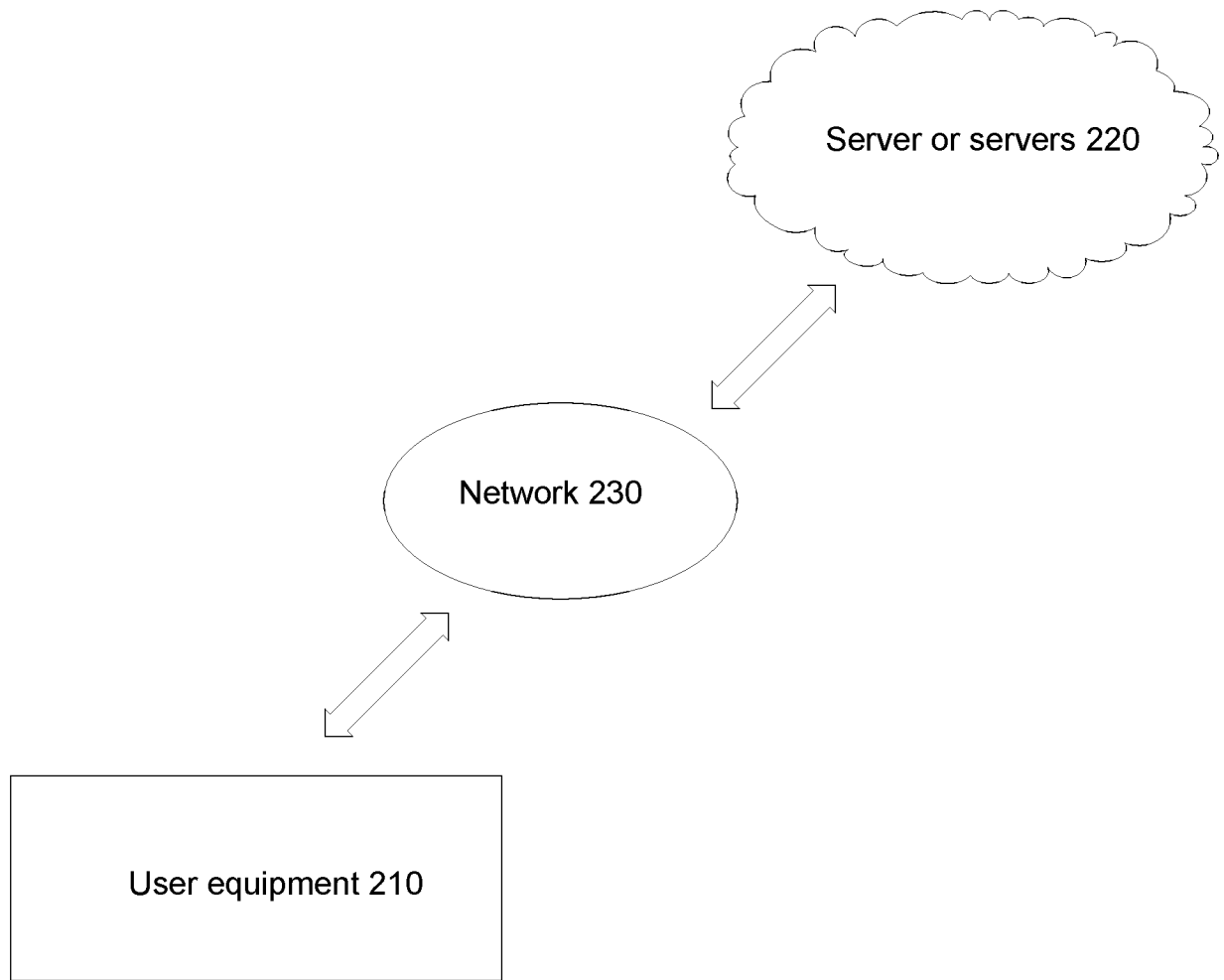


Figure 2

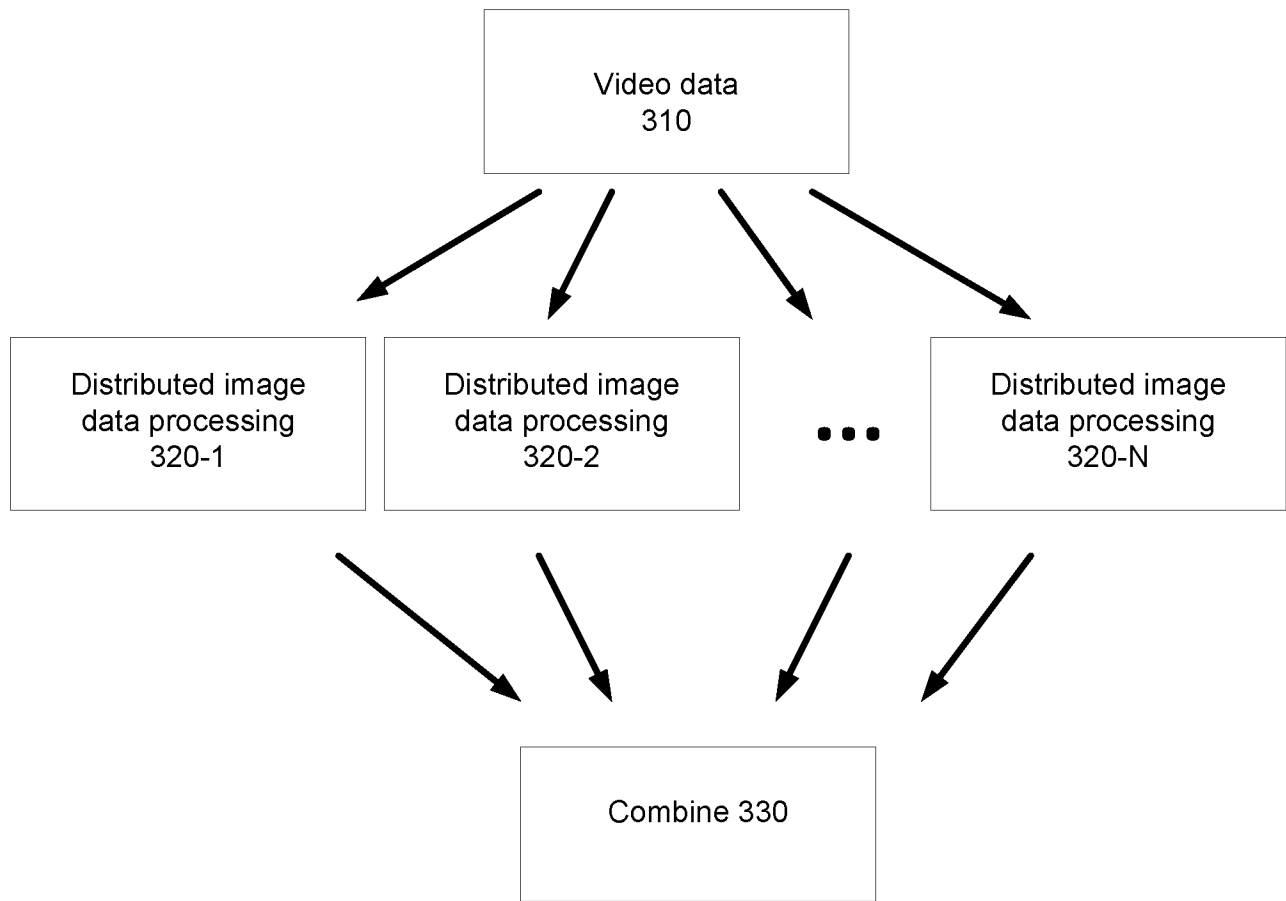


Figure 3

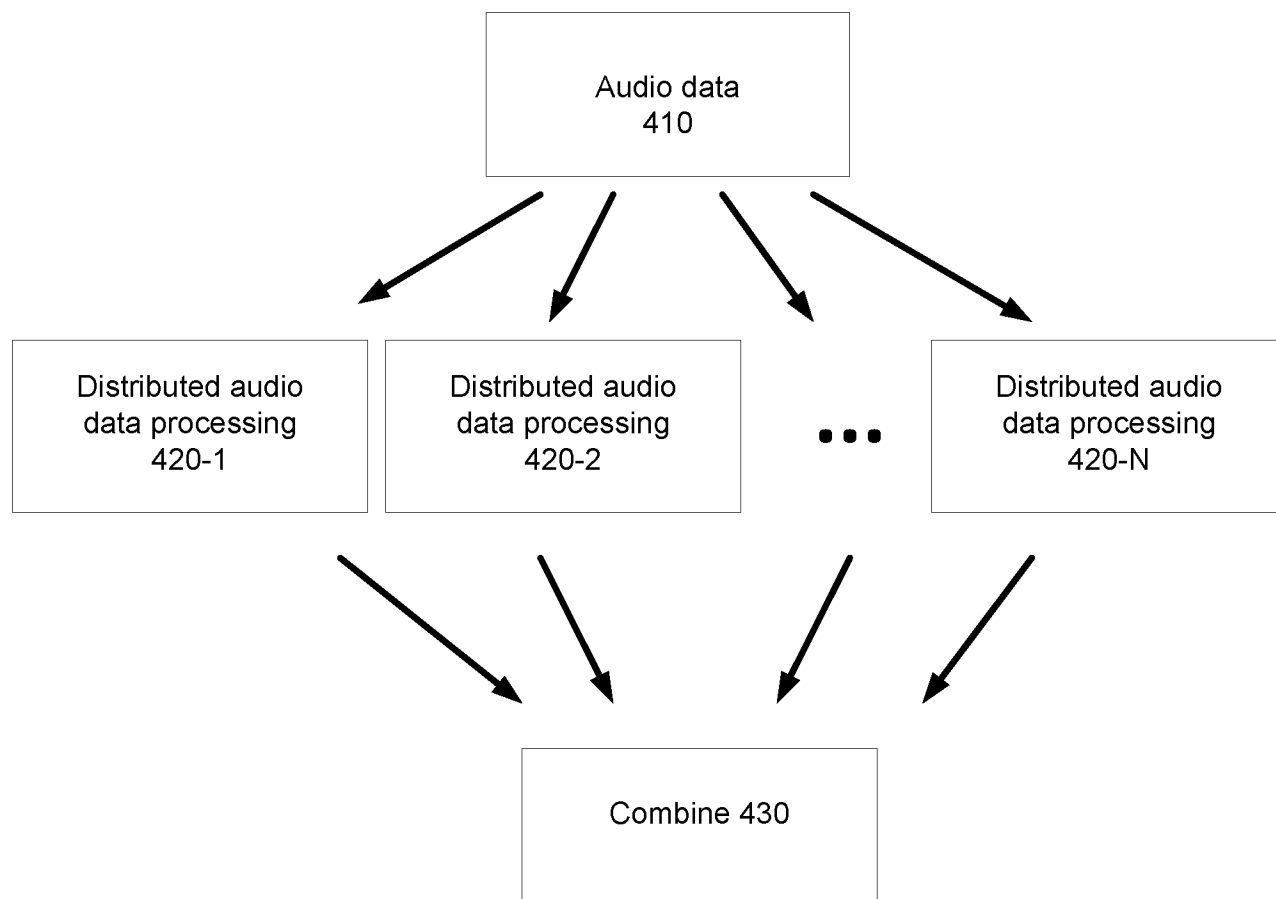


Figure 4

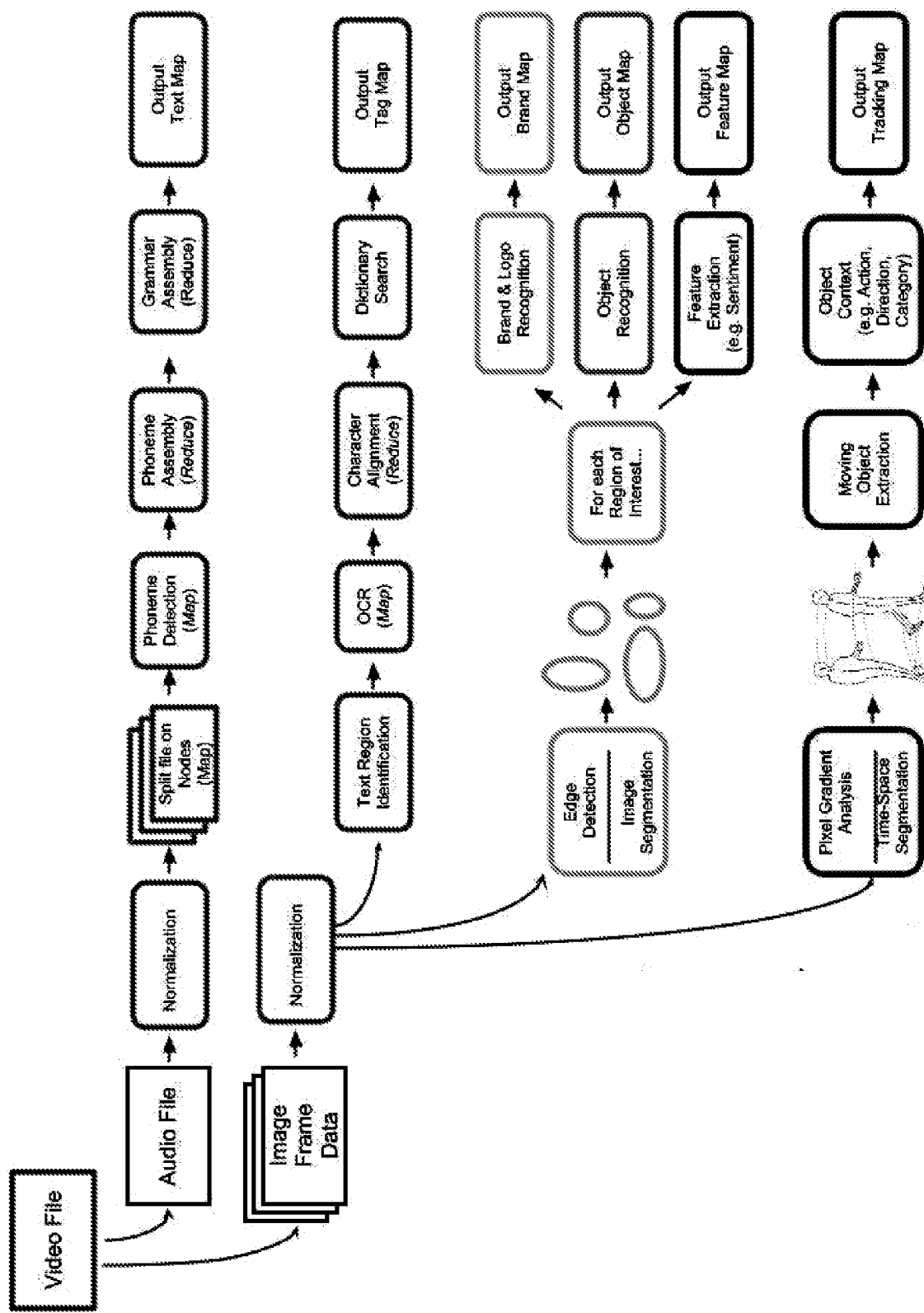
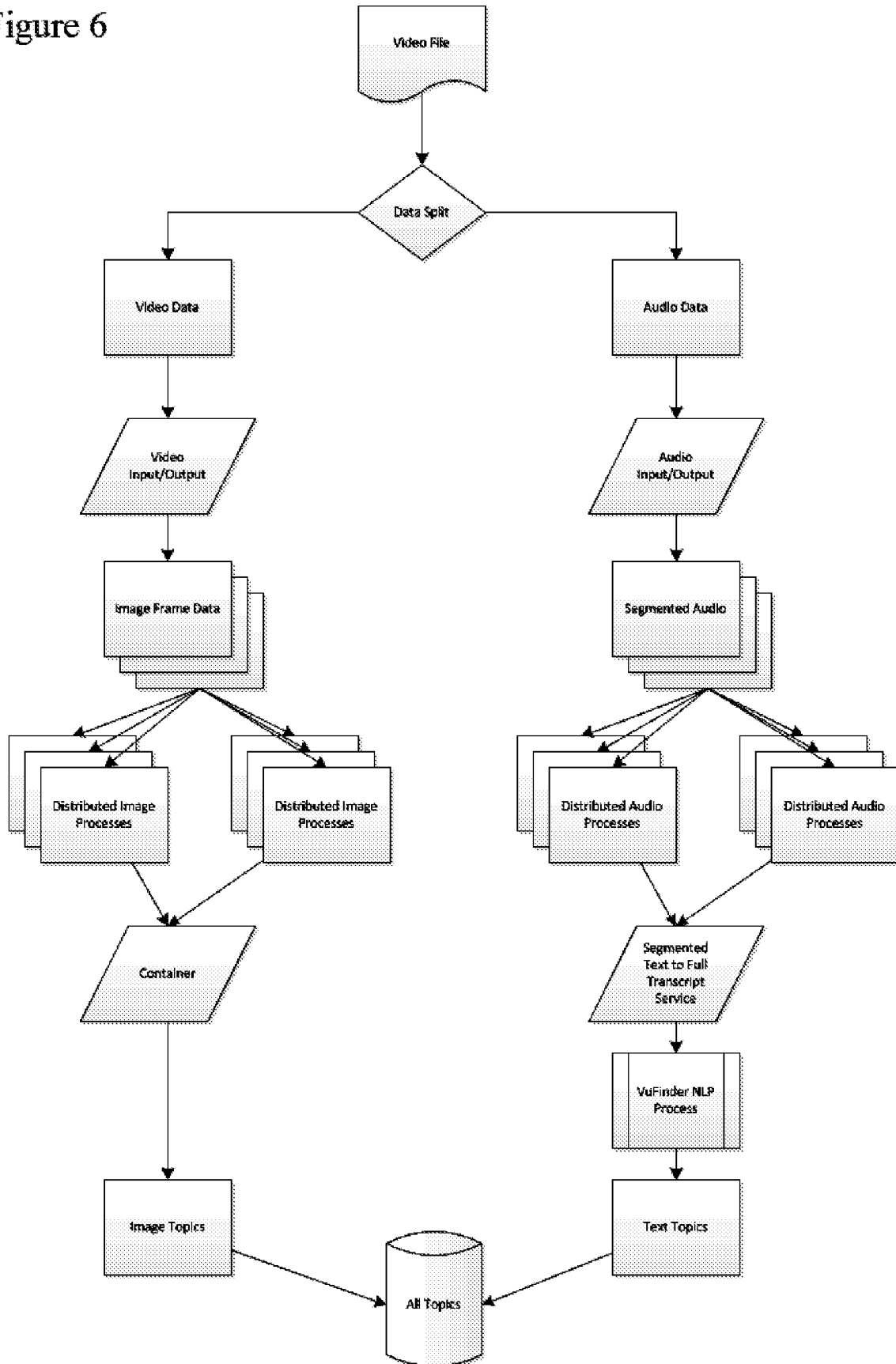


Figure 5

Figure 6



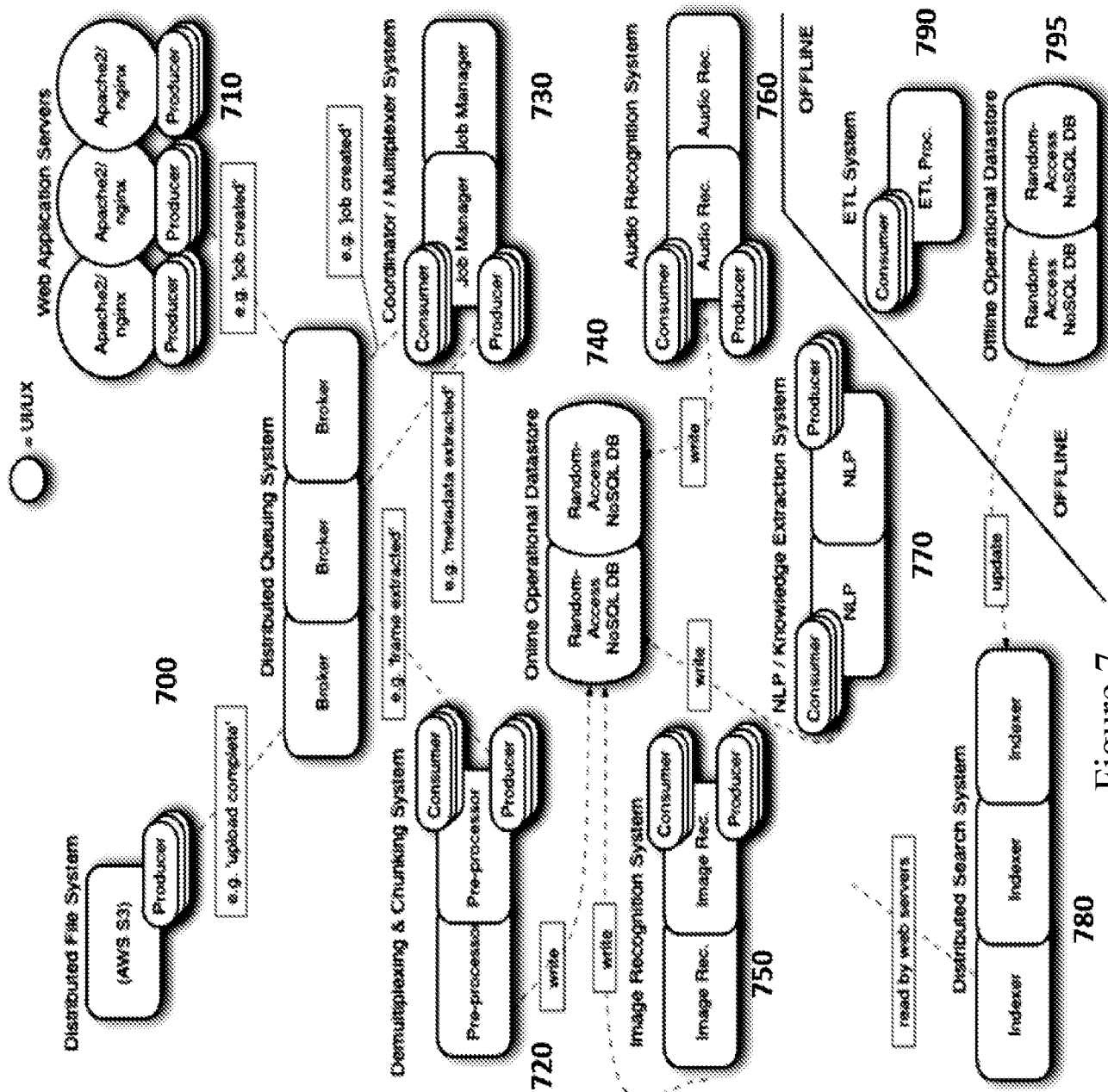


Figure 7

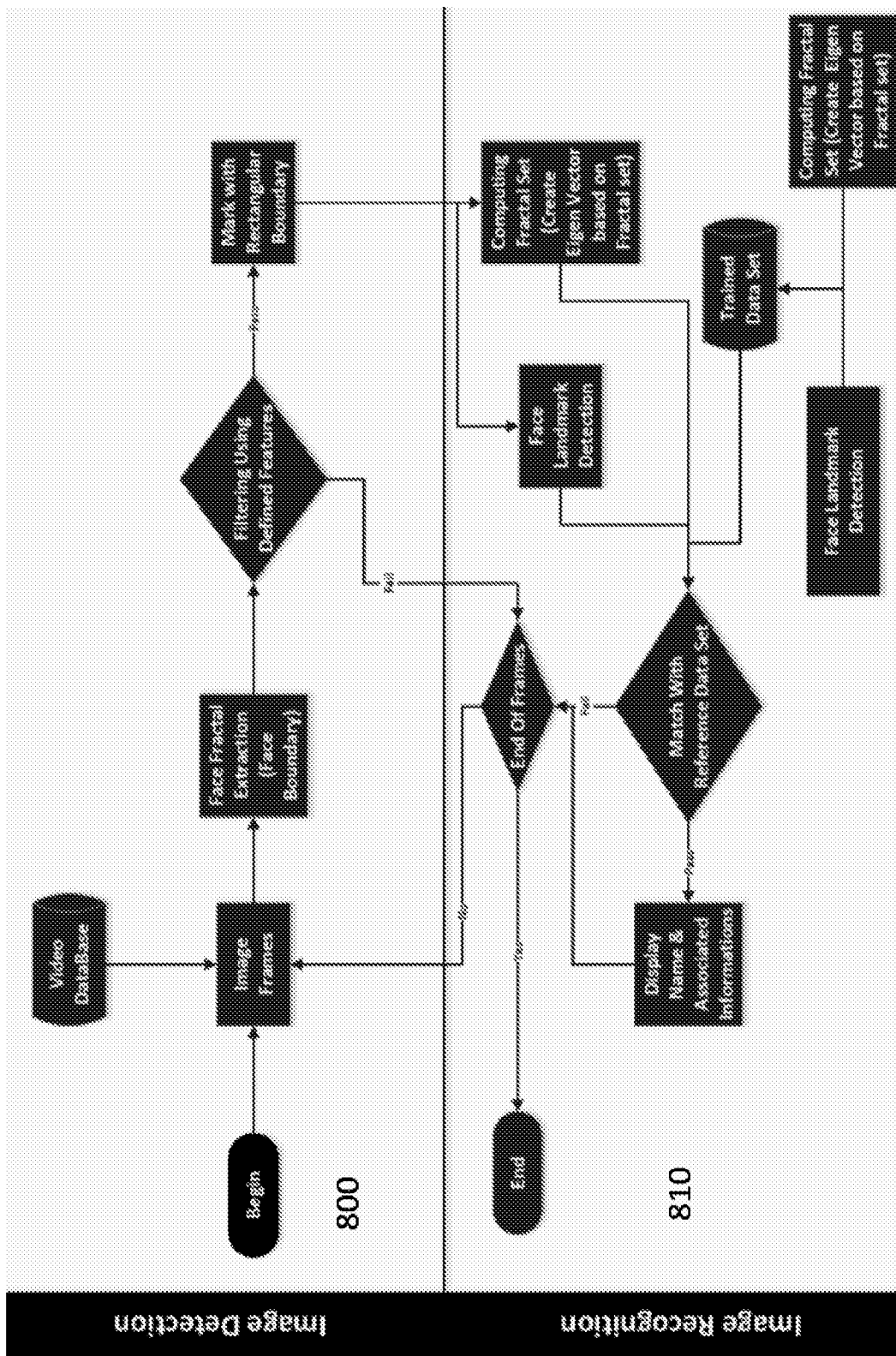


Figure 8



Figure 9

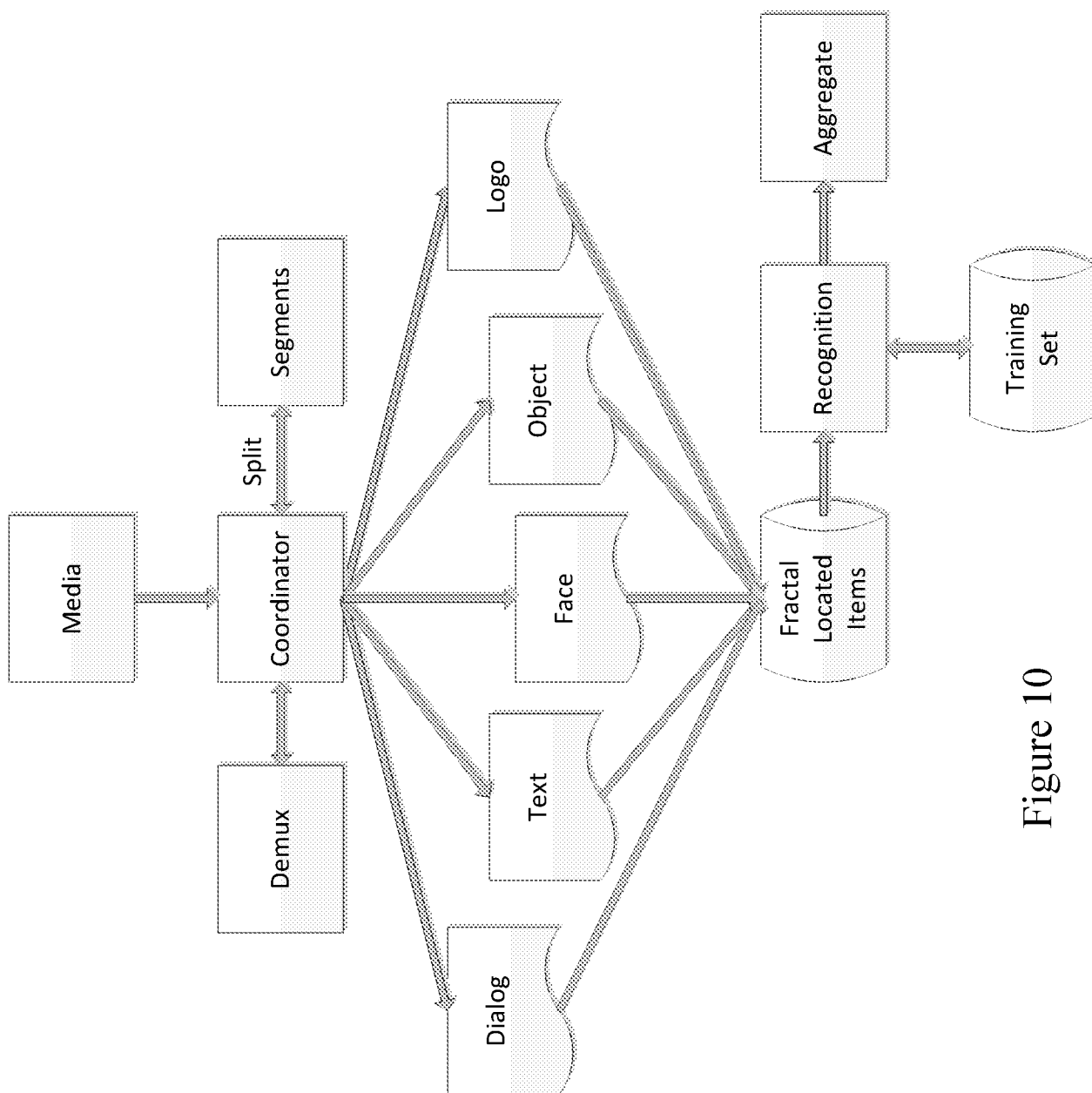


Figure 10

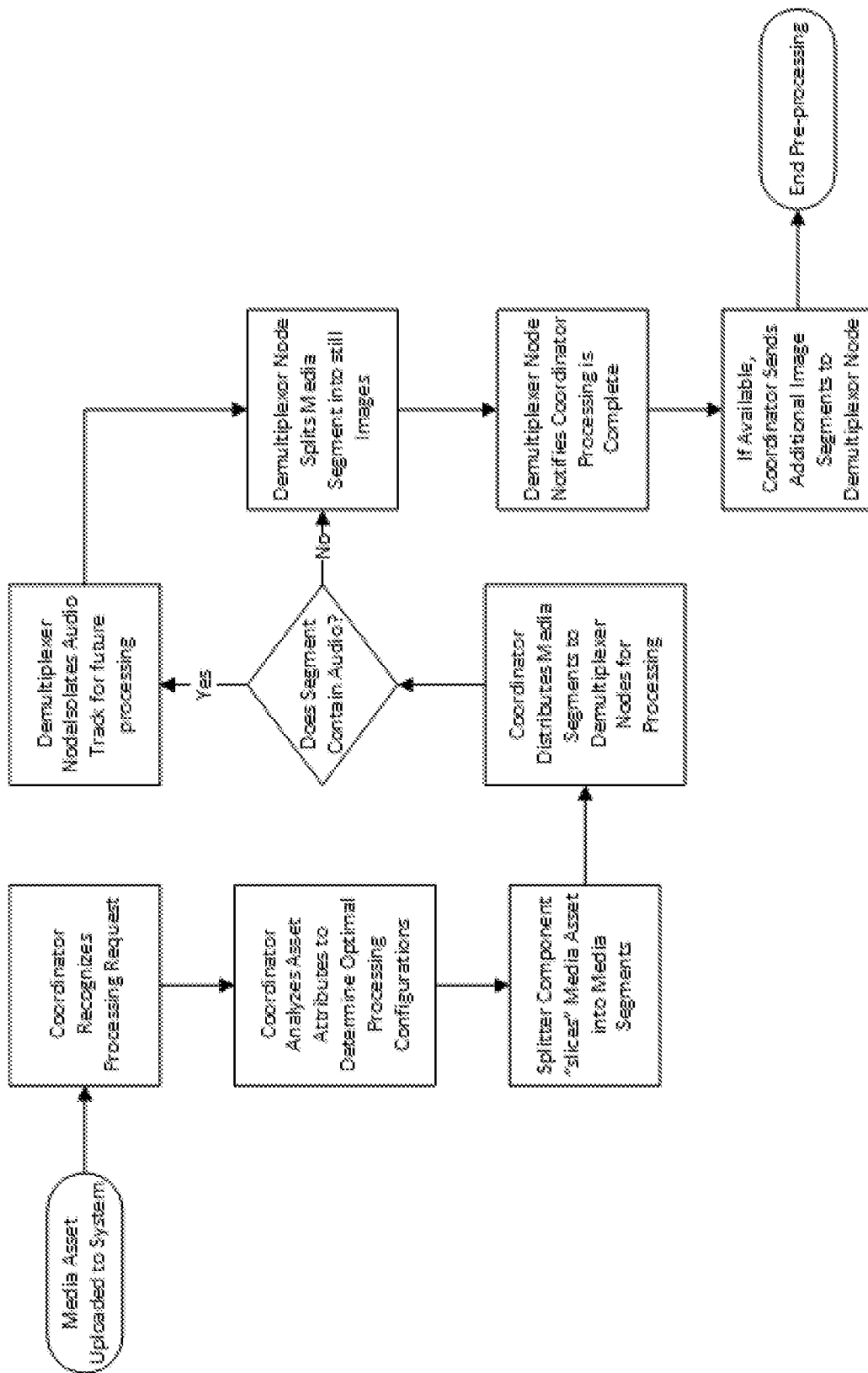


Figure 11

REPLACEMENT SHEET

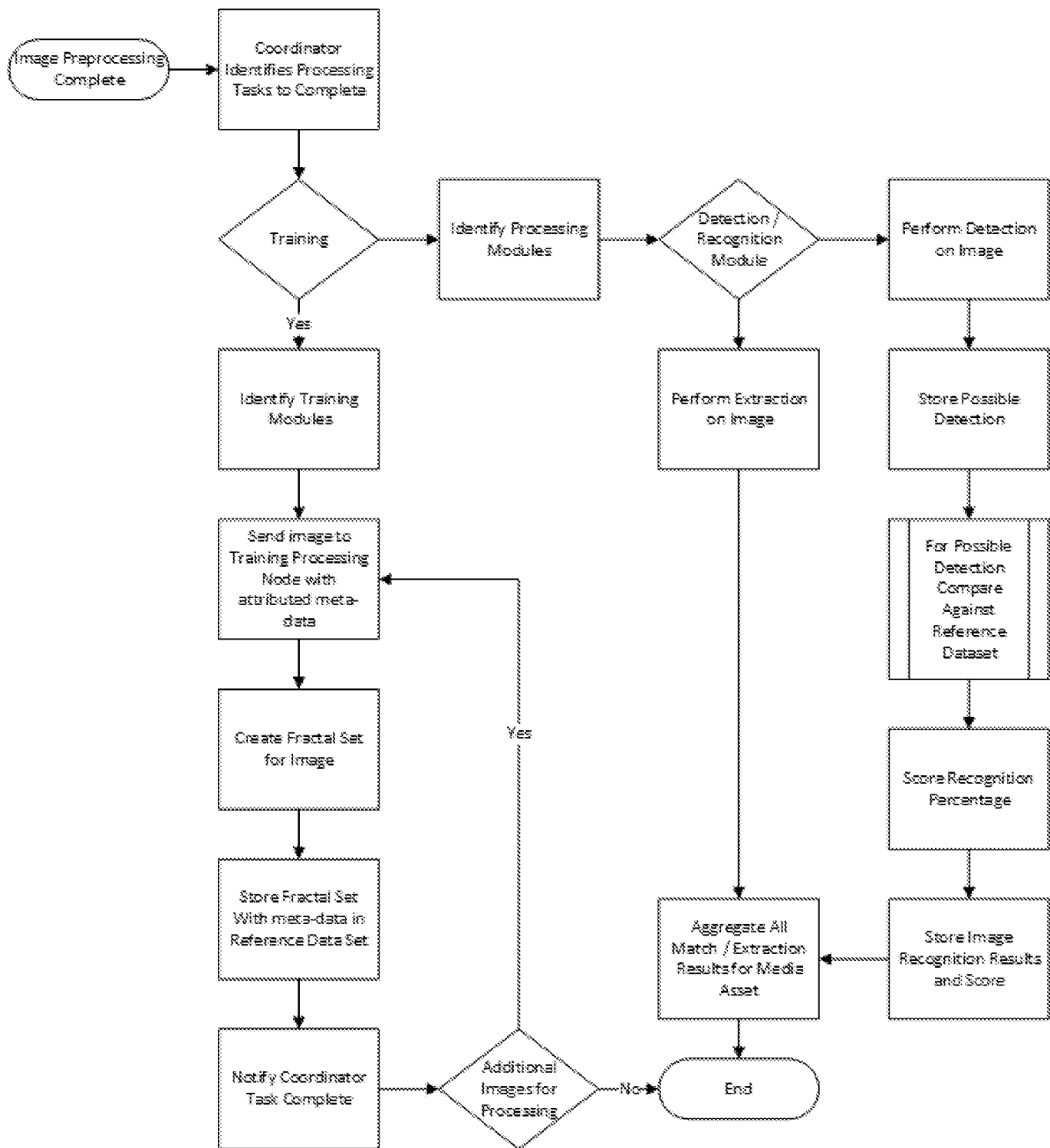


Figure 13

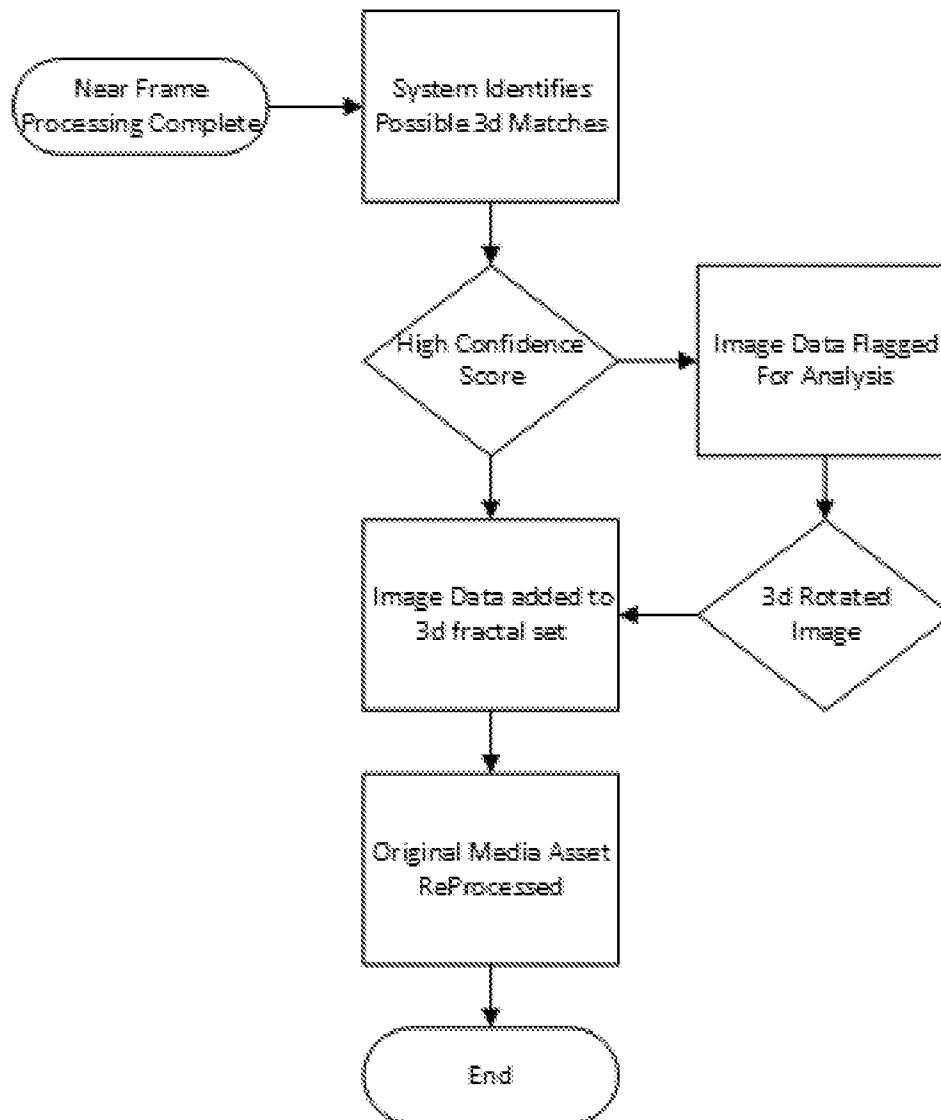


Figure 14

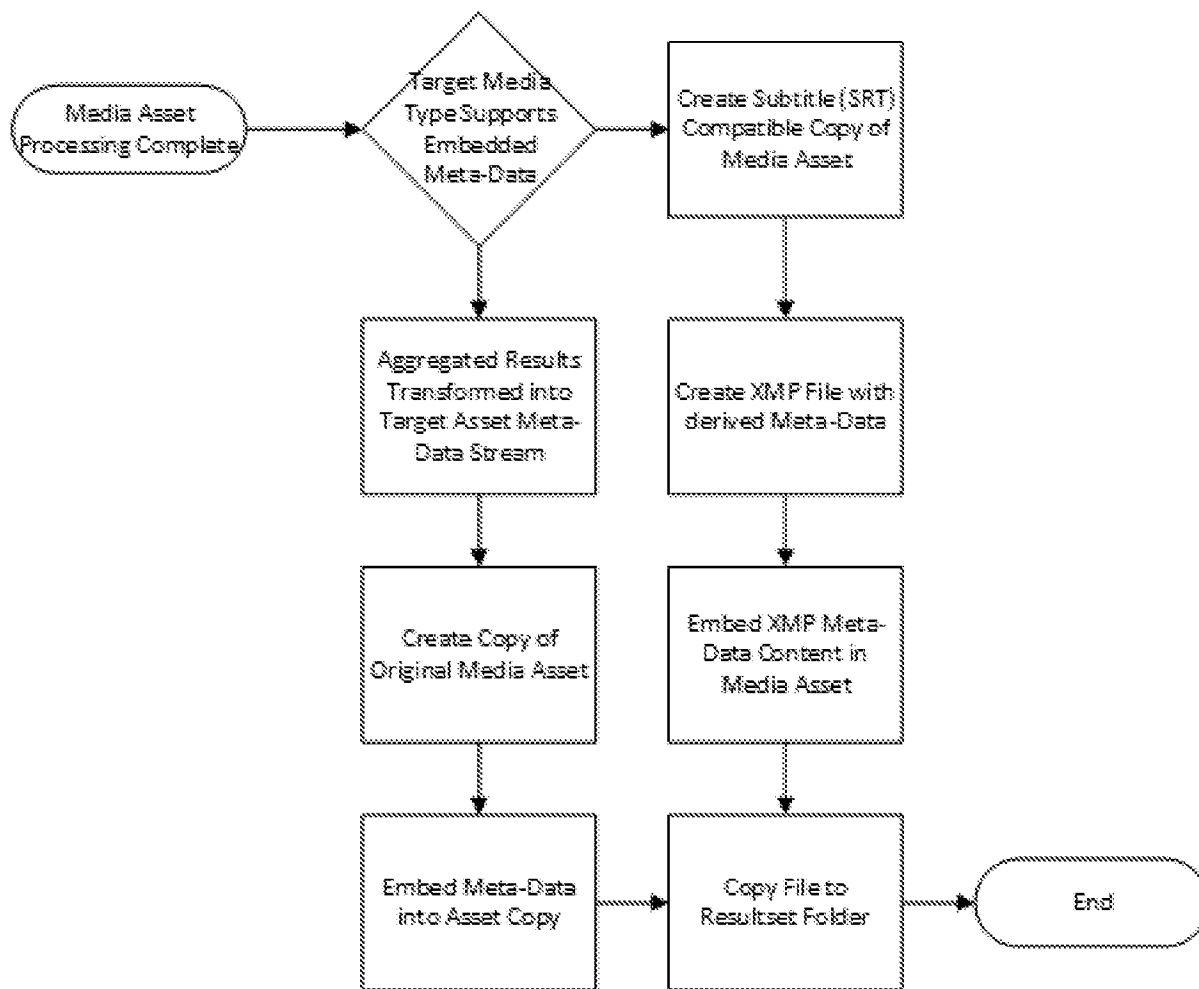


Figure 15

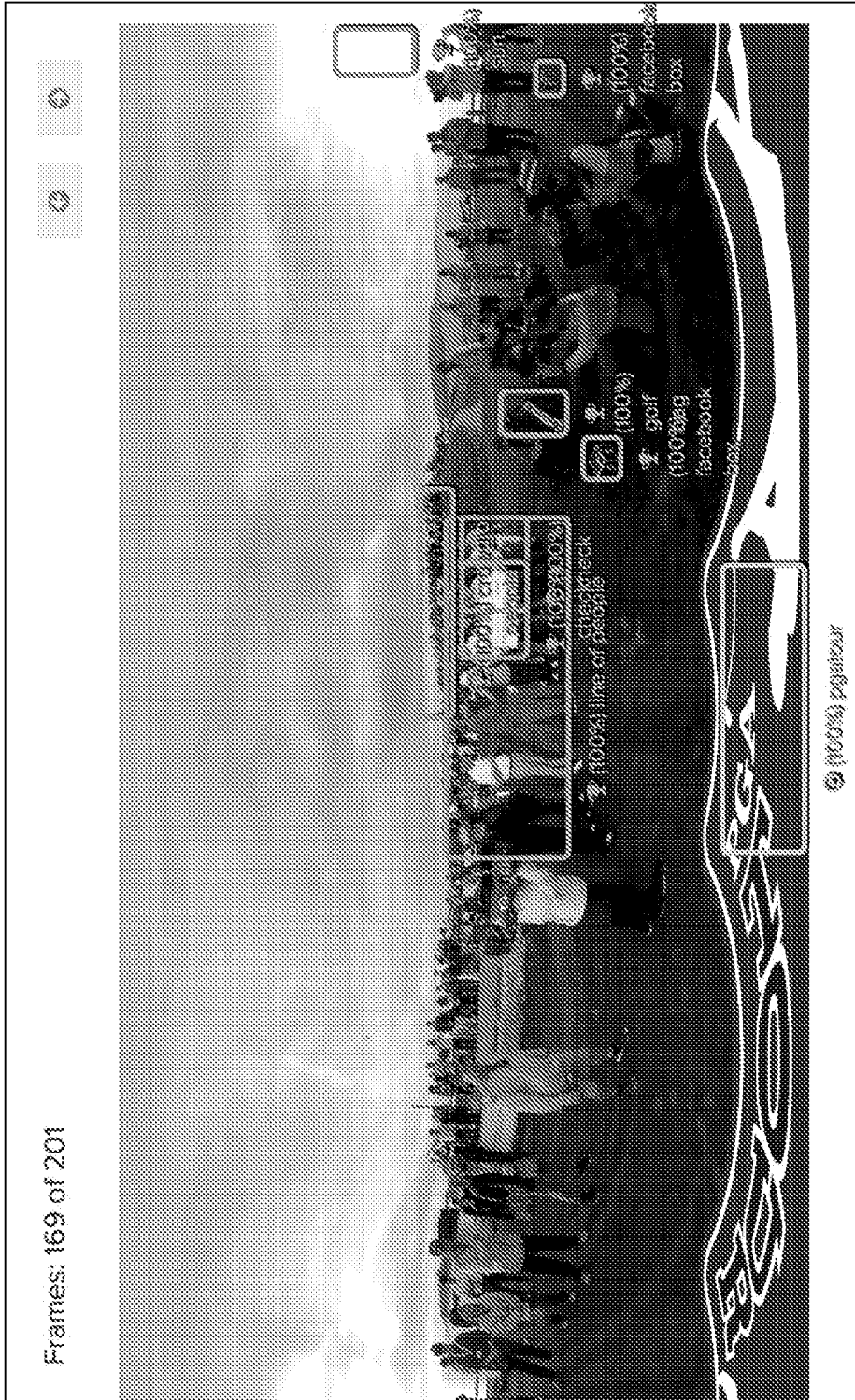


Figure 16



Figure 17



Figure 18

Electronic Acknowledgement Receipt

EFS ID:	36722115
Application Number:	16271773
International Application Number:	
Confirmation Number:	2215
Title of Invention:	VIDEO TO DATA
First Named Inventor/Applicant Name:	Bartlett Wade Smith
Customer Number:	27890
Filer:	Harold H. Fox
Filer Authorized By:	
Attorney Docket Number:	19299.0009C1
Receipt Date:	29-JUL-2019
Filing Date:	08-FEB-2019
Time Stamp:	22:51:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	0009C1ResponsetoIncomplete Replya.pdf	97944 ddea03de03f46d22e049b09d07d26dbde812de0c	no	1

Warnings:

Google Exhibit 1015 - Google v. CSI

IPR2025-00877 - Page 00130

Information:					
2	Drawings-other than black and white line drawings	replacementfiguresa.pdf	1731258	no	17
			8020ed75c05fdd3947a2f6d194568fe6c7e20fcf		
Warnings:					
Information:					
Total Files Size (in bytes):				1829202	
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.					

SCORE Placeholder Sheet for IFW Content

Application Number: 16271773

Document Date: 07/29/2019

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

- Drawing

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- USPTO employees may access SCORE content via DAV or via the SCORE web page.
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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
16/271,773	02/08/2019		1880	19299.0009C1	11	1

27890
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

CONFIRMATION NO. 2215
UPDATED FILING RECEIPT



Date Mailed: 08/01/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Bartlett Wade Smith IV, Madison, MS;
Allison A. Talley, Ridgeland, MS;
John Carlos Shields IV, Fort Worth, TX;

Applicant(s)

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS;

Assignment For Published Patent Application

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS

Power of Attorney: The patent practitioners associated with Customer Number 27890

Domestic Priority data as claimed by applicant

This application is a CON of 15/197,727 06/29/2016 PAT 10204274

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

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

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 02/27/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/271,773**

Projected Publication Date: 11/07/2019

Non-Publication Request: No

Early Publication Request: No

Title

VIDEO TO DATA

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.

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

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

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

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

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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
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1

CONFIRMATION NO. 2215

INFORMAL NOTICE



27890
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

Date Mailed: 08/01/2019

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
John Carlos Shields IV

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.

/zabrah/

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 16/271,773				
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	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(j))	11	minus 20 = *			OR	x 100 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1	minus 3 = *				x 460 =	0.00			
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			
							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	1720			
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	
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.										



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1

CONFIRMATION NO. 2215

PUBLICATION NOTICE



OC000000112483914

27890
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

Title:VIDEO TO DATA

Publication No.US-2019-0340437-A1

Publication Date:11/07/2019

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1	2215
27890	7590	10/29/2020		
STEPTOE & JOHNSON LLP 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036			EXAMINER GILLIARD, DELOMIA L	
			ART UNIT	PAPER NUMBER
			2661	
			NOTIFICATION DATE	DELIVERY MODE
			10/29/2020	ELECTRONIC

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

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

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

ipdocketing@steptoe.com
lfielding@steptoe.com

Office Action Summary

Application No.

16/271,773

Applicant(s)

Smith et al.

Examiner

DELOMIA L GILLIARD

Art Unit

2661

AIA (FITF) Status

Yes

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1) ☒ Responsive to communication(s) filed on July 9, 2019.

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

2a) ☐ This action is **FINAL**.

2b) ☒ This action is non-final.

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

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

Disposition of Claims*

5) ☒ Claim(s) 1 and 29-38 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1 and 29-38 is/are rejected.

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

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

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

Application Papers

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

11) ☒ The drawing(s) filed on July 9, 2019 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

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

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

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

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

Attachment(s)

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

3) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date ____.

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)

4) ☐ Other: ____.

Paper No(s)/Mail Date ____.

Notice of Pre-AIA or AIA Status

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

Priority

2. This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

Claim Rejections - 35 USC § 102

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

(a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

5. **Claim(s) 1** is/are rejected under 35 U.S.C. 102(a)(1) and (a)(2) as being anticipated by US 2015/005001 A1 to ***Lakhani et al.***, hereinafter, "***Lakhani***".

Claim 1. A system for generating data from a video, comprising: ***Lakhani* [0004] teaches generate data from video content, such as text and/or image-related information**

a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video; ***Lakhani* [Abstract] teaches distributing the audio files and the image files across a plurality of processors and processing the audio files and the image files in parallel.**

***Lakhani* [0024] teaches the engine can extract audio data and image data (e.g. images or frames forming the video) from the video stream.**

***Lakhani* [0026] At 120, the video-to-text engine performs an image data processing on the video stream. An example of the image data processing is illustrated in FIG. 2. In FIG. 2, the image data 310 can be segmented into N segments and processed in parallel (e.g., distributed processing 320-1 to 320-N), allowing for near real-time processing.**

***Lakhani* [0052] teaches the server can divide the video into chunks of smaller data files for processing on several nodes of a cluster in parallel. For example, the video file can be separated into audio files and image frame files.**

***Lakhani* [0053] teaches the normalized audio files can be split into constituent files for processing and reduction in parallel by various nodes. Various reduction processes can be performed on the constituent audio files such as phoneme detection and assembly as well as grammar assembly. An output of the audio processing steps can be an extracted text map.**

***Lakhani* [0055] teaches a video file can be distributed across at least two layers for processing. The audio can be converted to text on at least one layer, and the images can be processed on at least one other layer. In some embodiments, natural language processing can abstract topics, sentiments, temporal topic-tagging, and can be used for further optimization and/or machine learning. The layers can include node clusters for parallel processing chunks of the video file into the preferred content.**

an image detector configured to detect an image images of an object objects in the still frame images; **Lakhani [0027] teaches an example of the video image data processing can be symbol (or object) based. Using image processing technique such as color edge detection, a symbol of a screen or an image of the video can be isolated. The symbol can be identified using an object template database. For example, the symbol includes 4 legs and a tail, and when matched with the object template database, the symbol may be identified as a dog.**

Lakhani [0028] teaches other image data processing techniques may include image extraction, high-level vision and symbol detection, figure-ground separation, depth and motion perception.

and an object recognizer configured to compare the image of the object to a fractal, wherein the fractal includes a representation of the object based on landmarks associated with the object, wherein the recognizer is further configured to update the fractal with the image; **Lakhani [0027] teaches an example of the video image data processing can be symbol (or object) based. Using image processing technique such as color edge detection, a symbol of a screen or an image of the video can be isolated. The symbol can be identified using an object template database. For example, the symbol includes 4 legs and a tail, and when matched with the object template database, the symbol may be identified as a dog.**

Lakhani [0030] teaches based on the identified symbol, a plurality of instances of the symbol can be compared to a topic database to identify a topic (such as an event). For example, the result may identify the dog (symbol) as running or jumping. The topic database can be adaptive to improve its performance with usage.

Lakhani [0054] teaches the normalized image frame files can be processed in order to extract various data maps, such as a text map, a tag map, a brand, an object map, a feature map, and/or a tracking map. Such maps can be achieved through various extraction steps. For example, the normalized image frame files can be analyzed for text identification and/or by optical character recognition.

and wherein the coordinator is configured to embed metadata about the object into the video. **Lakhani [0032] teaches the image topics can be stored as topics for the entire video or each image segment. The topic generation process can be repeated for all identifiable symbols in a video in a distributed process. The outcome would be several topical descriptors of the content within a video. An example of the aggregate information that would be derived using the above example would be understanding that the video presented a dog, which was jumping, on the beach, with people, by a resort.**

Claim Rejections - 35 USC § 103

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

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

7. The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating

obviousness or nonobviousness.

8. **Claims 29, 35 and 36** is/are rejected under 35 U.S.C. 103 as being unpatentable over US 2015/005001 A1 to ***Lakhani et al.***, hereinafter, “***Lakhani***” in view of US 2006/018730 A1 to ***Trivedi et al.***, hereinafter, “***Trivedi***”.

Claim 29, *Lakhani* fails to explicitly teach the image detector can be adjusted to vary its ability to detect non-primary images in the video. ***Trivedi***, in the field digital processing of video images, teaches wherein the image detector can be adjusted to vary its ability to detect non-primary images in the video. ***Trivedi* [0145] teaches Additional digital processing functions may be used to extract useful information from a live video signal. One processing function is motion detection based on optical-flow, frame difference with steerable filters, etc. Another processing function is background modeling to segment foreground objects with shadow suppression capability.**

Hence the prior art includes each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference. Thus, it would have been obvious to one of ordinary skill in the art to modify an object

recognizer configured to compare the image of the object to a fractal by **Lakhani** with **Trivedi's** teaching of the image detector can be adjusted to vary its ability to detect non-primary images in the video. One would have been motivated to perform this combination due to the fact that it allows one to efficiently transform warped video images into rectilinear video images, real-time tracking of persons and objects, face recognition of persons, monitoring and tracking head pose of a person and associated perspective view of the person (**Trivedi**, 0005). In combination, **Lakhani** is not altered in that **Lakhani** continues to compare the image of the object to a fractal. **Trivedi's** teachings perform the same as they do separately of the image detector can be adjusted to vary its ability to detect non-primary images in the video.

Therefore one of ordinary skill in the art, such as an individual working in the field of object recognition could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately. It is for at least the aforementioned reasons that the Examiner has reached a conclusion of obviousness with respect to claim 29.

Claim 35. **Trivedi** further teaches further comprising a processor and a camera for capturing the video. **Trivedi** [0043] teaches **FIG. 2 depicts an exemplary video system 200 that includes two or more video processing devices 121 and 122 connected to receive the same video signal from the video camera 110.**

Claim 36. **Trivedi** further teaches wherein the processor is configured to transform the video into a rectilinear format. **Trivedi** [Abstract] teaches **digital video imaging systems and techniques for efficiently transforming warped video images into rectilinear video images, real-time tracking of persons and objects, face recognition of persons, monitoring and tracking head pose of a person and associated perspective view of the person.**

9. **Claims 30-34** is/are rejected under 35 U.S.C. 103 as being unpatentable over US 2015/005001 A1 to **Lakhani et al.**, hereinafter, "**Lakhani**" in view of US 2010/018931 A1 to **Prokoski**.

Claim 30. **Lakhani** fails to explicitly teach determine distinguishing geometric features of the object. **Prokoski**, in the field three-dimensional modeling, teaches wherein the recognizer is configured to determine distinguishing geometric features of the object. **Prokoski** [0054] teaches **visible metrics require ground truth distance measurements unless they rely strictly upon ratios of measurements. In that case, they are dependent upon precise designation of landmark positions within visible feature areas. For example, designation of eye corners, nose tip, nostrils, and ear-head locations entail surface areas that encompass many pixels in the visual image.**

Per specification [0067] In such circumstances, the computational thresholds for identification of an object, face, etc. can be altered according to a then stated need or desire for non-primary, background, obstructed and/or grainy type images.

Hence the prior art includes each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference. Thus, it would have been obvious to one of ordinary skill in the art to modify an object recognizer configured to compare the image of the object to a fractal by **Lakhani** with **Prokoski's** teaching of recognizer is configured to determine distinguishing geometric features of the object. One would have been motivated to perform this combination due to the fact that it allows one to accurately automatically contain features for patient identification. In combination, **Lakhani** is not altered in that **Lakhani** continues to compare the image of the object to a fractal. **Prokoski's** teachings perform the same as they do separately determine of distinguishing geometric features of the object.

Therefore one of ordinary skill in the art, such as an individual working in the field of object recognition could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately. It is for at least the aforementioned reasons that the Examiner has reached a conclusion of obviousness with respect to claim 30.

Claim 31. Prokoski further teaches wherein the distinguishing geometric features comprise a contour of eye sockets, a nose, and a chin. **Prokoski [0054] teaches visible metrics require ground truth distance measurements unless they rely strictly upon ratios of measurements. In that case, they are dependent upon precise designation of landmark positions within visible feature areas. For example, designation of eye corners, nose tip, nostrils, and ear-head locations entail surface areas that encompass many pixels in the visual image.**

Claim 32. Prokoski further teaches wherein the recognizer is configured to determine skin textures of the object. **Prokoski [0408] teaches the extension to 3D/IR imaging of the present invention allows for greater precision in monitoring changing thermal conditions and also permits monitoring of changes to skin topography, which at finer detail is called texture. Apparent skin temperature at a given point is actually a function of true temperature plus emissivity. Emissivity is a measure of the efficiency of thermal energy radiated in a particular direction, and is a function of several variables including skin texture, level of hydration, and intervening substances such as hair, sweat and skin lotions. Use of precise range data to identify skin roughness and the presence of hair, and use of visual measurement of skin color to determine oxygenation and hydration, can better establish skin emissivity and therefore precise true skin temperature at imaged locations.**

Claim 33. *Prokoski* further teaches wherein the distinguishing geometric features or the skin textures are determined based on a three-dimensional model. ***Prokoski* [0080] teaches Calibrated infrared and range imaging sensors are used to produce a true-metric three-dimensional (3D) surface model of any body region within the fields of view of both sensors.**

Claim 34. *Prokoski* further teaches wherein the three-dimensional model is a three-dimensional morphable model. ***Prokoski* [0144] As in the cited prior patent of Prokoski, a set of landmarks common to all persons can be used to morph portions of one person's image to allow direct comparison with another person's image. However, in the present invention the use of an elevation sensor provides true 3D positions for each landmark, allowing direct determination of the 3D vector required to overlay each of the corresponding landmarks in the two images.**

10. **Claims 37-38** is/are rejected under 35 U.S.C. 103 as being unpatentable over US 2015/005001 A1 to ***Lakhani et al.***, hereinafter, "***Lakhani***" in view of US 2011/0305539 A1 to ***Singer***,

Claim 37. *Lakhani* fails to explicitly teach the metadata comprises a timestamp and a coordinate location of the object in the still frame images, ***Singer***, in the field of object detection, teaches wherein the coordinator is configured to embed metadata about the object into the video, and wherein the metadata comprises a timestamp and a coordinate location of the object in the still frame images. ***Lakhani* [0031] teaches Thus, using the processing example above, text describing a symbol of the video and topic relating to the symbol may be generated. Data generated from an image and/or from audio transcription can be time stamped, for example, according to when it appeared, was heard, and/or according to the video frame from which it was pulled.**

***Singer* [0003] teaches object detection metadata is generated. A perimeter around a detected object in a frame of image data is generated in a first coordinate system. The perimeter is converted from the first coordinate system into a second coordinate system having the same aspect ratio as the first coordinate system. A first metadata entry is generated that includes dimensions of the second coordinate system. A second metadata entry is generated including information defining a location of the detected object and dimensions of the converted perimeter in the second coordinate space.**

***Singer* [0004] teaches the object detection metadata entry includes a third metadata entry including a location and converted perimeter of an additional detected object. The second metadata entry and the third metadata entry may include a layering value. The layering values indicate whether the detected object**

of the second metadata entry is closer or farther away from a camera than the additional detected object of the third metadata entry.

Hence the prior art includes each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference. Thus, it would have been obvious to one of ordinary skill in the art to modify an object recognizer configured to compare the image of the object to a fractal by **Lakhani** with **Singer's** teaching of the metadata comprises a timestamp and a coordinate location of the object in the still frame images. One would have been motivated to perform this combination due to the fact that it allows one to accurately match the same object across different frames (**Singer**, 0005-0007). In combination, **Lakhani** is not altered in that **Lakhani** continues to compare the image of the object to a fractal. **Singer's** teachings perform the same as they do separately the metadata comprises a timestamp and a coordinate location of the object in the still frame images.

Therefore one of ordinary skill in the art, such as an individual working in the field of object recognition could have combined the elements as claimed by known methods, and that in combination, each element merely performs the same function as it does separately. It is for at least the aforementioned reasons that the Examiner has reached a conclusion of obviousness with respect to claim 37.

Claim 38. **Lakhani** and **Singer** further teaches wherein the coordinator is configured to generate a metadata stream corresponding to the image, wherein the metadata stream includes one or more timestamps corresponding to the image, and wherein the coordinator is configured to embed the metadata stream in the video. **Lakhani [0031] teaches Thus, using the processing example above, text describing a symbol of the video and topic relating to the symbol may be generated. Data generated from an image and/or from audio transcription can be time stamped, for example, according to when it appeared, was heard, and/or according to the video frame from which it was pulled.**

Singer [0003] teaches object detection metadata is generated. A perimeter around a detected object in a frame of image data is generated in a first coordinate system. The perimeter is converted from the first coordinate system into a second coordinate system having the same aspect ratio as the first coordinate system. A first metadata entry is generated that includes dimensions of the second coordinate system. A second metadata entry is generated including information defining a location of the detected object and dimensions of the converted perimeter in the second coordinate space.

Singer [0004] teaches the object detection metadata entry includes a third metadata entry including a location and converted perimeter of an additional detected object. The second metadata entry and the third metadata entry may include a layering value. The layering values indicate whether the detected object

of the second metadata entry is closer or farther away from a camera than the additional detected object of the third metadata entry.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

12. **Claim 1** is rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 10204274 B. Although the claims at issue are not identical, they are not patentably distinct from each other because they are similar in scope.

16/271773	US 10204274 B
A system for generating data from a video, comprising:	A system for generating data from a video, comprising:
a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video;	a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video;

an image detector configured to detect an image images of an object objects in the still frame images;	an image detector configured to detect images of objects in the still frame images;
and an object recognizer configured to compare the image of the object to a fractal, wherein the fractal includes a representation of the object based on landmarks associated with the object, wherein the recognizer is further configured to update the fractal with the image;	an object recognizer configured to compare an image of an object to a fractal, wherein the recognizer is further configured to update the fractal with the image;
and wherein the coordinator is configured to embed metadata about the object into the video.	and wherein the coordinator is configured to embed metadata about the object into the video.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DELOMIA L GILLIARD whose telephone number is (571)272-1681. The examiner can normally be reached on 8am-5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Rudolph can be reached on 571 272-8243. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DELOMIA L GILLIARD/
Primary Examiner, Art Unit 2661

<i>Notice of References Cited</i>	Application/Control No. 16/271,773		Applicant(s)/Patent Under Reexamination Smith et al.	
	Examiner DELOMIA L GILLIARD		Art Unit 2661	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20110305394-A1	12-2011	Singer; David William	G06K9/46	382/190
*	B	US-20150050010-A1	02-2015	Lakhani; Naeem	G10L25/57	386/285
*	C	US-20100189313-A1	07-2010	Prokoski; Francine J.	A61B5/411	382/118
*	D	US-20060187305-A1	08-2006	Trivedi; MohanM	G06K9/00241	348/169
	E					
	F					
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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.

<i>Search Notes</i> 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner DELOMIA L GILLIARD	Art Unit 2661

CPC - Searched*		
Symbol	Date	Examiner
G06T	10/20/2020	D. Gilliard
G06K	10/20/2020	D. Gilliard

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST - see history printout	10/20/2020	D. Gilliard
Patent Scope	10/20/2020	D. Gilliard

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

/DELOMIA L GILLIARD/ Primary Examiner, Art Unit 2661	
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<i>Index of Claims</i> 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner DELOMIA L GILLIARD	Art Unit 2661

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	10/24/2020								
	1	✓								
	2	-								
	3	-								
	4	-								
	5	-								
	6	-								
	7	-								
	8	-								
	9	-								
	10	-								
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	34	✓								
	35	✓								
	36	✓								
	37	✓								
	38	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	8	"20060187305"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/24 17:38
L5	8	"20060187305" video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/24 17:38
L6	11	"15197727"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/24 17:55
L8	1	"16271773" background	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/24 18:29
S53	5	"20150058907"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 20:34
S54	8	"20150050010"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 20:37
S55	2	"16271773"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 20:38

S56	2	"20150050010" cluster with node	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 20:45
S57	3	"15197727" non-primary	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 20:58
S58	1	"15197727" geometric.clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 20:58
S59	0	"20150050010" (eye or facial or chin or cheek or nose)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:29
S60	2	"20150050010" background	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:30
S61	2	"20150050010" (background or foreground)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:30
S62	0	"20150050010" (background or foreground) geometric\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:33
S63	2	"20150050010" (background or foreground) (transform\$5 or shape or contour)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:34

S64	0	"20150050010" skin	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:35
S65	0	"20150050010" camera	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:36
S66	0	"20150050010" imaging	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:36
S67	2	"20150050010" (timestamp\$4 or meta-data or metadata)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:36
S68	3	"15197727" timestamp\$.clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 21:38
S69	3	"20110305394" camera	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:01
S70	2	"20110305394" (background or foreground)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:05
S71	0	"20110305394" geometric\$5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:06

S72	2	"20110305394" (shape or contour\$4 or outline)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:07
S73	2	"20110305394" (shape or contour\$4 or outline) (face or facial or eye or nose or mouth)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:09
S74	0	"20110305394" skin	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:13
S75	0	"20110305394" (three-dimensional or 3D)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:15
S76	0	"15197727" "background.clm.]"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:15
S77	0	"15197727" "background.clm."	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:16
S78	0	"15197727" "skin.clm."	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:16
S79	0	"15197727" "rectilinear.clm."	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:17

S80	1	"16271773" rectilinear	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:17
S81	0	"20110305394" rectilinear\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:19
S82	0	"20150050010" rectilinear\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:19
S83	2	"20150050010" format	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:20
S84	5	"20150050010" (panoram\$5 or stitch\$5 or composite or mosiac\$4 or combin\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:31
S85	2	"20110305394" (panoram\$5 or stitch\$5 or composite or mosiac\$4 or combin\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:31
S86	3	"20100189313"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:38
S87	2	"20100189313" (nose or eye or chin or mouth or cheek)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:39

S88	2	"20100189313" (morph\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:42
S89	2	"20100189313" (morph\$5) (three-dimensional or 3D)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:42
S90	2	"20100189313" (three-dimensional or 3D) with model	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:50
S91	2	"20100189313" skin	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:52
S92	2	"20100189313" skin (rectilinear\$4 or curvilinear)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:53
S93	2	"20100189313" skin with texture	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:55
S94	2	"20100189313" (panoram\$5 or stitch\$5 or composite or mosaic\$4 or combin\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 22:58
S95	20	rectilinear with (image or frame) with transform\$4 with video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:02

S96	8	"20060187305"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:05
S97	7	"20060187305" (background or foreground)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:05
S98	10	S95 AND ((G06K2009/3291 OR G06K2009/363 OR G06K9/00234 OR G06K9/00241 OR G06K9/00281 OR G06K9/00295 OR G06K9/209 OR G06T3/0018 OR G06T7/277 OR G06T7/292 OR G06T7/74 OR G06T7/77 OR G06T7/248 OR G06T2207/20101 OR G06T2207/30252 OR G06T3/0006 OR G06T7/246 OR G06T7/579 OR G06T11/001 OR G06T2207/10016 OR G06T2207/30261 OR G06T3/4038 OR G06T5/005 OR G06T5/50).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:16
S99	442	object with (compar\$ or correspond\$ or match\$ or similar\$) with fractal	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:27
S100	57	object with (compar\$ or correspond\$ or match\$ or similar\$) with fractal \$multiplex\$	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:27
S101	164	object with (compar\$4 or correspond\$3 or match\$3 or similar\$6) with (fractal or portion) with (image or scene or frame) ((updat\$4 or estimat\$ or based or according or improv\$ or adjust\$ or calculat\$) with fractal with image)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:28
S102	111	S101 AND ((G06K9/00369 OR G06K9/62 OR G06K9/00677 OR G06K9/00127 OR G06K9/0014 OR G06K9/4633 OR G06K9/52 OR G06K2209/25 OR G06K2209/27 OR G06K9/00147 OR G06K9/00201 OR G06K9/00261 OR G06K9/00718 OR G06K9/6256 OR G06K9/66 OR G06K9/38	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:40

		OR G06K9/46 OR G06K9/00 OR G06K9/4652 OR G06K9/6251 OR G06T2207/30024 OR G06T9/001 OR G06T5/50 OR G06T2207/10024 OR G06T11/60 OR G06T2207/10004 OR G06T2207/10016 OR G06T2207/20201 OR G06T2207/20221 OR G06T2207/30168 OR G06T2207/30196 OR G06T5/003 OR G06T7/0002 OR G06T7/48 OR G06T2207/10056 OR G06T7/12 OR G06T7/155 OR G06T7/11 OR G06T7/194 OR G06T2207/20036 OR G06T2207/20064 OR G06T2207/20021 OR G06T7/0016 OR G06T7/0012 OR G06T19/00 OR G06T7/187 OR G06T7/262 OR G06T7/62 OR G06T7/90).CPC.)				
S103	5	object with (compar\$4 or correspond\$3 or match\$3 or similar\$6) with (fractal or portion) with (image or scene or frame) ((updat\$4 or estimat\$ or based or according or improv\$ or adjust\$ or calculat\$) with fractal with image) cellular.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:40
S104	7	object with (compar\$4 or correspond\$3 or match\$3 or similar\$6) with (fractal or portion) with (image or scene or frame) ((updat\$4 or estimat\$ or based or according or improv\$ or adjust\$ or calculat\$) with fractal with image) smith.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:40
S105	7	object with (compar\$4 or correspond\$3 or match\$3 or similar\$6) with (fractal or portion) with (image or scene or frame) ((updat\$4 or estimat\$ or based or according or improv\$ or adjust\$ or calculat\$) with fractal with image) talley.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:40
S106	7	object with (compar\$4 or correspond\$3 or match\$3 or similar\$6) with (fractal or portion) with (image or scene or frame) ((updat\$4 or estimat\$ or based or according or improv\$ or adjust\$ or calculat\$) with fractal with image) shields.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2020/10/21 23:41

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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S107	404	object with (compar\$ or correspond\$ or match\$ or similar\$) with fractal	US-PGPUB; USPAT	AND	ON	2020/10/21 23:25
S108	53	object with (compar\$ or correspond\$ or match\$ or similar\$) with fractal \$multiplex\$	US-PGPUB; USPAT	AND	ON	2020/10/21 23:25
S109	34	S108 AND ((G06K9/00369 OR G06K2209/25 OR G06K2209/27 OR G06K9/00201 OR G06K9/00261 OR G06K9/00718 OR G06K9/62 OR G06K9/6256 OR G06K9/66 OR G06K9/00 OR G06T15/40).CPC.)	US-PGPUB; USPAT	AND	ON	2020/10/21 23:27
S110	141	object with (compar\$4 or correspond\$3 or match\$3 or similar\$6) with (fractal or portion) with (image or scene or frame) ((updat\$4 or estimat\$ or based or according) with fractal with image)	US-PGPUB; USPAT	AND	ON	2020/10/21 23:28
S111	144	object with (compar\$4 or correspond\$3 or match\$3 or similar\$6) with (fractal or portion) with (image or scene or frame) ((updat\$4 or estimat\$ or based or according or improv\$ or adjust\$ or calculat\$) with fractal with image)	US-PGPUB; USPAT	AND	ON	2020/10/21 23:28

10/24/2020 7:45:32 PM

C:\Users\dgilliard\Documents\EAST\Workspaces\16271773.wsp

Bibliographic Data

Application No: 16/271,773

Foreign Priority claimed: ☐ Yes ☒ No

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

Verified and Acknowledged: /DELOMIA L GILLIARD/

Examiner's Signature

Initials

Title: VIDEO TO DATA

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
02/08/2019	382	2661	19299.0009C1
RULE			

APPLICANTS

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS,

INVENTORS

Bartlett Wade Smith IV, Madison, MS, UNITED STATES

Allison A. Talley, Ridgeland, MS, UNITED STATES

John Carlos Shields IV, Fort Worth, TX, UNITED STATES

CONTINUING DATA

This application is a CON of 15197727 06/29/2016 PAT 10204274

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

02/27/2019

STATE OR COUNTRY

UNITED STATES

ADDRESS

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WASHINGTON, DC 20036
UNITED STATES

FILING FEE RECEIVED

\$3,280

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 16/271,773		Filing Date 02/08/2019		☐ To be Mailed		
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), (l), or (m))		N/A	N/A	N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A						
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =	*	x \$100 =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*	x \$460 =						
☐ 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	02/24/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	* 11	Minus	** 20	= 0	x \$100 =		0		
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0	x \$480 =		0		
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		0		
		(Column 1)		(Column 2)	(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =				
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE				
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/VICTORIA JOHNSON/				
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

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

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

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Remarks

Claims 1 and 29–38 are pending. Claims 1 and 29 are amended. Support for the amendment can be found in the original claims themselves as well as throughout the original disclosure, including for example pages 12 and 24–25 of the specification. No new matter has been added. Applicant respectfully requests allowance of the pending claims.

Applicant focuses below on elements of the independent claim that are neither taught nor suggested in the prior art of record, with the understanding that dependent claims also set forth independent bases of invention and distinction over the prior art. Thus, in the interest of efficiency, any silence or lack of comment on specific aspects of any rejection should not be construed as any kind of agreement with or concession to such specific aspects of a rejection.

A. Claim Rejections – 35 U.S.C. § 102

Claim 1 stands rejected under 35 U.S.C. 102(a)(1) and (a)(2) as allegedly anticipated by US 2015/005001 (“Lakhani”). See Office Action at 3. Applicant respectfully traverses the rejection.

Lakhani disclosed neither the coordinator nor the fractal as set forth in claim 1. The rejection fails to identify either element having been expressly disclosed by Lakhani, and no argument based on inherency is presented in the Office Action. For this reason alone, the rejection is deficient.

Further, Lakhani did not disclose, teach, or suggest that “the image detector is adjustable to increase detection of non-primary images in the video.” For this additional reason, claim 1 overcomes Lakhani. Accordingly, Applicant requests withdrawal of the rejection.

B. Claim Rejections – 35 U.S.C. § 103(a)

Claims 29, 35, and 36 stand rejected under 35 U.S.C. 103 as allegedly unpatentable over Lakhani in view of US 2006/0187305 (“Trivedi”). See Office Action at 5. Claims 30–34 stand rejected under 35 U.S.C. 103 as allegedly unpatentable over Lakhani in view of US 2010/018931 (“Prokoski”). See Office Action at 6. Claims 37 and 38 stand rejected under 35 U.S.C. 103 as allegedly unpatentable over Lakhani in view of US 2011/0305539 (“Singer”). See Office Action

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at 8. Applicant respectfully traverses each rejection.

Each rejection relies on Lakhani as the primary reference. But as discussed above, Lakhani did not teach or suggest any coordinator or fractal or that “the image detector is adjustable to increase detection of non-primary images in the video.” The identified secondary references, Trivedi, Prokoski, and Singer, did not cure deficiencies of Lakhani. To the extent any of the alleged prior art discussed at all anything that could be considered non-primary images, it expressly taught away from increasing detection of such images because they were considered noise to be filtered out. See, for example, Prokoski at paragraphs 24, 89, 97, 101, 131, 541; Trivedi at paragraphs 94 and 113.

Because the alleged prior art did not teach or suggest, either alone or in combination, each claimed element, the claims overcome the prior art. Accordingly, Application requests withdrawal of the rejections.

Further with regard to claim 29, the prior art of record failed to teach or disclose a coordinator that was “configured to increase the plurality of demultiplexer nodes when a threshold of processing capacity is reached.” Accordingly, Applicant requests withdrawal of the rejection.

C. Double Patenting

Claim 1 stands rejected for alleged non-statutory double patenting over claim 1 of U.S. Patent No. 10,204,274 (“Smith”). See Office Action at 10. Applicant respectfully traverses the rejection.

Claim 1, as amended herewith, is patentably distinct from the claims of Smith. For example, Smith did not claim that “the image detector is adjustable to increase detection of non-primary images in the video.” Accordingly, Applicant requests withdrawal of the rejection.

Conclusion

Applicant has made an earnest and *bona fide* effort to clarify the issues before the Examiner and to place this case in condition for allowance. Reconsideration and allowance of all pending claims is believed to be in order, and a timely Notice of Allowance to this effect is

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respectfully requested.

The Director is hereby authorized to charge the fees indicated in the Fee Transmittal, any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17, or to credit any overpayments, to Deposit Account No. 19-4293 Deposit Account Name Steptoe & Johnson LLP.

Should the Examiner have any questions concerning the foregoing, the Examiner is invited to telephone the undersigned attorney at (202) 713-8196. The undersigned attorney can normally be reached Monday through Friday from about 10:00 AM to 9:00 PM Eastern.

Respectfully submitted,

Date: February 24, 2021

/Scott M. Richey, Reg.# 69653/
Scott M. Richey
Reg. No. 69,653

Customer Number: 27890
STEPTOE & JOHNSON LLP
1330 Connecticut Avenue, N.W.
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Amendments to the Claims

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

Listing of Claims:

1. (Currently Amended) A system for generating data from a video, comprising:
a coordinator communicatively coupled to a splitter and to a plurality of demultiplexer nodes, wherein the splitter is configured to segment the video, wherein the demultiplexer nodes are configured to extract audio files from the video and to extract still frame images from the video;

an image detector configured to detect an image of an object in the still frame images, wherein the image detector is adjustable to increase detection of non-primary images in the video; and

an object recognizer configured to compare the image of the object to a fractal, wherein the fractal includes a representation of the object based on landmarks associated with the object, wherein the recognizer is further configured to update the fractal with the image.

2-28. (Canceled)

29. (Currently Amended) The system of claim 1, wherein the ~~image detector can be adjusted to vary its ability to detect non-primary images in the video~~ coordinator is configured to increase the plurality of demultiplexer nodes when a threshold of processing capacity is reached.

30. (Previously Presented) The system of claim 1, wherein the recognizer is configured to determine distinguishing geometric features of the object.

31. (Previously Presented) The system of claim 30, wherein the distinguishing geometric features comprise a contour of eye sockets, a nose, and a chin.

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32. (Previously Presented) The system of claim 31, wherein the recognizer is configured to determine skin textures of the object.

33. (Previously Presented) The system of claim 32, wherein the distinguishing geometric features or the skin textures are determined based on a three-dimensional model.

34. (Previously Presented) The system of claim 33, wherein the three-dimensional model is a three-dimensional morphable model.

35. (Previously Presented) The system of claim 1, further comprising a processor and a camera for capturing the video.

36. (Previously Presented) The system of claim 35, wherein the processor is configured to transform the video into a rectilinear format.

37. (Previously Presented) The system of claim 1, wherein the coordinator is configured to embed metadata about the object into the video, and wherein the metadata comprises a timestamp and a coordinate location of the object in the still frame images.

38. (Previously Presented) The system of claim 1, wherein the coordinator is configured to generate a metadata stream corresponding to the image, wherein the metadata stream includes one or more timestamps corresponding to the image, and wherein the coordinator is configured to embed the metadata stream in the video.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Bartlett Wade Smith, IV, et al.	Examiner:	Delomia L. Gilliard
Application No.:	16/271,773	Group Art Unit:	2661
Filing Date:	February 8, 2019	Confirmation No.	2215
Office Action Date:	October 29, 2020	Docket No.	19299.0009C1
Title: VIDEO TO DATA			

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

Response to Office Action

This amendment is filed in response to the Office Action dated October 29, 2020 (“Office Action”), and is timely filed.

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.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) 19299.0009C1
Application Number 16/271,773	Filed February 8, 2019	
For VIDEO TO DATA		
Art Unit 2661	Examiner Delomia L. GILLIARD	

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>	
☒ One month (37 CFR 1.17(a)(1))	\$220	\$110	\$55	\$ <u>220</u>
☐ Two months (37 CFR 1.17(a)(2))	\$640	\$320	\$160	\$ _____
☐ Three months (37 CFR 1.17(a)(3))	\$1,480	\$740	\$370	\$ _____
☐ Four months (37 CFR 1.17(a)(4))	\$2,320	\$1,160	\$580	\$ _____
☐ Five months (37 CFR 1.17(a)(5))	\$3,160	\$1,580	\$790	\$ _____

☐ Applicant asserts small entity status. See 37 CFR 1.27.
☐ Applicant certifies micro entity status. See 37 CFR 1.29.
 Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.
☐ A check in the amount of the fee is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director has already been authorized to charge fees in this application to a Deposit Account.
☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to
 Deposit Account Number 19-4293.
☒ Payment made via EFS-Web.

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

I am the

☐ applicant.
☒ attorney or agent of record. Registration number 69,653.
☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Scott M. Richey, Reg # 69653/

Signature

February 24, 2021

Date

Scott M. Richey

Typed or printed name

202-429-3000

Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

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

Privacy Act Statement

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

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

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

Electronic Patent Application Fee Transmittal

Application Number:	16271773			
Filing Date:	08-Feb-2019			
Title of Invention:	VIDEO TO DATA			
First Named Inventor/Applicant Name:	Bartlett Wade Smith			
Filer:	Scott Melvin Richey/Linda Fielding			
Attorney Docket Number:	19299.0009C1			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 1 month with \$0 paid	1251	1	220	220
Miscellaneous:				
Total in USD (\$)				220

Electronic Acknowledgement Receipt

EFS ID:	42005316
Application Number:	16271773
International Application Number:	
Confirmation Number:	2215
Title of Invention:	VIDEO TO DATA
First Named Inventor/Applicant Name:	Bartlett Wade Smith
Customer Number:	27890
Filer:	Scott Melvin Richey/Linda Fielding
Filer Authorized By:	Scott Melvin Richey
Attorney Docket Number:	19299.0009C1
Receipt Date:	24-FEB-2021
Filing Date:	08-FEB-2019
Time Stamp:	09:58:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 220
RAM confirmation Number	E20212N058244072
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		0009C1ResponsetoNonFinalOA.pdf	177985	yes	6
			d1e9f742a885c1189afbd4582ed8380dbd87195d		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Applicant Arguments/Remarks Made in an Amendment		4	6	
	Claims		2	3	
	Specification		1	1	
Warnings:					
Information:					
2	Extension of Time	0009C1EOT.pdf	1149119	no	2
			c281ba18350aa8b770a71a63c71e7a19813ee0e2		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30686	no	2
			f255ddbfc9a874cf6aab6a01b3f8f08efa23ae8a		
Warnings:					
Information:					
Total Files Size (in bytes):			1357790		

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

27890 7590 07/13/2021
STEPTOE & JOHNSON LLP/DC
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

EXAMINER

GILLIARD, DELOMIA L

ART UNIT

PAPER NUMBER

2661

DATE MAILED: 07/13/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1	2215

TITLE OF INVENTION: VIDEO TO DATA

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	10/13/2021

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

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

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

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.

27890 7590 07/13/2021
STEPTOE & JOHNSON LLP/DC
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

Certificate of Mailing or Transmission

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

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1	2215

TITLE OF INVENTION: VIDEO TO DATA

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	10/13/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
GILLIARD, DELOMIA L	2661	382-154000

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

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

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

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1	2215
27890	7590	07/13/2021	EXAMINER	
STEPTOE & JOHNSON LLP/DC 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036			GILLIARD, DELOMIA L	
			ART UNIT	PAPER NUMBER
			2661	
DATE MAILED: 07/13/2021				

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

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

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

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

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 16/271,773	Applicant(s) Smith et al.	
	Examiner DELOMIA L GILLIARD	Art Unit 2661	AIA (FITF) Status Yes

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

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

1. ☒ This communication is responsive to Claims filed on February 24, 2021.
☐ 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 and 29-38. 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. ____.	

/DELOMIA L GILLIARD/ Primary Examiner, Art Unit 2661	
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Notice of Pre-AIA or AIA Status

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

Response to Amendment

2. **Claims 1 and 29** are currently amended. **Claims 2-28** stand cancelled. **Claims 1 and 29-38** are pending.

Response to Arguments

3. Applicant's arguments, see Remarks, filed February 24, 2021, with respect to **claim 1** have been fully considered and are persuasive. The 35 USC 102 rejection of **claim 1** has been withdrawn. There are no further pending objections or rejections. Accordingly, this application is in condition for allowance.

Allowable Subject Matter

4. **Claims 1 and 29-38** are allowed.

5. The following is an examiner's statement of reasons for allowance: the innovation that makes claim 1 allowable is "an object recognizer configured to compare the image of the object to a fractal, wherein *the fractal includes a representation of the object based on landmarks associated with the object*, wherein the recognizer is further configured *to update the fractal with the image*".

6. Likewise **claims 29-38** are allowed because they are dependents of claim 1.

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 DELOMIA L GILLIARD whose telephone number is (571)272-1681. The examiner can normally be reached on 8am-5pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent Rudolph can be reached on 571 272-8243. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <https://ppair-my.uspto.gov/pair/PrivatePair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Art Unit: 2661

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/DELOMIA L GILLIARD/
Primary Examiner, Art Unit 2661

Issue Classification 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.	
	Examiner DELOMIA L GILLIARD	Art Unit 2661	

CPC						
Symbol					Type	Version
G06K	/	9	/	00718	F	2013-01-01
G06K	/	9	/	6256	I	2013-01-01
G06F	/	40	/	40	I	2020-01-01
G10L	/	15	/	26	I	2013-01-01
G06K	/	9	/	00201	I	2013-01-01
G06K	/	9	/	00261	I	2013-01-01
G06K	/	9	/	66	I	2013-01-01
H04N	/	21	/	23439	I	2013-01-01
H04N	/	21	/	23608	I	2013-01-01
H04N	/	21	/	8456	I	2013-01-01
G06K	/	2209	/	25	A	2013-01-01
G06K	/	2209	/	27	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Set

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 11	
/DELOMIA L GILLIARD/ Primary Examiner, Art Unit 2661 (Primary Examiner) _____ (Date) _____		01 July 2021 (Date)	O.G. Print Claim(s) 1
			O.G. Print Figure 6

Issue Classification 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner DELOMIA L GILLIARD	Art Unit 2661

INTERNATIONAL CLASSIFICATION			
CLAIMED			
G06K	/	9	/ 00
NON-CLAIMED			
/	/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
382	154

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	11	
/DELOMIA L GILLIARD/ Primary Examiner, Art Unit 2661	01 July 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6

Issue Classification 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner DELOMIA L GILLIARD	Art Unit 2661

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	-	10	-	19	-	28	10	37						
-	2	-	11	-	20	2	29	11	38						
-	3	-	12	-	21	3	30								
-	4	-	13	-	22	4	31								
-	5	-	14	-	23	5	32								
-	6	-	15	-	24	6	33								
-	7	-	16	-	25	7	34								
-	8	-	17	-	26	9	35								
-	9	-	18	-	27	8	36								

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 11	
/DELOMIA L GILLIARD/ Primary Examiner, Art Unit 2661 (Primary Examiner) _____ (Date) 01 July 2021		O.G. Print Claim(s) 1	O.G. Print Figure 6

<i>Index of Claims</i> 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner DELOMIA L GILLIARD	Art Unit 2661

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	10/24/2020	07/01/2021							
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	2	-	-							
	3	-	-							
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3	30	✓	=							
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7	34	✓	=							
9	35	✓	=							
8	36	✓	=							
10	37	✓	=							
11	38	✓	=							

<i>Search Notes</i> 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner DELOMIA L GILLIARD	Art Unit 2661

CPC - Searched*		
Symbol	Date	Examiner
G06T	10/20/2020	D. Gilliard
G06K	10/20/2020	D. Gilliard

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST - see history printout	10/20/2020	D. Gilliard
Patent Scope	10/20/2020	D. Gilliard
EAST - see history printout	07/01/2021	D. Gilliard
IP.com	07/01/2021	D. Gilliard

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	searched claim limitations	07/01/2021	D. Gilliard

/DELOMIA L GILLIARD/ Primary Examiner, Art Unit 2661	
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	"13421345" (primary or nonprimary or target) video still (fractal or fraction or part or portion) same (feature or landmarks or characteristic or attribute)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:12
L2	2	"13421345" (primary or nonprimary or target) video still	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:13
L3	2	"13421345" (primary or nonprimary or target) video still (detect\$3 or recogni\$5 or track\$4 or identif\$6) near4 object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:27
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L5	3,701	((primary or nonprimary or target or source) near4 (image or frame or picture or photo or photograph or scene or scenery)) video (still near4 (image or frame or picture or photo or photograph or scene or scenery)) ((detect\$3 or recogni\$5 or track\$4 or identif\$6) near4 object) ((fractal or fraction or part or portion) with (feature or landmarks or characteristic or attribute) with object)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:35
L6	201,706	(video near5 (segment\$4 or separat\$4 or segmentation or split\$4 or partition\$4))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	AND	ON	2021/07/01 20:49

			DERWENT; IBM_TDB			
L7	701	I5 and I6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:50
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L9	922	I8 and I6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:52
L10	45	(I8 and I6)(demultiplexer or demultiplex\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:53
L11	4,603	((primary or nonprimary or target or source or preferred or interest or roi) near4 (image or frame or picture or photo or photograph or scene or scenery)) video (still near4 (image or frame or picture or photo or photograph or scene or scenery)) ((detect\$3 or recogni\$5 or track\$4 or identif\$6) near4 object) ((fractal or fraction or part or portion) with (feature or landmarks or characteristic or attribute) with object)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 20:57
L12	924	I11 and I6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	AND	ON	2021/07/01 21:01

			DERWENT; IBM_TDB			
L13	45	(l11 and l6)(demultiplexer or de-multiplex\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:02
L14	13	"15197727"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:02
L15	0	"15197727".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:03
L16	3	"15197727" score	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:05
L17	3	"20180295375"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:21
L25	13,308	(video near5 (segment\$4 or separat\$4 or segmentation or split\$4 or partition\$4)) ((extract\$4 or identify or detect\$4 or recogni\$5) near (audio or sound))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:31
L27	0	"20180295375" (extract\$4 or identify or detect\$4 or recogni\$5) near (audio or sound)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:33
L28	0	"20180295375" (extract\$4 or identify or detect\$4 or recogni\$5) near5 (audio or sound)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	AND	ON	2021/07/01 21:33

			DERWENT; IBM_TDB			
L33	1	"16271773" (transform\$5 or wavelet or coding or encoding or decoding or decode or encode or code)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/07/01 21:45
S147	2	"16271773"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 15:10
S148	1	"16271773" adjust\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 15:10
S149	1	"16271773" adjust\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 15:11
S150	4	"20190035159"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 15:15
S151	2	"13421345"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:09
S152	2	"13421345" (primary or nonprimary)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:09
S153	1	"16271773" (non-primary near image)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	AND	ON	2021/06/30 23:12

			DERWENT; IBM_TDB			
S154	1	"16271773" (primary near image)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:17
S155	1	"16271773" image	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:17
S156	1	"16271773" image with detect\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:19
S157	2	"13421345" (primary or nonprimary or target)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:19
S158	2	"13421345" (primary or nonprimary or target) video	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:19
S159	2	"13421345" (primary or nonprimary or target) video (increase or improv\$4 or enhanc\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:29
S160	2	"13421345" (primary or nonprimary or target) video (increas\$3 or decreas\$3 or improv\$4 or enhanc\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:30
S161	2	"13421345" (primary or nonprimary or target) video (increas\$3 or decreas\$3 or improv\$5 or enhanc\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	AND	ON	2021/06/30 23:30

			DERWENT; IBM_TDB			
S162	0	"13421345" (primary or nonprimary or target) video (increas\$3 or decreas\$3 or improv\$5 or enhanc\$5) "3"\$multiplex\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:32
S163	0	"13421345" (primary or nonprimary or target) video (increas\$3 or decreas\$3 or improv\$5 or enhanc\$5) "3"\$multiplex\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:33
S164	0	"13421345" (primary or nonprimary or target) video (increas\$3 or decreas\$3 or improv\$5 or enhanc\$5) \$3multiplex\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	ON	2021/06/30 23:33

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L18	4,595	((primary or nonprimary or target or source or preferred or interest) near4 (image or frame or picture or photo or photograph or scene or scenery)) video (still near4 (image or frame or picture or photo or photograph or scene or scenery)) ((detect\$3 or recogni\$5 or track\$4 or identif\$6) near4 object) ((fractal or fraction or part or portion) with (feature or landmarks or characteristic or attribute) with object)	US-PGPUB; USPAT	AND	ON	2021/07/01 21:21
L19	643	((primary or nonprimary or target or source or preferred or interest) near4 (image or frame or picture or photo or photograph or scene or scenery)) video (still near4 (image or frame or picture or photo or photograph or scene or scenery)) ((detect\$3 or recogni\$5 or track\$4 or identif\$6) near4 object) ((fractal or fraction or part or portion) with (feature or landmarks or characteristic or attribute) with object).clm.	US-PGPUB; USPAT	AND	ON	2021/07/01 21:21
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		or frame or picture or photo or photograph or scene or scenery)) ((detect\$3 or recogni\$5 or track\$4 or identif\$6) near4 object) ((fractal or fraction or part or portion) with (feature or landmarks or characteristic or attribute) with object)).clm.				
L21	23,120	(video near5 (segment\$4 or separat\$4 or segmentation or split\$4 or partition\$4)).dm.	US-PGPUB; USPAT	AND	ON	2021/07/01 21:21
L22	2	"20180295375"	US-PGPUB; USPAT	AND	ON	2021/07/01 21:22
L23	2	"20170337711"	US-PGPUB; USPAT	AND	ON	2021/07/01 21:27
L24	2	"20170337711" still	US-PGPUB; USPAT	AND	ON	2021/07/01 21:29
L26	505	(video near5 (segment\$4 or separat\$4 or segmentation or split\$4 or partition\$4)).dm. ((extract\$4 or identify or detect\$4 or recogni\$5) near (audio or sound)).clm.	US-PGPUB; USPAT	AND	ON	2021/07/01 21:33
L29	1,176	(video near5 (segment\$4 or separat\$4 or segmentation or split\$4 or partition\$4)).dm. ((extract\$4 or identify or detect\$4 or recogni\$5) near4 (audio or sound)).dm.	US-PGPUB; USPAT	AND	ON	2021/07/01 21:34
L30	1	l20 and l29	US-PGPUB; USPAT	AND	ON	2021/07/01 21:34
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7/1/2021 10:06:04 PM
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Cancel

At least one embodiment, a video processing device comprises a proces

at least one embodiment, a method comprises receiving the video file;

at least one embodiment, a method comprises receiving the video file; s

a picture into a three-dimensional motion picture

0) into a three-dimensional stereo motion picture (540) are disclosed. W

picture into a three dimensional motion picture

ee dimensional stereo motion picture are disclosed. Wire frames of obiv

ed reality experiences to users. The system includes an image capturing

es to users are disclosed. The system comprising: an image capturing de

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Visuals **Query** **Results** **0.0s**

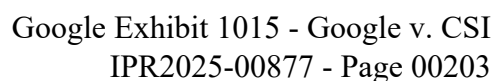
1 - 50

- Table of Contents**
Presents the table of contents/splash page of the proceedings record.
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the demultiplexer nodes are configured to extract audio files from the video; an image detector configured to extract still frame images from the video; an image detector configured to image of an object in the still frame images wherein the image detector to increase detection of non-primary images in the video; and an object recognizer configured to compare the image of the object to a fractal, wherein the fractal includes a representation of the object based on landmarks associated with the object, wherein the recognizer is further configured to update the fractal with the image.

Cancel

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- Enhancing social multimedia matching and management through audio-adaptive audiovisual bimodal segmentation**
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Automatic target recognition that relies on rapid feature extraction of real-time target from photo-realistic imaging will enable efficient identification of observed target by...
PMC3183066 | PUBMED CENTRAL | 29-SEP-2011 | PLoS ONE, 6(9), e25621
- Image sequence coding at very low bit rates: a review**
This paper presents a review of promising techniques for very low bit-rate, below 64 kb/s, image sequence coding. Image sequence coding application is to...
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- A Review of Fractal Video Coding**
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IEEE Xplore | IEEE CONFERENCES | 01-AUG-2012 | 2012 International Conference on Industrial Control and Electronics Engineering (Page(s): 951-953)
- Multimedia Information Extraction: Advances in Video, Audio, and Imagery Analysis for Search, Data Mining, Surveillance and**
The definitive guide to the state of the art of multimedia information extraction Government analysts, think tank researchers, managers at telecommunications large networks even...





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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1	2215
7590 07/15/2021 STEPTOE & JOHNSON LLP/DC 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036			EXAMINER GILLIARD, DELOMIA L	
			ART UNIT 2661	PAPER NUMBER
			NOTIFICATION DATE 07/15/2021	DELIVERY MODE ELECTRONIC

NOTICE REQUIRING INVENTOR'S OATH OR DECLARATION

☐ An inventor's oath or declaration in compliance with 37 CFR 1.63 or substitute statement in compliance with 37 CFR 1.64 executed by or with respect to each inventor has not yet been submitted.

The inventor's oath or declaration or substitute statement dated 02/08/19 is defective. The inventor's oath or declaration does not comply with 37 CFR 1.63 or the substitute statement does not comply with 37 CFR 1.64 because it:

☐ does not include a statement that the person executing the oath or declaration or substitute statement believes the named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application for which the oath or declaration is being submitted.

☐ does not state that the application was made or was authorized to be made by the person executing the oath or declaration or substitute statement.

☐ does not acknowledge that any willful false statement made in such oath or declaration or substitute statement is punishable under section 1001 of title 18 by fine or imprisonment of not more than 5 years, or both.

☒ does not identify the person executing the oath or declaration or substitute statement by his or her legal name.

☐ does not identify the application to which the oath or declaration or substitute statement is directed.

☒ Other: Inventor 3

The substitute statement dated _____ does not comply with 37 CFR 1.64 because it:

☐ does not identify the inventor with respect to whom the statement applies.

☐ does not identify the relationship to the non-signing inventor.

☐ does not identify the circumstances permitting execution of the statement.

☐ was signed by someone other than the applicant.

☐ Other: _____

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor **MUST** be filed **no later than the date on which the issue fee is paid**. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application. This period for reply is not extendable under 37 CFR 1.136(a).

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

(571)-272-4200 or 1(888)-786-0101
Patent Publication Branch
Office of Data Management

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

TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>	Application Number	16/271,773
	Filing Date	February 8, 2019
	First Named Inventor	Bartlett Wade Smith IV
	Art Unit	2661
	Examiner Name	Delomia L. Gilliard
Total Number of Pages in This Submission	Attorney Docket Number	19299.0009C1

ENCLOSURES (Check all that apply)		
☐ Fee Transmittal Form ☐ Fee Attached ☐ Amendment/Reply ☐ After Final ☐ Affidavits/declaration(s) ☐ Extension of Time Request ☐ Express Abandonment Request ☐ Information Disclosure Statement ☐ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/ Incomplete Application ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53	☐ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to Convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☐ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance Communication to TC ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☒ Other Enclosure(s) (please identify below): Annotated ADS (9 pgs) and Annotated Filing Receipt (3 pgs)
Remarks The Director is hereby authorized to charge any fees which are missing or deficient, or credit any overpayments to Deposit Account 19-4293		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	STEPTOE AND JOHNSON LLP		
Signature	/Scott M. Richey, Reg.# 69653/		
Printed name	Scott M. Richey		
Date	August 4, 2021	Reg. No.	69,653

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:			
Signature			
Typed or printed name		Date	

This collection of information is required by 37 CFR 1.5. 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 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. 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:	43427935
Application Number:	16271773
International Application Number:	
Confirmation Number:	2215
Title of Invention:	VIDEO TO DATA
First Named Inventor/Applicant Name:	Bartlett Wade Smith
Customer Number:	27890
Filer:	Scott Melvin Richey/Courtney Siegle Neuman
Filer Authorized By:	Scott Melvin Richey
Attorney Docket Number:	19299.0009C1
Receipt Date:	04-AUG-2021
Filing Date:	08-FEB-2019
Time Stamp:	16:52:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	0009C1_AnnotatedADSa.pdf	113075	no	9
			e8b6ab912f83fabceb5698e9c63c683dc7a6bb8		

Warnings:

Google Exhibit 1015 - Google v. CSI

IPR2025-00877 - Page 00207

Information:					
This is not an USPTO supplied ADS fillable form					
2	Oath or Declaration filed	0009C1_Decs.pdf	633105 da0a65a580f4f7d9e2a6cb56ce63edd8bc257802	no	6
Warnings:					
Information:					
3	Application Data Sheet	0009C1_FilingReceipta.pdf	2934780 0e3ffc6390ebf6eeebd55ee88a9cded23b9f926	no	3
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
4	Transmittal Letter	0009C1_Trans.pdf	300691 b7d2d6736006eb0a0a8e64b85cbda2780261e300	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	3981651	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

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

Inventor Information:

Inventor 1					Remove		
Legal Name							
Prefix	Given Name		Middle Name		Family Name		Suffix
Mr.	Bartlett		Wade		Smith		IV
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service							
City	Madison		State/Province	MS	Country of Residence		US
Mailing Address of Inventor:							
Address 1		109 Antlers Lane					
Address 2							
City	Madison			State/Province	MS		
Postal Code		39110		Country	US		
Inventor 2					Remove		
Legal Name							
Prefix	Given Name		Middle Name		Family Name		Suffix
	Allison		A.		Talley		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service							
City	Ridgeland		State/Province	MS	Country of Residence		US
Mailing Address of Inventor:							
Address 1		211 Winsmere Way					
Address 2							
City	Ridgeland			State/Province	MS		
Postal Code		39157		Country	US		
Inventor 3					Remove		
Legal Name							
Prefix	Given Name		Middle Name		Family Name		Suffix
	John		Carlos		Shields		IV
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service							

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1	
		Application Number		
Title of Invention	VIDEO TO DATA			

City	Fort Worth	State/Province	TX	Country of Residence	US
------	------------	----------------	----	----------------------	----

Mailing Address of Inventor:

Address 1	12345 Fairway Meadows				
Address 2					
City	Fort Worth	State/Province	TX		
Postal Code	76179	Country	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					

Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	194293		
Email Address	hfox@step toe.com	Add Email	Remove Email
Email Address	ipdocketing@step toe.com	Add Email	Remove Email

Application Information:

Title of the Invention	VIDEO TO DATA		
Attorney Docket Number	19299.0009C1	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	18	Suggested Figure for Publication (if any)	1

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

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	194293		

Domestic Benefit/National Stage Information:

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

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	Continuation of	15197727	2016-06-29	10204274	2019-02-12

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. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)¹ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Remove Access Code ^j (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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

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. ☒

Organization Name: CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS

Mailing Address Information For Applicant:

Address 1		1018 Highland Colony Parkway, Suite 700	
Address 2			
City	Ridgeland	State/Province	MS
Country	US	Postal Code	39157-2060
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.

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

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. ☒

Organization Name

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1		1018 Highland Colony Parkway, Suite 700	
Address 2			
City	Ridgeland	State/Province	MS
Country ⁱ	US	Postal Code	39157-2060
Phone Number		Fax Number	
Email Address			

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

Signature:

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

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

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

Signature	/Scott M. Richey, Reg.# 69653/		Date (YYYY-MM-DD)	2021-08-04
First Name	Scott	Last Name	Richey	Registration Number
69653				

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	19299.0009C1
		Application Number	
Title of Invention	VIDEO TO DATA		

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

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.
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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.

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

VIDEO TO DATA

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 15/197,727filed on June 29, 2016

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.

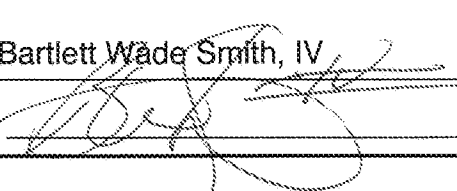
WARNING:

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: Bartlett Wade Smith, IV

Date (Optional): _____

Signature: 

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

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

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

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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DECLARATION (37 CFR 1.83) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention: **VIDEO TO DATA**

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 15/197,727 filed on June 29, 2016

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.

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LEGAL NAME OF INVENTOR

Inventor: Allison A. Talley

Date (Optional): _____

Signature: Allison A. Talley

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.

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IPR2025-00877 - Page 00220

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The attached application, or

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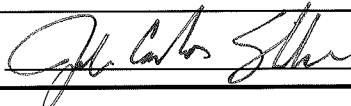
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LEGAL NAME OF INVENTORInventor: John Carlos Shields

Date (Optional) : _____

Signature: 

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APPLICATION NUMBER	FILING of 371(c) DATE	GRP ART UNIT	FIL. FEE REC'D	ATTY. DOCKET NO.	TOT. CLAIMS	IND. CLAIMS
16/271,773	02/08/2019		1880	19299.0009C1	11	1

27890
STEPTOE & JOHNSON LLP
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

CONFIRMATION NO. 2215
UPDATED FILING RECEIPT



Date Mailed: 08/01/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Bartlett Wade Smith IV, Madison, MS;
Allison A. Talley, Ridgeland, MS;
John Carlos Shields IV, Fort Worth, TX;

Applicant(s)

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS;

Assignment For Published Patent Application

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS

Power of Attorney: The patent practitioners associated with Customer Number 27890

Domestic Priority data as claimed by applicant

This application is a CON of 15/197,727 06/29/2016 PAT 10204274

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

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

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 02/27/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/271,773**

Projected Publication Date: 11/07/2019

Non-Publication Request: No

Early Publication Request: No

Title

VIDEO TO DATA

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.

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

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

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

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

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

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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.



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Document Code:WFEE

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Sale Accounting Date:08/06/2021

Sale Item Reference Number

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08/04/2021

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
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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
16/271,773	02/08/2019	2661	1880	19299.0009C1	11	1

CONFIRMATION NO. 2215

UPDATED FILING RECEIPT

27890
STEPTOE & JOHNSON LLP/DC
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036



Date Mailed: 08/10/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Bartlett Wade Smith IV, Madison, MS;
Allison A. Talley, Ridgeland, MS;
John Carlos Shields, Fort Worth, TX;

Applicant(s)

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS;

Assignment For Published Patent Application

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS

Power of Attorney: The patent practitioners associated with Customer Number 27890

Domestic Priority data as claimed by applicant

This application is a CON of 15/197,727 06/29/2016 PAT 10204274

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

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

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

Title

VIDEO TO DATA

Preliminary Class

382

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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

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

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

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

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

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1

27890
STEPTOE & JOHNSON LLP/DC
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

CONFIRMATION NO. 2215
37 CFR 1.48(f)
ACKNOWLEDGEMENT LETTER



OC000000127538180

Date Mailed: 08/10/2021

NOTICE OF ACCEPTANCE OF REQUEST UNDER 37 CFR 1.48(f)

This is in response to the applicant's request under 37 CFR 1.48(f) submitted on 08/04/2021.

The request under 37 CFR 1.48(f) to correct the inventorship, to correct or update the name of an inventor, or to correct the order of names of joint inventors is accepted.

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.

/lqchau/

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

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

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

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.

27890 7590 07/13/2021
STEPTOE & JOHNSON LLP/DC
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

Certificate of Mailing or Transmission

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

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/271,773	02/08/2019	Bartlett Wade Smith IV	19299.0009C1	2215

TITLE OF INVENTION: VIDEO TO DATA

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1200	\$0.00	\$0.00	\$1200	10/13/2021

EXAMINER	ART UNIT	CLASS-SUBCLASS
GILLIARD, DELOMIA L	2661	382-154000

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

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

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

1 Steptoe & Johnson LLP

2

3

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS Ridgeland, MS

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

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

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 19-4293

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 /Scott M. Richey, Reg. # 69653/

Date August 19, 2021

Typed or printed name Scott M. Richey

Registration No. 69653

Electronic Patent Application Fee Transmittal				
Application Number:		16271773		
Filing Date:		08-Feb-2019		
Title of Invention:		VIDEO TO DATA		
First Named Inventor/Applicant Name:		Bartlett Wade Smith		
Filer:		Scott Melvin Richey/Courtney Siegle Neuman		
Attorney Docket Number:		19299.0009C1		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1200

Electronic Acknowledgement Receipt

EFS ID:	43555994
Application Number:	16271773
International Application Number:	
Confirmation Number:	2215
Title of Invention:	VIDEO TO DATA
First Named Inventor/Applicant Name:	Bartlett Wade Smith
Customer Number:	27890
Filer:	Scott Melvin Richey/Courtney Siegle Neuman
Filer Authorized By:	Scott Melvin Richey
Attorney Docket Number:	19299.0009C1
Receipt Date:	19-AUG-2021
Filing Date:	08-FEB-2019
Time Stamp:	17:33:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 1200
RAM confirmation Number	E20218IH34111206
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	Issue Fee Payment (PTO-85B)	IssueFeePayment.pdf	1194375	no	1
			d8652cdc16a113c9b03045c60b31da4c63f86f01		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38108	no	2
			518a06a53dad52af8e4fd2c7d579ef216c3f8969		
Warnings:					
Information:					
Total Files Size (in bytes):			1232483		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Issue Classification 	Application/Control No. 16/271,773	Applicant(s)/Patent Under Reexamination Smith et al.
	Examiner DELOMIA L GILLIARD	Art Unit 2661

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

CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	-	10	-	19	-	28	10	37						
-	2	-	11	-	20	2	29	11	38						
-	3	-	12	-	21	3	30								
-	4	-	13	-	22	4	31								
-	5	-	14	-	23	5	32								
-	6	-	15	-	24	6	33								
-	7	-	16	-	25	7	34								
-	8	-	17	-	26	~~8~~ 8	35								
-	9	-	18	-	27	~~9~~ 9	36								

Change(s) applied
 to document,
 /J.E.B./
 7/26/2021

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	11	
/DELOMIA L GILLIARD/ Primary Examiner, Art Unit 2661	01 July 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	6



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/271,773	09/21/2021	11126853	19299.0009C1	2215

27890 7590 09/01/2021
STEPTOE & JOHNSON LLP/DC
1330 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

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 86 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):

CELLULAR SOUTH, INC. DBA C SPIRE WIRELESS, Ridgeland, MS;

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