Doc Code: FAI.REQ
Document Description: Request First Action Interview

PTO/SB/413C (05-11)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U. S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REQUEST FOR FIRST ACTION INTERVIEW (FULL PILOT PROGRAM)

Attorney Docket Number: 563800USCON14	Application Number (if known): Unassigned	Filing date: Herewith
First Named Inventor: Lawrence Kates	Title: Relaying Communications in a Wireless Sensor System	

APPLICANT HEREBY REQUESTS A FIRST ACTION INTERVIEW IN THE ABOVE-IDENTIFIED APPLICATION. **See Instruction Sheet on page 2.**

1. The application must contain three (3) or fewer independent claims and twenty (20) or fewer total claims.

2. The application must not contain any multiple dependent claims.

3. By filing this request:

   Applicant is agreeing to make an election without traverse if the Office determines that the claims are not obviously directed to a single invention; and

   Applicant is agreeing not to request for a refund of the search fee and any excess claims fee paid in the application after the mailing or notification of the pre-interview communication prepared by the examiner.

4. Other attachments: _____

Signature /Matthew Johnson/	Date May 22, 2017
Name (Print/Typed) Matthew Johnson	Registration Number 72,299

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

☐ *Total of _____ forms are submitted.

PTO/SB/413C (05-11)
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Instruction Sheet for Request for First Action Interview (Full Pilot Program)

(Not to be Submitted to the USPTO)

A grantable request must meet the following conditions:

1. The application must be a new non-reissue utility application filed under 35 U.S.C. 111(a) or an international application that has entered the national stage in compliance with 35 U.S.C. 371(c).

2. The application must contain three (3) or fewer independent claims and twenty (20) or fewer total claims. The application may not contain any multiple dependent claims.

3. The request must be filed electronically using the Office's electronic filing system, EFS-Web.

4. The claims must be directed to a single invention. If the Office determines that the claims are directed to multiple inventions (*e.g.*, in a restriction requirement), the applicant must make an election without traverse.

5. The request must be filed at least one day before a first Office action on the merits of the application appears in the Patent Application Information Retrieval (PAIR) system (*i.e.*, at least one day prior to the date when a first Office action on the merits, notice of allowability or allowance, or action under Ex parte Quayle, 1935 Dec. Comm'r Pat. 11 (1935) appears in the PAIR system). Applicant may check the status of the application using the PAIR system.

6. The request for a first action interview must include a statement that applicant agrees not to file a request for a refund of the search fee and any excess claims fees paid in the application after the mailing or notification of the Pre-Interview Communication. Any petition for express abandonment under 37 CFR 1.138(d), and request for a refund of the search fee and any excess claims fees, filed after the mailing or notification of the Pre-Interview Communication will not be granted.

For more information, see notice "Full First Action Interview Pilot Program" available on the USPTO web site at http://www.uspto.gov/patents/init_events/faipp_full.jsp

Privacy Act Statement

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

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

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

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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

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

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

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

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Document Description: Request First Action Interview

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Attorney Docket Number: 563800USCON14	Application Number (if known): Unassigned	Filing date: Herewith
First Named Inventor: Lawrence Kates	Title: Relaying Communications in a Wireless Sensor System	

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4. Other attachments: _____

Signature /Matthew Johnson/	Date May 22, 2017
Name (Print/Typed) Matthew Johnson	Registration Number 72,299

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☐ *Total of _____ forms are submitted.

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 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.

PTO/SB/413C (05-11)
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3. The request must be filed electronically using the Office's electronic filing system, EFS-Web.

4. The claims must be directed to a single invention. If the Office determines that the claims are directed to multiple inventions (*e.g.*, in a restriction requirement), the applicant must make an election without traverse.

5. The request must be filed at least one day before a first Office action on the merits of the application appears in the Patent Application Information Retrieval (PAIR) system (*i.e.*, at least one day prior to the date when a first Office action on the merits, notice of allowability or allowance, or action under Ex parte Quayle, 1935 Dec. Comm'r Pat. 11 (1935) appears in the PAIR system). Applicant may check the status of the application using the PAIR system.

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For more information, see notice "Full First Action Interview Pilot Program" available on the USPTO web site at http://www.uspto.gov/patents/init_events/faipp_full.jsp

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

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

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

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

Application Number	Unassigned
Filing Date	Herewith
First Named Inventor	Lawrence Kates
Title	Relaying Communications in a Wireless Sensor System
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	563800USCON14

SIGNATURE of Applicant or Patent Practitioner

Signature	/Matthew Johnson/	Date (Optional)	May 22, 2017
Name	Matthew Johnson	Registration Number	72,299
Title (if Applicant is a juristic entity)	Agent of Record		
Applicant Name (if Applicant is a juristic entity)	Google Inc.		

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

☑ *Total of 1 forms are submitted.

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

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

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

PTO/AIA/82B (07-13)
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POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date

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

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 124746

OR

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

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

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

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

Google Inc.

☐ 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)

Legal Dept TSH
Google

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	/Allen Lo/	Date (Optional)	Nov. 24, 2014
Name	Allen Lo		
Title	Assistant Secretary & Deputy General Counsel of Google Inc.		

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

☑ Total of 1 forms are submitted.

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

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

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Filer:	William Breen/Whitney Soule
Attorney Docket Number:	563800USCON14

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	280	280
UTILITY SEARCH FEE	1111	1	600	600
UTILITY EXAMINATION FEE	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1600**

Electronic Acknowledgement Receipt	
EFS ID:	29278847
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	124746
Filer:	William Breen/Whitney Soule
Filer Authorized By:	William Breen
Attorney Docket Number:	563800USCON14
Receipt Date:	22-MAY-2017
Filing Date:	
Time Stamp:	17:52:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1600
RAM confirmation Number	052317INTEFSW17545300
Deposit Account	504143
Authorized User	Whitney Soule
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		563800USCON14_Application.pdf	190362 0125dec4d43bec84ebe587173c982bf8185c97bb	yes	28
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	23	
	Claims		24	27	
	Abstract		28	28	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	563800USCON14_Drawings.pdf	452703 50dca209f83676ef2a2ad3a818b2e888cc64cc11	no	7
Warnings:					
Information:					
3	Application Data Sheet	563800USCON14_AppDataSheet.pdf	1823569 e779de289d711b14af5e9e86e7649f9a9b1db4ea	no	9
Warnings:					
Information:					
4	Oath or Declaration filed	563800USCON14_Executed_Declaration.pdf	94893 7bf72f8d5626fa9fdef8a5fa6b7a1951ed6fe86f	no	1
Warnings:					
Information:					
5	First Action Interview - Enrollment Request	563800USCON14_First_Action_Interview_Request.pdf	621176 242262cfa4c1ccddcc7fbe0d5c99302f71436dce	no	3

Warnings:					
Information:					
6	Power of Attorney	563800USCON14_POA.pdf	272523 ce71a785048884f7ebe0bb856257e3db9e037082	no	2
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	35125 451edde547370cd96109707759eca6e22d844546	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	3490351	

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.

Electronic Acknowledgement Receipt	
EFS ID:	29278847
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	124746
Filer:	William Breen/Whitney Soule
Filer Authorized By:	William Breen
Attorney Docket Number:	563800USCON14
Receipt Date:	22-MAY-2017
Filing Date:	
Time Stamp:	17:52:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1600
RAM confirmation Number	052317INTEFSW17545300
Deposit Account	504143
Authorized User	Whitney Soule
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

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1		563800USCON14_Application.pdf	190362 0125dec4d43bec84ebe587173c982bf8185c97bb	yes	28
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Specification		1	23	
	Claims		24	27	
	Abstract		28	28	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	563800USCON14_Drawings.pdf	452703 50dca209f83676ef2a2ad3a818b2e888cc64cc11	no	7
Warnings:					
Information:					
3	Application Data Sheet	563800USCON14_AppDataSheet.pdf	1823569 e779de289d711b14af5e9e86e7649f9a9b1db4ea	no	9
Warnings:					
Information:					
4	Oath or Declaration filed	563800USCON14_Executed_Declaration.pdf	94893 7bf72f8d5626fa9fdef8a5fa6b7a1951ed6fe86f	no	1
Warnings:					
Information:					
5	First Action Interview - Enrollment Request	563800USCON14_First_Action_Interview_Request.pdf	621176 242262cfa4c1ccddcc7fbe0d5c99302f71436dce	no	3

Warnings:					
Information:					
6	Power of Attorney	563800USCON14_POA.pdf	272523 ce71a785048884f7ebe0bb856257e3db9e037082	no	2
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	35125 451edde547370cd96109707759eca6e22d844546	no	2
Warnings:					
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RELAYING COMMUNICATIONS IN A WIRELESS SENSOR SYSTEM

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CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. Patent Application Ser. No. 15/090,973, filed April 5, 2016, and entitled, "WIRELESS SENSOR UNIT COMMUNICATION TRIGGERING AND MANAGEMENT," which is a continuation of U.S. Patent Application Ser. No. 14/548,137, now U.S. Patent No. 9,318,015, filed November 19, 2014, and entitled, "WIRELESS SENSOR UNIT COMMUNICATION TRIGGERING AND MANAGEMENT," which is a continuation of U.S. Patent Application Ser. No. 14/168,876, now U.S. Patent No. 9,357,490, filed January 30, 2014, and entitled, "WIRELESS TRANSCEIVER," which is a continuation of U.S. Patent Application Ser. No. 12/905,248, filed October 15, 2010, and entitled, "WIRELESS TRANSCEIVER," which is a continuation of U.S. Patent Application Ser. No. 12/182,079, now U.S. Patent No. 7,817,031, filed July 29, 2008, and entitled "WIRELESS TRANSCEIVER," which is a divisional of U.S. Patent Application Ser. No. 11/562,313, now U.S. Patent No. 7,411,494, filed November 21, 2006, and entitled "WIRELESS TRANSCEIVER," which is a continuation of U.S. Patent Application Ser. No. 10/856,231, now U.S. Patent No. 7,142,107, filed May 27, 2004, and entitled "WIRELESS TRANSCEIVER." The entire disclosures of the above applications are hereby incorporated by reference, for all purposes, as if fully set forth herein.

BACKGROUND

[0002] 1. Field of the Invention

[0003] The present invention relates to a wireless sensor unit system providing bi-directional communication between a sensor (e.g., smoke sensor, fire sensor, temperature sensor, water, etc.) and a repeater or base unit in a building protection system.

[0004] 2. Description of the Related Art

[0005] Maintaining and protecting a building or complex is difficult and costly. Some conditions, such as fires, gas leaks, etc. are a danger to the occupants and the structure. Other malfunctions, such as water leaks in roofs, plumbing, etc. are not necessarily dangerous for the

occupants, but can nevertheless cause considerable damage. In many cases, an adverse ambient condition such as water leakage, fire, etc. is not detected in the early stages when the damage and/or danger is relatively small. Sensors can be used to detect such adverse ambient conditions, but sensors present their own set of problems. For example, adding sensors, such as, for example, smoke detectors, water sensors, and the like in an existing structure can be prohibitively expensive due to the cost of installing wiring between the remote sensors and a centralized monitoring device used to monitor the sensors. Adding wiring to provide power to the sensors further increases the cost. Moreover, with regard to fire sensors, most fire departments will not allow automatic notification of the fire department based on the data from a smoke detector alone. Most fire departments require that a specific temperature rate-of-rise be detected before an automatic fire alarm system can notify the fire department. Unfortunately, detecting fire by temperature rate-of-rise generally means that the fire is not detected until it is too late to prevent major damage.

SUMMARY

[0006] The present invention solves these and other problems by providing a relatively low cost, robust, wireless sensor system that provides an extended period of operability without maintenance. The system includes one or more intelligent sensor units and a base unit that can communicate with the sensor units. When one or more of the sensor units detects an anomalous condition (e.g., smoke, fire, water, etc.) the sensor unit communicates with the base unit and provides data regarding the anomalous condition. The base unit can contact a supervisor or other responsible person by a plurality of techniques, such as, telephone, pager, cellular telephone, Internet (and/or local area network), etc. In one embodiment, one or more wireless repeaters are used between the sensor units and the base unit to extend the range of the system and to allow the base unit to communicate with a larger number of sensors.

[0007] In one embodiment, the sensor system includes a number of sensor units located throughout a building that sense conditions and report anomalous results back to a central reporting station. The sensor units measure conditions that might indicate a fire, water leak, etc. The sensor units report the measured data to the base unit whenever the sensor unit determines that the measured data is sufficiently anomalous to be reported. The base unit can notify a responsible person such as, for example a building manager, building owner, private security

service, etc. In one embodiment, the sensor units do not send an alarm signal to the central location. Rather, the sensors send quantitative measured data (e.g., smoke density, temperature rate of rise, etc.) to the central reporting station.

[0008] In one embodiment, the sensor system includes a battery-operated sensor unit that detects a condition, such as, for example, smoke, temperature, humidity, moisture, water, water temperature, carbon monoxide, natural gas, propane gas, other flammable gases, radon, poison gasses, etc. The sensor unit is placed in a building, apartment, office, residence, etc. In order to conserve battery power, the sensor is normally placed in a low-power mode. In one embodiment, while in the low power mode, the sensor unit takes regular sensor readings and evaluates the readings to determine if an anomalous condition exists (*e.g.*, block 901 of method 900 of FIG. 9). If an anomalous condition is detected, then the sensor unit "wakes up" (block 902) and begins communicating with the base unit or with a repeater (block 903). At programmed intervals, the sensor also "wakes up" and sends status information to the base unit (or repeater) and then listens for commands for a period of time.

[0009] In one embodiment, the sensor unit is bi-directional and configured to receive instructions from the central reporting station (or repeater). Thus, for example, the central reporting station can instruct the sensor to: perform additional measurements; go to a standby mode; wake up; report battery status; change wake-up interval; run self-diagnostics and report results; etc. In one embodiment, the sensor unit also includes a tamper switch. When tampering with the sensor is detected, the sensor reports such tampering to the base unit. In one embodiment, the sensor reports its general health and status to the central reporting station on a regular basis (e.g., results of self-diagnostics, battery health, etc.).

[0010] In one embodiment, the sensor unit provides two wake-up modes, a first wake-up mode for taking measurements (and reporting such measurements if deemed necessary), and a second wake-up mode for listening for commands from the central reporting station. The two wake-up modes, or combinations thereof, can occur at different intervals.

[0011] In one embodiment, the sensor units use spread-spectrum techniques to communicate with the base unit and/or the repeater units. In one embodiment, the sensor units use frequency-hopping spread-spectrum. In one embodiment, each sensor unit has an Identification code (ID) and the sensor unit attaches its ID to outgoing communication packets. In one embodiment,

when receiving wireless data, each sensor unit ignores data that is addressed to other sensor units.

[0012] The repeater unit is configured to relay communications traffic between a number of sensor units and the base unit. The repeater units typically operate in an environment with several other repeater units and thus each repeater unit contains a database (e.g., a lookup table) of sensor IDs. During normal operation, the repeater only communicates with designated wireless sensor units whose IDs appears in the repeater's database. In one embodiment, the repeater is battery-operated and conserves power by maintaining an internal schedule of when its designated sensors are expected to transmit and going to a low-power mode when none of its designated sensor units is scheduled to transmit. In one embodiment, the repeater uses spread-spectrum to communicate with the base unit and the sensor units. In one embodiment, the repeater uses frequency-hopping spread-spectrum to communicate with the base unit and the sensor units. In one embodiment, each repeater unit has an ID and the repeater unit attaches its ID to outgoing communication packets that originate in the repeater unit. In one embodiment, each repeater unit ignores data that is addressed to other repeater units or to sensor units not serviced by the repeater.

[0013] In one embodiment, the repeater is configured to provide bi-directional communication between one or more sensors and a base unit. In one embodiment, the repeater is configured to receive instructions from the central reporting station (or repeater). Thus, for example, the central reporting station can instruct the repeater to: send commands to one or more sensors; go to standby mode; "wake up"; report battery status; change wake-up interval; run self-diagnostics and report results; etc.

[0014] The base unit is configured to receive measured sensor data from a number of sensor units. In one embodiment, the sensor information is relayed through the repeater units. The base unit also sends commands to the repeater units and/or sensor units. In one embodiment, the base unit includes a diskless PC that runs off of a CD-ROM, flash memory, DVD, or other read-only device, etc. When the base unit receives data from a wireless sensor indicating that there may be an emergency condition (e.g., a fire or excess smoke, temperature, water, flammable gas, etc.) the base unit will attempt to notify a responsible party (e.g., a building manager) by several communication channels (e.g., telephone, Internet, pager, cell phone, etc.). In one embodiment, the base unit sends instructions to place the wireless sensor in an alert mode (inhibiting the

wireless sensor's low-power mode). In one embodiment, the base unit sends instructions to activate one or more additional sensors near the first sensor.

[0015] In one embodiment, the base unit maintains a database of the health, battery status, signal strength, and current operating status of all of the sensor units and repeater units in the wireless sensor system. In one embodiment, the base unit automatically performs routine maintenance by sending commands to each sensor to run a self-diagnostic and report the results. The bases unit collects such diagnostic results. In one embodiment, the base unit sends instructions to each sensor telling the sensor how long to wait between "wakeup" intervals. In one embodiment, the base unit schedules different wakeup intervals to different sensors based on the sensor's health, battery health, location, etc. In one embodiment, the base unit sends instructions to repeaters to route sensor information around a failed repeater.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] **FIG. 1** shows a sensor system that includes a plurality of sensor units that communicate with a base unit through a number of repeater units.

[0017] **FIG. 2** is a block diagram of a sensor unit.

[0018] **FIG. 3** is a block diagram of a repeater unit.

[0019] **FIG. 4** is a block diagram of the base unit.

[0020] **FIG. 5** shows one embodiment a network communication packet used by the sensor units, repeater units, and the base unit.

[0021] **FIG. 6** is a flowchart showing operation of a sensor unit that provides relatively continuous monitoring.

[0022] **FIG. 7** is a flowchart showing operation of a sensor unit that provides periodic monitoring.

[0023] **FIG. 8** shows how the sensor system can be used to detected water leaks.

[0024] **FIG. 9** illustrates a method for using a wireless ambient sensor unit.

DETAILED DESCRIPTION

[0025] FIG. 1 shows an sensor system 100 that includes a plurality of sensor units 102-106 that communicate with a base unit 112 through a number of repeater units 110-111. The sensor units 102-106 are located throughout a building 101. Sensor units 102-104 communicate with the repeater 110. Sensor units 105-105 communicate with the repeater 111. The repeaters 110-111

communicate with the base unit 112. The base unit 112 communicates with a monitoring computer system 113 through a computer network connection such as, for example, Ethernet, wireless Ethernet, firewire port, Universal Serial Bus (USB) port, bluetooth, etc. The computer system 113 contacts a building manager, maintenance service, alarm service, or other responsible personnel 120 using one or more of several communication systems such as, for example, telephone 121, pager 122, cellular telephone 123 (e.g., direct contact, voicemail, text, etc.), and/or through the Internet and/or local area network 124 (e.g., through email, instant messaging, network communications, etc.). In one embodiment, multiple base units 112 are provided to the monitoring computer 113. In one embodiment, the monitoring computer 113 is provided to more than one compute monitor, thus allowing more data to be displayed than can conveniently be displayed on a single monitor. In one embodiment, the monitoring computer 113 is provided to multiple monitors located in different locations, thus allowing the data form the monitoring computer 113 to be displayed in multiple locations.

[0026] The sensor units 102-106 include sensors to measure conditions, such as, for example, smoke, temperature, moisture, water, water temperature, humidity, carbon monoxide, natural gas, propane gas, security alarms, intrusion alarms (e.g., open doors, broken windows, open windows, and the like), other flammable gases, radon, poison gasses, etc. Different sensor units can be configured with different sensors or with combinations of sensors. Thus, for example, in one installation the sensor units 102 and 104 could be configured with smoke and/or temperature sensors while the sensor unit 103 could be configured with a humidity sensor.

[0027] The discussion that follows generally refers to the sensor unit 102 as an example of a sensor unit, with the understanding that the description of the sensor unit 102 can be applied to many sensor units. Similarly, the discussion generally refers to the repeater 110 by way of example, and not limitation. It will also be understood by one of ordinary skill in the art that repeaters are useful for extending the range of the sensor units 102-106 but are not required in all embodiments. Thus, for example in one embodiment, one or more of the sensor units 102-106 can communicate directly with the base unit 112 without going through a repeater. It will also be understood by one of ordinary skill in the art that FIG. 1 shows only five sensor units (102-106) and two repeater units (110-111) for purposes of illustration and not by way of limitation. An installation in a large apartment building or complex would typically involve many sensor units and repeater units. Moreover, one of ordinary skill in the art will recognize that one repeater unit

can service relatively many sensor units. In one embodiment, the sensor units 102 can communicate directly with the base unit 112 without going through a repeater 111.

[0028] When the sensor unit 102 detects an anomalous condition (e.g., smoke, fire, water, etc.) the sensor unit communicates with the appropriate repeater unit 110 and provides data regarding the anomalous condition. The repeater unit 110 forwards the data to the base unit 112, and the base unit 112 forwards the information to the computer 113. The computer 113 evaluates the data and takes appropriate action. If the computer 113 determines that the condition is an emergency (e.g., fire, smoke, large quantities of water), then the computer 113 contacts the appropriate personnel 120. If the computer 113 determines that the situation warrants reporting, but is not an emergency, then the computer 113 logs the data for later reporting. In this way, the sensor system 100 can monitor the conditions in and around the building 101.

[0029] In one embodiment, the sensor unit 102 has an internal power source (e.g., battery, solar cell, fuel cell, etc.). In order to conserve power, the sensor unit 102 is normally placed in a low-power mode. In one embodiment, using sensors that require relatively little power, while in the low power mode the sensor unit 102 takes regular sensor readings and evaluates the readings to determine if an anomalous condition exists. In one embodiment, using sensors that require relatively more power, while in the low power mode the sensor unit 102 takes and evaluates sensor readings at periodic intervals. If an anomalous condition is detected, then the sensor unit 102 "wakes up" and begins communicating with the base unit 112 through the repeater 110. At programmed intervals, the sensor unit 102 also "wakes up" and sends status information (e.g., power levels, self-diagnostic information, etc.) to the base unit (or repeater) and then listens for commands for a period of time. In one embodiment, the sensor unit 102 also includes a tamper detector. When tampering with the sensor unit 102 is detected, the sensor unit 102 reports such tampering to the base unit 112.

[0030] In one embodiment, the sensor unit 102 provides bi-directional communication and is configured to receive data and/or instructions from the base unit 112. Thus, for example, the base unit 112 can instruct the sensor unit 102 to perform additional measurements, to go to a standby mode, to wake up, to report battery status, to change wake-up interval, to run self-diagnostics and report results, etc. In one embodiment, the sensor unit 102 reports its general health and status on a regular basis (e.g., results of self-diagnostics, battery health, etc.).

[0031] In one embodiment, the sensor unit 102 provides two wake-up modes, a first wake-up mode for taking measurements (and reporting such measurements if deemed necessary), and a second wake-up mode for listening for commands from the central reporting station. The two wake-up modes, or combinations thereof, can occur at different intervals.

[0032] In one embodiment, the sensor unit 102 use spread-spectrum techniques to communicate with the repeater unit 110. In one embodiment, the sensor unit 102 uses frequency-hopping spread-spectrum. In one embodiment, the sensor unit 102 has an address or identification (ID) code that distinguishes the sensor unit 102 from the other sensor units. The sensor unit 102 attaches its ID to outgoing communication packets so that transmissions from the sensor unit 102 can be identified by the repeater 110. The repeater 110 attaches the ID of the sensor unit 102 to data and/or instructions that are transmitted to the sensor unit 102. In one embodiment, the sensor unit 102 ignores data and/or instructions that are addressed to other sensor units.

[0033] In one embodiment, the sensor unit 102 includes a reset function. In one embodiment, the reset function is activated by the reset switch 208. In one embodiment, the reset function is active for a prescribed interval of time. During the reset interval, the transceiver 203 is in a receiving mode and can receive the identification code from an external programmer. In one embodiment, the external programmer wirelessly transmits a desired identification code. In one embodiment, the identification code is programmed by an external programmer that is connected to the sensor unit 102 through an electrical connector. In one embodiment, the electrical connection to the sensor unit 102 is provided by sending modulated control signals (power line carrier signals) through a connector used to connect the power source 206. In one embodiment, the external programmer provides power and control signals. In one embodiment, the external programmer also programs the type of sensor(s) installed in the sensor unit. In one embodiment, the identification code includes an area code (e.g., apartment number, zone number, floor number, etc.) and a unit number (e.g., unit 1, 2, 3, etc.).

[0034] In one embodiment, the sensor communicates with the repeater on the 900 MHz band. This band provides good transmission through walls and other obstacles normally found in and around a building structure. In one embodiment, the sensor communicates with the repeater on bands above and/or below the 900 MHz band. In one embodiment, the sensor, repeater, and/or base unit listen to a radio frequency channel before transmitting on that channel or before beginning transmission. If the channel is in use, (e.g., by another devise such as another

repeater, a cordless telephone, etc.) then the sensor, repeater, and/or base unit changes to a different channel. In one embodiment, the sensor, repeater, and/or base unit coordinate frequency hopping by listening to radio frequency channels for interference and using an algorithm to select a next channel for transmission that avoids the interference. Thus, for example, in one embodiment, if a sensor senses a dangerous condition and goes into a continuous transmission mode, the sensor will test (e.g., listen to) the channel before transmission to avoid channels that are blocked, in use, or jammed. In one embodiment, the sensor continues to transmit data until it receives an acknowledgement from the base unit that the message has been received. In one embodiment, the sensor transmits data having a normal priority (e.g., status information) and does not look for an acknowledgement, and the sensor transmits data having elevated priority (e.g., excess smoke, temperature, etc.) until an acknowledgement is received.

[0035] The repeater unit 110 is configured to relay communications traffic between the sensor 102 (and, similarly, the sensor units 103-104) and the base unit 112. The repeater unit 110 typically operates in an environment with several other repeater units (such as the repeater unit 111 in FIG. 1) and thus the repeater unit 110 contains a database (e.g., a lookup table) of sensor unit IDs. In FIG. 1, the repeater 110 has database entries for the Ids of the sensors 102-104, and thus the sensor 110 will only communicate with sensor units 102-104. In one embodiment, the repeater 110 has an internal power source (e.g., battery, solar cell, fuel cell, etc.) and conserves power by maintaining an internal schedule of when the sensor units 102-104 are expected to transmit. In one embodiment, the repeater unit 110 goes to a low-power mode when none of its designated sensor units is scheduled to transmit. In one embodiment, the repeater 110 uses spread-spectrum techniques to communicate with the base unit 112 and with the sensor units 102-104. In one embodiment, the repeater 110 uses frequency-hopping spread-spectrum to communicate with the base unit 112 and the sensor units 102-104. In one embodiment, the repeater unit 110 has an address or identification (ID) code and the repeater unit 110 attaches its address to outgoing communication packets that originate in the repeater (that is, packets that are not being forwarded). In one embodiment, the repeater unit 110 ignores data and/or instructions that are addressed to other repeater units or to sensor units not serviced by the repeater 110.

[0036] In one embodiment, the base unit 112 communicates with the sensor unit 102 by transmitting a communication packet addressed to the sensor unit 102. The repeaters 110 and

111 both receive the communication packet addressed to the sensor unit 102. The repeater unit 111 ignores the communication packet addressed to the sensor unit 102. The repeater unit 110 transmits the communication packet addressed to the sensor unit 102 to the sensor unit 102. In one embodiment, the sensor unit 102, the repeater unit 110, and the base unit 112 communicate using Frequency-Hopping Spread Spectrum (FHSS), also known as channel-hopping.

[0037] Frequency-hopping wireless systems offer the advantage of avoiding other interfering signals and avoiding collisions. Moreover, there are regulatory advantages given to systems that do not transmit continuously at one frequency. Channel-hopping transmitters change frequencies after a period of continuous transmission, or when interference is encountered. These systems may have higher transmit power and relaxed limitations on in-band spurs. FCC regulations limit transmission time on one channel to 400 milliseconds (averaged over 10-20 seconds depending on channel bandwidth) before the transmitter must change frequency. There is a minimum frequency step when changing channels to resume transmission. If there are 25 to 49 frequency channels, regulations allow effective radiated power of 24 dBm, spurs must be -20 dBc, and harmonics must be -41.2 dBc. With 50 or more channels, regulations allow effective radiated power to be up to 30 dBm.

[0038] In one embodiment, the sensor unit 102, the repeater unit 110, and the base unit 112 communicate using FHSS wherein the frequency hopping of the sensor unit 102, the repeater unit 110, and the base unit 112 are not synchronized such that at any given moment, the sensor unit 102 and the repeater unit 110 are on different channels. In such a system, the base unit 112 communicates with the sensor unit 102 using the hop frequencies synchronized to the repeater unit 110 rather than the sensor unit 102. The repeater unit 110 then forwards the data to the sensor unit using hop frequencies synchronized to the sensor unit 102. Such a system largely avoids collisions between the transmissions by the base unit 112 and the repeater unit 110.

[0039] In one embodiment, the sensor units 102-106 all use FHSS and the sensor units 102-106 are not synchronized. Thus, at any given moment, it is unlikely that any two or more of the sensor units 102-106 will transmit on the same frequency. In this manner, collisions are largely avoided. In one embodiment, collisions are not detected but are tolerated by the system 100. If a collisions does occur, data lost due to the collision is effectively re-transmitted the next time the sensor units transmit sensor data. When the sensor units 102-106 and repeater units 110-111 operate in asynchronous mode, then a second collision is highly unlikely because the units

causing the collisions have hopped to different channels. In one embodiment, the sensor units 102-106, repeater units 110-110, and the base unit 112 use the same hop rate. In one embodiment, the sensor units 102-106, repeater units 110-110, and the base unit 112 use the same pseudo-random algorithm to control channel hopping, but with different starting seeds. In one embodiment, the starting seed for the hop algorithm is calculated from the ID of the sensor units 102-106, repeater units 110-110, or the base unit 112.

[0040] In an alternative embodiment, the base unit communicates with the sensor unit 102 by sending a communication packet addressed to the repeater unit 110, where the packet sent to the repeater unit 110 includes the address of the sensor unit 102. The repeater unit 102 extracts the address of the sensor unit 102 from the packet and creates and transmits a packet addressed to the sensor unit 102.

[0041] In one embodiment, the repeater unit 110 is configured to provide bi-directional communication between its sensors and the base unit 112. In one embodiment, the repeater 110 is configured to receive instructions from the base unit 110. Thus, for example, the base unit 112 can instruct the repeater to: send commands to one or more sensors; go to standby mode; "wake up"; report battery status; change wake-up interval; run self-diagnostics and report results; etc.

[0042] The base unit 112 is configured to receive measured sensor data from a number of sensor units either directly, or through the repeaters 110-111. The base unit 112 also sends commands to the repeater units 110-111 and/or to the sensor units 110-111. In one embodiment, the base unit 112 communicates with a diskless computer 113 that runs off of a CD-ROM. When the base unit 112 receives data from a sensor unit 102-111 indicating that there may be an emergency condition (e.g., a fire or excess smoke, temperature, water, etc.) the computer 113 will attempt to notify the responsible party 120.

[0043] In one embodiment, the computer 112 maintains a database of the health, power status (e.g., battery charge), and current operating status of all of the sensor units 102-106 and the repeater units 110-111. In one embodiment, the computer 113 automatically performs routine maintenance by sending commands to each sensor unit 102-106 to run a self-diagnostic and report the results. The computer 113 collects and logs such diagnostic results. In one embodiment, the computer 113 sends instructions to each sensor unit 102-106 telling the sensor how long to wait between "wakeup" intervals. In one embodiment, the computer 113 schedules different wakeup intervals to different sensor unit 102-106 based on the sensor unit's health,

power status, location, etc. In one embodiment, the computer 113 schedules different wakeup intervals to different sensor unit 102-106 based on the type of data and urgency of the data collected by the sensor unit (e.g., sensor units that have smoke and/or temperature sensors produce data that should be checked relatively more often than sensor units that have humidity or moisture sensors). In one embodiment, the base unit sends instructions to repeaters to route sensor information around a failed repeater.

[0044] In one embodiment, the computer 113 produces a display that tells maintenance personnel which sensor units 102-106 need repair or maintenance. In one embodiment, the computer 113 maintains a list showing the status and/or location of each sensor according to the ID of each sensor.

[0045] In one embodiment, the sensor units 102-106 and/or the repeater units 110-111 measure the signal strength of the wireless signals received (e.g., the sensor unit 102 measures the signal strength of the signals received from the repeater unit 110, the repeater unit 110 measures the signal strength received from the sensor unit 102 and/or the base unit 112). The sensor units 102-106 and/or the repeater units 110-111 report such signal strength measurement back to the computer 113. The computer 113 evaluates the signal strength measurements to ascertain the health and robustness of the sensor system 100. In one embodiment, the computer 113 uses the signal strength information to re-route wireless communications traffic in the sensor system 100. Thus, for example, if the repeater unit 110 goes offline or is having difficulty communicating with the sensor unit 102, the computer 113 can send instructions to the repeater unit 111 to add the ID of the sensor unit 102 to the database of the repeater unit 111 (and similarly, send instructions to the repeater unit 110 to remove the ID of the sensor unit 102), thereby routing the traffic for the sensor unit 102 through the router unit 111 instead of the router unit 110.

[0046] FIG. 2 is a block diagram of the sensor unit 102. In the sensor unit 102, one or more sensors 201 and a transceiver 203 are provided to a controller 202. The controller 202 typically provides power, data, and control information to the sensor(s) 201 and the transceiver 202. A power source 206 is provided to the controller 202. An optional tamper sensor 205 is also provided to the controller 202. A reset device (e.g., a switch) 208 is proved to the controller 202. In one embodiment, an optional audio output device 209 is provided. In one embodiment, the sensor 201 is configured as a plug-in module that can be replaced relatively easily.

[0047] In one embodiment, the transceiver 203 is based on a TRF 6901 transceiver chip from

Texas Instruments, Inc. In one embodiment, the controller 202 is a conventional programmable microcontroller. In one embodiment, the controller 202 is based on a Field Programmable Gate Array (FPGA), such as, for example, provided by Xilinx Corp. In one embodiment, the sensor 201 includes an optoelectric smoke sensor with a smoke chamber. In one embodiment, the sensor 201 includes a thermistor. In one embodiment, the sensor 201 includes a humidity sensor. In one embodiment, the sensor 201 includes an sensor, such as, for example, a water level sensor, a water temperature sensor, a carbon monoxide sensor, a moisture sensor, a water flow sensor, natural gas sensor, propane sensor, etc.

[0048] The controller 202 receives sensor data from the sensor(s) 201. Some sensors 201 produce digital data. However, for many types of sensors 201, the sensor data is analog data. Analog sensor data is converted to digital format by the controller 202. In one embodiment, the controller evaluates the data received from the sensor(s) 201 and determines whether the data is to be transmitted to the base unit 112. The sensor unit 102 generally conserves power by not transmitting data that falls within a normal range. In one embodiment, the controller 202 evaluates the sensor data by comparing the data value to a threshold value (e.g., a high threshold, a low threshold, or a high-low threshold). If the data is outside the threshold (e.g., above a high threshold, below a low threshold, outside an inner range threshold, or inside an outer range threshold), then the data is deemed to be anomalous and is transmitted to the base unit 112. In one embodiment, the data threshold is programmed into the controller 202. In one embodiment, the data threshold is programmed by the base unit 112 by sending instructions to the controller 202. In one embodiment, the controller 202 obtains sensor data and transmits the data when commanded by the computer 113.

[0049] In one embodiment, the tamper sensor 205 is configured as a switch that detects removal of or tampering with the sensor unit 102.

[0050] FIG. 3 is a block diagram of the repeater unit 110. In the repeater unit 110, a first transceiver 302 and a second transceiver 305 are provided to a controller 303. The controller 303 typically provides power, data, and control information to the transceivers 302, 304. A power source 306 is provided to the controller 303. An optional tamper sensor (not shown) is also provided to the controller 303.

[0051] When relaying sensor data to the base unit 112, the controller 303 receives data from the first transceiver 303 and provides the data to the second transceiver 304. When relaying

instructions from the base unit 112 to a sensor unit, the controller 303 receives data from the second transceiver 304 and provides the data to the first transceiver 302. In one embodiment, the controller 303 conserves power by powering-down the transceivers 302, 304 during periods when the controller 303 is not expecting data. The controller 303 also monitors the power source 306 and provides status information, such as, for example, self-diagnostic information and/or information about the health of the power source 306, to the base unit 112. In one embodiment, the controller 303 sends status information to the base unit 112 at regular intervals. In one embodiment, the controller 303 sends status information to the base unit 112 when requested by the base unit 112. In one embodiment, the controller 303 sends status information to the base unit 112 when a fault condition (e.g., battery low) is detected.

[0052] In one embodiment, the controller 303 includes a table or list of identification codes for wireless sensor units 102. The repeater 303 forwards packets received from, or sent to, sensor units 102 in the list. In one embodiment, the repeater 110 receives entries for the list of sensor units from the computer 113. In one embodiment, the controller 303 determines when a transmission is expected from the sensor units 102 in the table of sensor units and places the repeater 110 (e.g., the transceivers 302, 304) in a low-power mode when no transmissions are expected from the transceivers on the list. In one embodiment, the controller 303 recalculates the times for low-power operation when a command to change reporting interval is forwarded to one of the sensor units 102 in the list (table) of sensor units or when a new sensor unit is added to the list (table) of sensor units.

[0053] FIG. 4 is a block diagram of the base unit 112. In the base unit 112, a transceiver 402 and a computer interface 404 are provided to a controller 403. The controller 303 typically provides data and control information to the transceivers 402 and to the interface. The interface 402 is provided to a port on the monitoring computer 113. The interface 402 can be a standard computer data interface, such as, for example, Ethernet, wireless Ethernet, firewire port, Universal Serial Bus (USB) port, bluetooth, etc.

[0054] FIG. 5 shows one embodiment a communication packet 500 used by the sensor units, repeater units, and the base unit. The packet 500 includes a preamble portion 501, an address (or ID) portion 502, a data payload portion 503, and an integrity portion 504. In one embodiment, the integrity portion 504 includes a checksum. In one embodiment, the sensor units 102-106, the repeater units 110-111, and the base unit 112 communicate using packets such as the packet 500.

In one embodiment, the packets 500 are transmitted using FHSS.

[0055] In one embodiment, the data packets that travel between the sensor unit 102, the repeater unit 111, and the base unit 112 are encrypted. In one embodiment, the data packets that travel between the sensor unit 102, the repeater unit 111, and the base unit 112 are encrypted and an authentication code is provided in the data packet so that the sensor unit 102, the repeater unit, and/or the base unit 112 can verify the authenticity of the packet.

[0056] In one embodiment the address portion 502 includes a first code and a second code. In one embodiment, the repeater 111 only examines the first code to determine if the packet should be forwarded. Thus, for example, the first code can be interpreted as a building (or building complex) code and the second code interpreted as a subcode (e.g., an apartment code, area code, etc.). A repeater that uses the first code for forwarding thus forwards packets having a specified first code (e.g., corresponding to the repeater's building or building complex). Thus alleviates the need to program a list of sensor units 102 into a repeater, since a group of sensors in a building will typically all have the same first code but different second codes. A repeater so configured, only needs to know the first code to forward packets for any repeater in the building or building complex. This does, however, raise the possibility that two repeaters in the same building could try to forward packets for the same sensor unit 102. In one embodiment, each repeater waits for a programmed delay period before forwarding a packet. Thus reducing the chance of packet collisions at the base unit (in the case of sensor unit to base unit packets) and reducing the chance of packet collisions at the sensor unit (in the case of base unit to sensor unit packets). In one embodiment, a delay period is programmed into each repeater. In one embodiment, delay periods are pre-programmed onto the repeater units at the factory or during installation. In one embodiment, a delay period is programmed into each repeater by the base unit 112. In one embodiment, a repeater randomly chooses a delay period. In one embodiment, a repeater randomly chooses a delay period for each forwarded packet. In one embodiment, the first code is at least 6 digits. In one embodiment, the second code is at least 5 digits.

[0057] In one embodiment, the first code and the second code are programmed into each sensor unit at the factory. In one embodiment, the first code and the second code are programmed when the sensor unit is installed. In one embodiment, the base unit 112 can re-program the first code and/or the second code in a sensor unit.

[0058] In one embodiment, collisions are further avoided by configuring each repeater unit 111

to begin transmission on a different frequency channel. Thus, if two repeaters attempt to begin transmission at the same time, the repeaters will not interfere with each other because the transmissions will begin on different channels (frequencies).

[0059] FIG. 6 is a flowchart showing one embodiment of the operation of the sensor unit 102 wherein relatively continuous monitoring is provided. In FIG. 6, a power up block 601 is followed by an initialization block 602. After initialization, the sensor unit 102 checks for a fault condition (e.g., activation of the tamper sensor, low battery, internal fault, etc.) in a block 603. A decision block 604 checks the fault status. If a fault has occurred, then the process advances to a block 605 were the fault information is transmitted to the repeater 110 (after which, the process advances to a block 612); otherwise, the process advances to a block 606. In the block 606, the sensor unit 102 takes a sensor reading from the sensor(s) 201. The sensor data is subsequently evaluated in a block 607. If the sensor data is abnormal, then the process advances to a transmit block 609 where the sensor data is transmitted to the repeater 110 (after which, the process advances to a block 612); otherwise, the process advances to a timeout decision block 610. If the timeout period has not elapsed, then the process returns to the fault-check block 603; otherwise, the process advances to a transmit status block 611 where normal status information is transmitted to the repeater 110. In one embodiment, the normal status information transmitted is analogous to a simple "ping" which indicates that the sensor unit 102 is functioning normally. After the block 611, the process proceeds to a block 612 where the sensor unit 102 momentarily listens for instructions from the monitor computer 113. If an instruction is received, then the sensor unit 102 performs the instructions, otherwise, the process returns to the status check block 603. In one embodiment, transceiver 203 is normally powered down. The controller 202 powers up the transceiver 203 during execution of the blocks 605, 609, 611, and 612. The monitoring computer 113 can send instructions to the sensor unit 102 to change the parameters used to evaluate data used in block 607, the listen period used in block 612, etc.

[0060] Relatively continuous monitoring, such as shown in FIG. 6, is appropriate for sensor units that sense relatively high-priority data (e.g., smoke, fire, carbon monoxide, flammable gas, etc.). By contrast, periodic monitoring can be used for sensors that sense relatively lower priority data (e.g., humidity, moisture, water usage, etc.). FIG. 7 is a flowchart showing one embodiment of operation of the sensor unit 102 wherein periodic monitoring is provided. In FIG. 7, a power up block 701 is followed by an initialization block 702. After initialization, the sensor unit 102

enters a low-power sleep mode. If a fault occurs during the sleep mode (e.g., the tamper sensor is activated), then the process enters a wake-up block 704 followed by a transmit fault block 705. If no fault occurs during the sleep period, then when the specified sleep period has expired, the process enters a block 706 where the sensor unit 102 takes a sensor reading from the sensor(s) 201. The sensor data is subsequently sent to the monitoring computer 113 in a report block 707. After reporting, the sensor unit 102 enters a listen block 708 where the sensor unit 102 listens for a relatively short period of time for instructions from monitoring computer 708. If an instruction is received, then the sensor unit 102 performs the instructions, otherwise, the process returns to the sleep block 703. In one embodiment, the sensor 201 and transceiver 203 are normally powered down. The controller 202 powers up the sensor 201 during execution of the block 706. The controller 202 powers up the transceiver during execution of the blocks 705, 707, and 708. The monitoring computer 113 can send instructions to the sensor unit 102 to change the sleep period used in block 703, the listen period used in block 708, etc.

[0061] In one embodiment, the sensor unit transmits sensor data until a handshaking-type acknowledgement is received. Thus, rather than sleep of no instructions or acknowledgements are received after transmission (e.g., after the decision block 613 or 709) the sensor unit 102 retransmits its data and waits for an acknowledgement. The sensor unit 102 continues to transmit data and wait for an acknowledgement until an acknowledgement is received. In one embodiment, the sensor unit accepts an acknowledgement from a repeater unit 111 and it then becomes the responsibility of the repeater unit 111 to make sure that the data is forwarded to the base unit 112. In one embodiment, the repeater unit 111 does not generate the acknowledgement, but rather forwards an acknowledgement from the base unit 112 to the sensor unit 102. The two-way communication ability of the sensor unit 102 provides the capability for the base unit 112 to control the operation of the sensor unit 102 and also provides the capability for robust handshaking-type communication between the sensor unit 102 and the base unit 112.

[0062] Regardless of the normal operating mode of the sensor unit 102 (e.g., using the Flowcharts of FIGS. 6, 7, or other modes) in one embodiment, the monitoring computer 113 can instruct the sensor unit 102 to operate in a relatively continuous mode where the sensor repeatedly takes sensor readings and transmits the readings to the monitoring computer 113. Such a mode can be used, for example, when the sensor unit 102 (or a nearby sensor unit) has detected a potentially dangerous condition (e.g., smoke, rapid temperature rise, etc.).

[0063] FIG. 8 shows the sensor system used to detect water leaks. In one embodiment, the sensor unit 102 includes a water level sensor and 803 and/or a water temperature sensor 804. The water level sensor 803 and/or water temperature sensor 804 are place, for example, in a tray underneath a water heater 801 in order to detect leaks from the water heater 801 and thereby prevent water damage from a leaking water heater. In one embodiment, a temperature sensor is also provide to measure temperature near the water heater. The water level sensor can also be placed under a sink, in a floor sump, etc. In one embodiment, the severity of a leak is ascertained by the sensor unit 102 (or the monitoring computer 113) by measuring the rate of rise in the water level. When placed near the hot water tank 801, the severity of a leak can also be ascertained at least in part by measuring the temperature of the water. In one embodiment, a first water flow sensor is placed in an input water line for the hot water tank 801 and a second water flow sensor is placed in an output water line for the hot water tank. Leaks in the tank can be detected by observing a difference between the water flowing through the two sensors.

[0064] In one embodiment, a remote shutoff valve 810 is provided, so that the monitoring system 100 can shutoff the water supply to the water heater when a leak is detected. In one embodiment, the shutoff valve is controlled by the sensor unit 102. In one embodiment, the sensor unit 102 receives instructions from the base unit 112 to shut off the water supply to the heater 801. In one embodiment, the responsible party 120 sends instructions to the monitoring computer 113 instructing the monitoring computer 113 to send water shut off instructions to the sensor unit 102. Similarly, in one embodiment, the sensor unit 102 controls a gas shutoff valve 811 to shut off the gas supply to the water heater 801 and/or to a furnace (not shown) when dangerous conditions (such as, for example, gas leaks, carbon monoxide, etc.) are detected. In one embodiment, a gas detector 812 is provided to the sensor unit 102. In one embodiment, the gas detector 812 measures carbon monoxide. In one embodiment, the gas detector 812 measures flammable gas, such as, for example, natural gas or propane.

[0065] In one embodiment, an optional temperature sensor 818 is provided to measure stack temperature. Using data from the temperature sensor 818, the sensor unit 102 reports conditions, such as, for example, excess stack temperature. Excess stack temperature is often indicative of poor heat transfer (and thus poor efficiency) in the water heater 818.

[0066] In one embodiment, an optional temperature sensor 819 is provided to measure temperature of water in the water heater 810. Using data from the temperature sensor 819, the

sensor unit 102 reports conditions, such as, for example, over-temperature or under-temperature of the water in the water heater.

[0067] In one embodiment, an optional current probe 821 is provided to measure electric current provided to a heating element 820 in an electric water heater. Using data from the current probe 821, the sensor unit 102 reports conditions, such as, for example, no current (indicating a burned-out heating element 820). An over-current condition often indicates that the heating element 820 is encrusted with mineral deposits and needs to be replaced or cleaned. By measuring the current provided to the water heater, the monitoring system can measure the amount of energy provided to the water heater and thus the cost of hot water, and the efficiency of the water heater.

[0068] In one embodiment, the sensor 803 includes a moisture sensor. Using data from the moisture sensor, the sensor unit 102 reports moisture conditions, such as, for example, excess moisture that would indicate a water leak, excess condensation, etc.

[0069] In one embodiment, the sensor unit 102 is provided to a moisture sensor (such as the sensor 803) located near an air conditioning unit. Using data from the moisture sensor, the sensor unit 102 reports moisture conditions, such as, for example, excess moisture that would indicate a water leak, excess condensation, etc.

[0070] In one embodiment, the sensor 201 includes a moisture sensor. The moisture sensor can be place under a sink or a toilet (to detect plumbing leaks) or in an attic space (to detect roof leaks).

[0071] Excess humidity in a structure can cause severe problems such as rotting, growth of molds, mildew, and fungus, etc. (hereinafter referred to generically as fungus). In one embodiment, the sensor 201 includes a humidity sensor. The humidity sensor can be place under a sink, in an attic space, etc. to detect excess humidity (due to leaks, condensation, etc.). In one embodiment, the monitoring computer 113 compares humidity measurements taken from different sensor units in order to detect areas that have excess humidity. Thus for example, the monitoring computer 113 can compare the humidity readings from a first sensor unit 102 in a first attic area, to a humidity reading from a second sensor unit 102 in a second area. For example, the monitoring computer can take humidity readings from a number of attic areas to establish a baseline humidity reading and then compare the specific humidity readings from various sensor units to determine if one or more of the units are measuring excess humidity. The monitoring computer 113 would flag areas of excess humidity for further investigation by

maintenance personnel. In one embodiment, the monitoring computer 113 maintains a history of humidity readings for various sensor units and flags areas that show an unexpected increase in humidity for investigation by maintenance personnel.

[0072] In one embodiment, the monitoring system 100 detects conditions favorable for fungus (e.g., mold, mildew, fungus, etc.) growth by using a first humidity sensor located in a first building area to produce first humidity data and a second humidity sensor located in a second building area to produce second humidity data. The building areas can be, for example, areas near a sink drain, plumbing fixture, plumbing, attic areas, outer walls, a bilge area in a boat, etc.

[0073] The monitoring station 113 collects humidity readings from the first humidity sensor and the second humidity sensor and indicates conditions favorable for fungus growth by comparing the first humidity data and the second humidity data. In one embodiment, the monitoring station 113 establishes a baseline humidity by comparing humidity readings from a plurality of humidity sensors and indicates possible fungus growth conditions in the first building area when at least a portion of the first humidity data exceeds the baseline humidity by a specified amount. In one embodiment, the monitoring station 113 establishes a baseline humidity by comparing humidity readings from a plurality of humidity sensors and indicates possible fungus growth conditions in the first building area when at least a portion of the first humidity data exceeds the baseline humidity by a specified percentage.

[0074] In one embodiment, the monitoring station 113 establishes a baseline humidity history by comparing humidity readings from a plurality of humidity sensors and indicates possible fungus growth conditions in the first building area when at least a portion of the first humidity data exceeds the baseline humidity history by a specified amount over a specified period of time. In one embodiment, the monitoring station 113 establishes a baseline humidity history by comparing humidity readings from a plurality of humidity sensors over a period of time and indicates possible fungus growth conditions in the first building area when at least a portion of the first humidity data exceeds the baseline humidity by a specified percentage of a specified period of time.

[0075] In one embodiment, the sensor unit 102 transmits humidity data when it determines that the humidity data fails a threshold test. In one embodiment, the humidity threshold for the threshold test is provided to the sensor unit 102 by the monitoring station 113. In one embodiment, the humidity threshold for the threshold test is computed by the monitoring station

from a baseline humidity established in the monitoring station. In one embodiment, the baseline humidity is computed at least in part as an average of humidity readings from a number of humidity sensors. In one embodiment, the baseline humidity is computed at least in part as a time average of humidity readings from a number of humidity sensors. In one embodiment, the baseline humidity is computed at least in part as a time average of humidity readings from a humidity sensor. In one embodiment, the baseline humidity is computed at least in part as the lesser of a maximum humidity reading an average of a number of humidity readings.

[0076] In one embodiment, the sensor unit 102 reports humidity readings in response to a query by the monitoring station 113. In one embodiment, the sensor unit 102 reports humidity readings at regular intervals. In one embodiment, a humidity interval is provided to the sensor unit 102 by the monitoring station 113.

[0077] In one embodiment, the calculation of conditions for fungus growth is comparing humidity readings from one or more humidity sensors to the baseline (or reference) humidity. In one embodiment, the comparison is based on comparing the humidity readings to a percentage (e.g., typically a percentage greater than 100%) of the baseline value. In one embodiment, the comparison is based on comparing the humidity readings to a specified delta value above the reference humidity. In one embodiment, the calculation of likelihood of conditions for fungus growth is based on a time history of humidity readings, such that the longer the favorable conditions exist, the greater the likelihood of fungus growth. In one embodiment, relatively high humidity readings over a period of time indicate a higher likelihood of fungus growth than relatively high humidity readings for short periods of time. In one embodiment, a relatively sudden increase in humidity as compared to a baseline or reference humidity is reported by the monitoring station 113 as a possibility of a water leak. If the relatively high humidity reading continues over time then the relatively high humidity is reported by the monitoring station 113 as possibly being a water leak and/or an area likely to have fungus growth or water damage.

[0078] Temperatures relatively more favorable to fungus growth increase the likelihood of fungus growth. In one embodiment, temperature measurements from the building areas are also used in the fungus grown-likelihood calculations. In one embodiment, a threshold value for likelihood of fungus growth is computed at least in part as a function of temperature, such that temperatures relatively more favorable to fungus growth result in a relatively lower threshold than temperatures relatively less favorable for fungus growth. In one embodiment, the

calculation of a likelihood of fungus growth depends at least in part on temperature such that temperatures relatively more favorable to fungus growth indicate a relatively higher likelihood of fungus growth than temperatures relatively less favorable for fungus growth. Thus, in one embodiment, a maximum humidity and/or minimum threshold above a reference humidity is relatively lower for temperature more favorable to fungus growth than the maximum humidity and/or minimum threshold above a reference humidity for temperatures relatively less favorable to fungus growth.

[0079] In one embodiment, a water flow sensor is provided to the sensor unit 102. The sensor unit 102 obtains water flow data from the water flow sensor and provides the water flow data to the monitoring computer 113. The monitoring computer 113 can then calculate water usage. Additionally, the monitoring computer can watch for water leaks, by, for example, looking for water flow when there should be little or no flow. Thus, for example, if the monitoring computer detects water usage throughout the night, the monitoring computer can raise an alert indicating that a possible water leak has occurred.

[0080] In one embodiment, the sensor 201 includes a water flow sensor is provided to the sensor unit 102. The sensor unit 102 obtains water flow data from the water flow sensor and provides the water flow data to the monitoring computer 113. The monitoring computer 113 can then calculate water usage. Additionally, the monitoring computer can watch for water leaks, by, for example, looking for water flow when there should be little or no flow. Thus, for example, if the monitoring computer detects water usage throughout the night, the monitoring computer can raise an alert indicating that a possible water leak has occurred.

[0081] In one embodiment, the sensor 201 includes a fire-extinguisher tamper sensor is provided to the sensor unit 102. The fire-extinguisher tamper sensor reports tampering with or use of a fire-extinguisher. In one embodiment the fire-extinguisher tamper sensor reports that the fire extinguisher has been removed from its mounting, that a fire extinguisher compartment has been opened, and/or that a safety lock on the fire extinguisher has been removed.

[0082] It will be evident to those skilled in the art that the invention is not limited to the details of the foregoing illustrated embodiments and that the present invention may be embodied in other specific forms without departing from the spirit or essential attributed thereof; furthermore, various omissions, substitutions and changes may be made without departing from the spirit of the inventions. For example, although specific embodiments are described in terms of the 900

MHz frequency band, one of ordinary skill in the art will recognize that frequency bands above and below 900 MHz can be used as well. The wireless system can be configured to operate on one or more frequency bands, such as, for example, the HF band, the VHF band, the UHF band, the Microwave band, the Millimeter wave band, etc. One of ordinary skill in the art will further recognize that techniques other than spread spectrum can also be used and/or can be use instead spread spectrum. The modulation uses is not limited to any particular modulation method, such that modulation scheme used can be, for example, frequency modulation, phase modulation, amplitude modulation, combinations thereof, etc. The foregoing description of the embodiments is therefore to be considered in all respects as illustrative and not restrictive, with the scope of the invention being delineated by the appended claims and their equivalents.

WHAT IS CLAIMED IS:

1. A method of bi-directional communication within a wireless sensor system comprising:

receiving, at a wireless repeater unit, a communication packet including an address portion that comprises a first code and a second code;

determining if the first code in the communication packet corresponds to a building code associated with the wireless repeater unit;

based on the determining that the first code corresponds to the building code associated with the wireless repeater unit, comparing the second code to wireless sensor identifiers in a table of the wireless sensor identifiers stored in the wireless repeater unit; and

based on the second code matching a wireless sensor identifier in the table, relaying the communication packet.

2. The method of claim 1, wherein the communication packet is received from a wireless sensor unit, and wherein the communication packet is relayed to a base unit associated with the first code.

3. The method of claim 1, wherein the communication packet is received from a base unit, and wherein the communication packet is relayed to a wireless sensor unit associated with the second code.

4. The method of claim 1, wherein the wireless repeater unit listens to a radio frequency channel before beginning a transmission for the relaying the communication packet on the radio frequency channel.

5. The method of claim 1, wherein the wireless repeater unit is operable to wirelessly communicate at a frequency in a 900 MHz frequency band.

6. The method of claim 1, wherein the communication packet further includes a checksum and an authenticity code for use in verifying an authenticity of the communication packet.

7. The method of claim 6, wherein the communication packet is encrypted.

8. A wireless repeater device comprising:

a wireless transceiver configured to receive a communication packet including an address portion that comprises a first code and a second code; and

a controller, comprising a table of wireless sensor identifiers, the controller configured to:

determine if the first code in the communication packet corresponds to a building code associated with the wireless repeater device;

based on the determination that the first code corresponds to the building code associated with the wireless repeater device, compare the second code to the wireless sensor identifiers in the table; and

based on the second code matching to a wireless sensor identifier in the table, relay the communication packet using the wireless transceiver.

9. The wireless repeater device of claim 8, wherein the communication packet is received from a wireless sensor unit, and wherein the communication packet is relayed to a base unit associated with the first code.

10. The wireless repeater device of claim 8, wherein the communication packet is received from a base unit, and wherein the communication packet is relayed to a wireless sensor unit associated with the second code.

11. The wireless repeater device of claim 8, wherein the controller is configured to:

listen to a radio frequency channel, using the wireless transceiver, before beginning a transmission to said relay the communication packet on the radio frequency channel.

12. The wireless repeater device of claim 8, wherein the wireless transceiver is operable to wirelessly communicate at a frequency in a 900 MHz frequency band.

13. The wireless repeater device of claim 8, wherein the communication packet further includes a checksum and an authenticity code for use in verifying an authenticity of the communication packet.

14. The wireless repeater device of claim 13, wherein the communication packet is encrypted.

15. A wireless sensor system comprising:

a wireless repeater unit comprising a table of wireless sensor identifiers, the wireless repeater unit configured to:

receive a communication packet including an address portion that comprises a first code and a second code;

determine if the first code in the communication packet corresponds to a building code associated with the wireless sensor system;

based on the determination that the first code corresponds to the building code associated with the wireless sensor system, compare the second code to the wireless sensor identifiers in the table; and

based on the comparison matching the second code to a wireless sensor identifier in the table, relay the communication packet.

16. The wireless sensor system of claim 15, further comprising:

a base unit associated with the first code; and

one or more wireless sensor units;

the wireless repeater unit configured to:

receive the communication packet from one of the wireless sensor units; and

relay the communication packet to the base unit.

17. The wireless sensor system of claim 16, wherein the wireless repeater unit is configured to:

receive an additional communication packet from the base unit; and

relay the additional communication packet to a wireless sensor unit that is associated with the first code and the second code.

18. The wireless sensor system of claim 16, wherein the base unit, the wireless repeater unit, and the one or more wireless sensor units are disposed about a building structure, and wherein the first code is associated with the building structure.

19. The wireless sensor system of claim 15, wherein the wireless repeater unit is configured to listen to a radio frequency channel before beginning a transmission to said relay the communication packet on the radio frequency channel.

20. The wireless sensor system of claim 15, wherein the communication packet further includes a checksum and an authenticity code for use in verifying an authenticity of the communication packet, and wherein the communication packet is encrypted.

ABSTRACT

Various embodiments of wireless ambient sensor unit are presented. The sensor unit may include a wireless transceiver configured to transmit sensor data and to receive instructions. The sensor unit may include a sensor configured to measure an ambient condition. The sensor unit may include a controller in communication with the wireless transceiver and the sensor. The controller may be configured to compare data measured about the ambient condition to a stored threshold while the wireless ambient sensor unit is functioning in a low-power mode. The controller may be configured to exit the low-power mode in response to the comparison of the data with the stored threshold. The controller may be configured to cause the data measured about the ambient condition to be transmitted by the wireless transceiver as one or more messages in response to the comparison to the stored threshold.

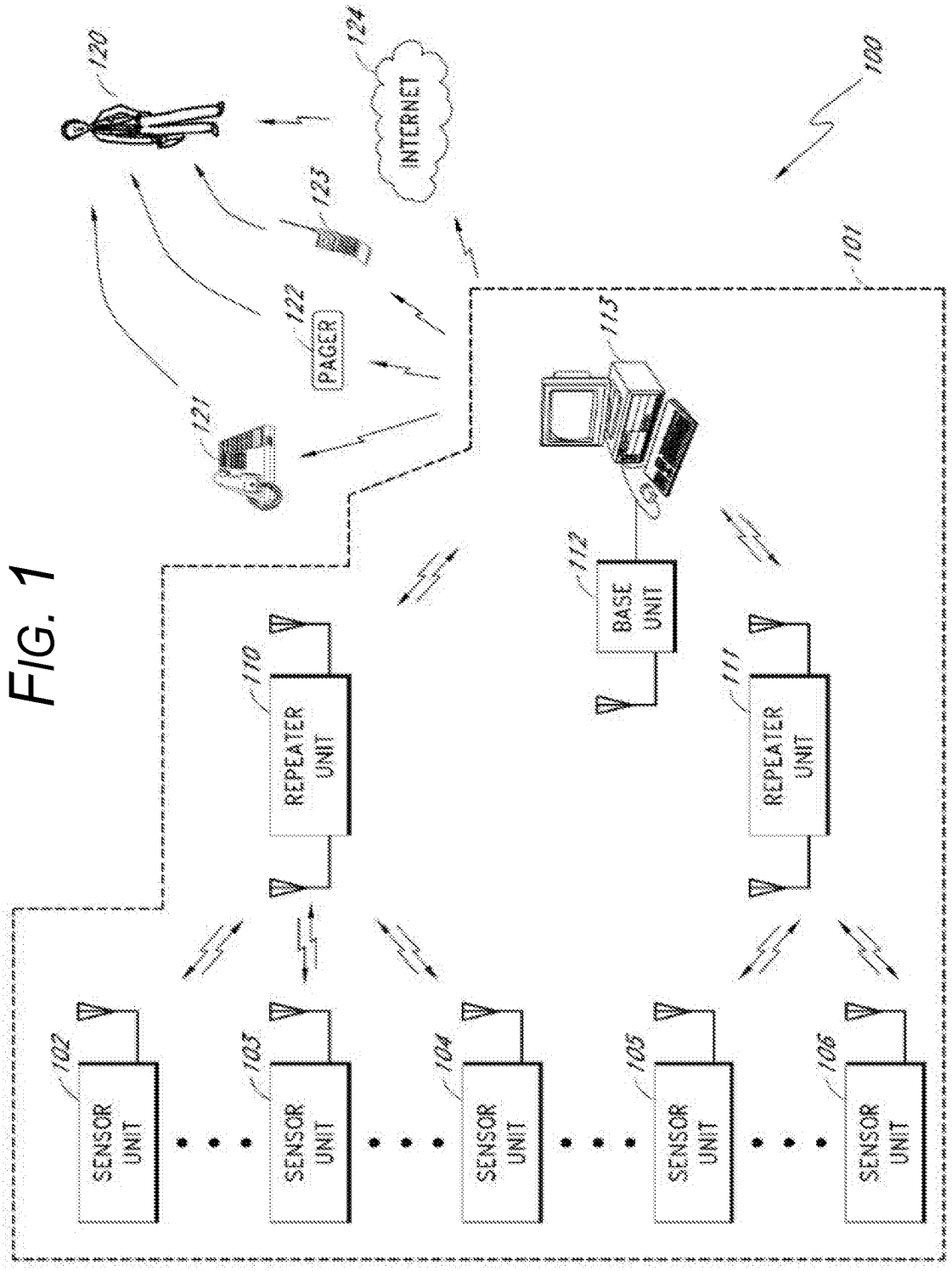
120
124
INTERNET
100
125
101
122
PAGER
113
121
112
BASE UNIT
110
REPEATER UNIT
111
REPEATER UNIT
102
SENSOR UNIT
103
SENSOR UNIT
104
SENSOR UNIT
105
SENSOR UNIT
106
SENSOR UNIT

FIG. 1

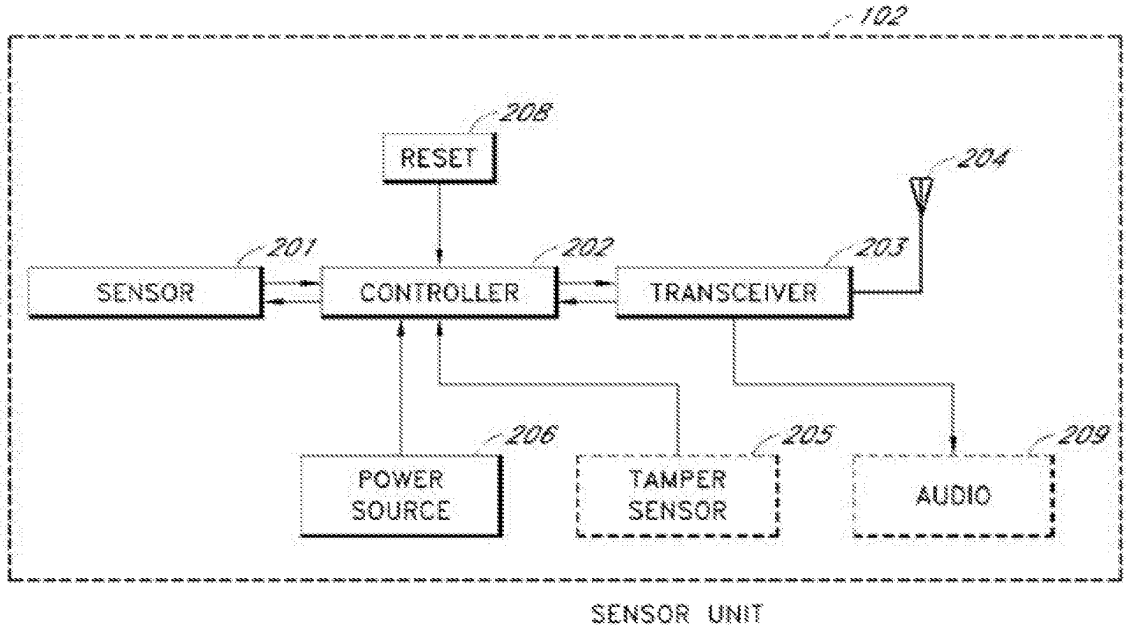
102
208
RESET
204
201
202
203
SENSOR
CONTROLLER
TRANSCEIVER
206
205
209
POWER SOURCE
TAMPER SENSOR
AUDIO
SENSOR UNIT

FIG. 2

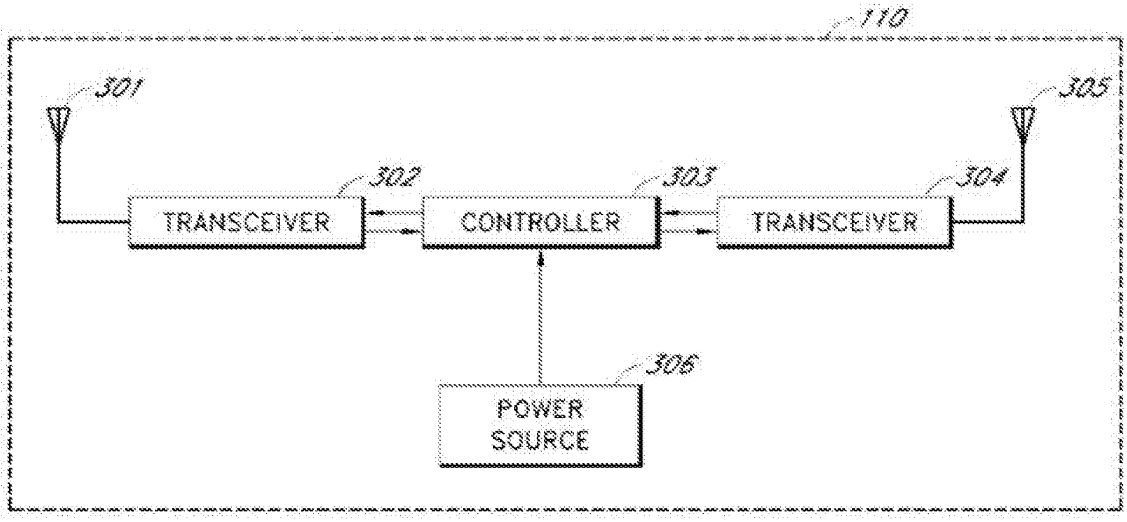
110
301
305
302
303
304
TRANSCEIVER
CONTROLLER
TRANSCEIVER
306
POWER SOURCE

FIG. 3

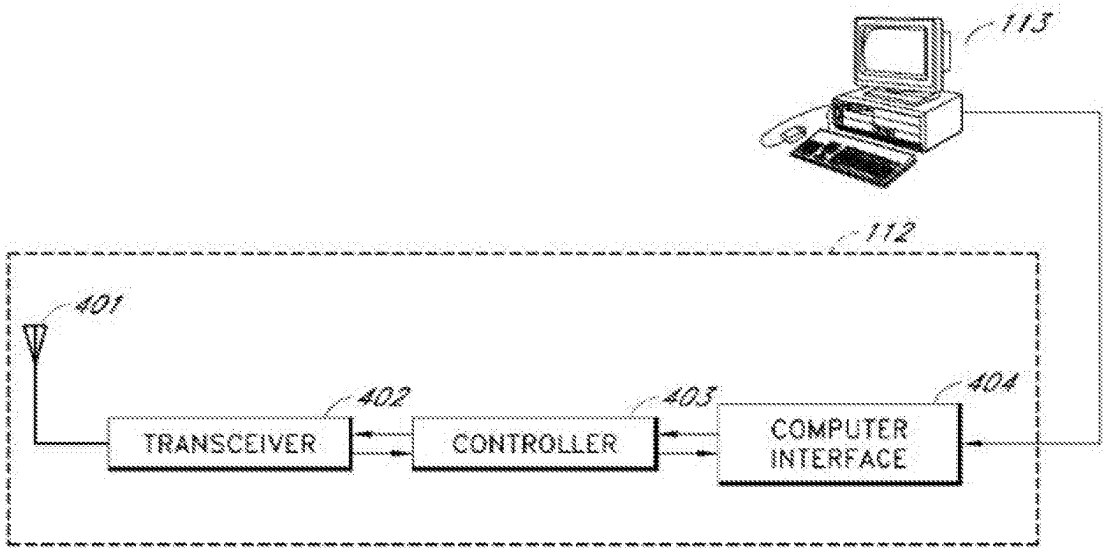
113
112
401
402
403
404
TRANSCEIVER
CONTROLLER
COMPUTER INTERFACE

FIG. 4

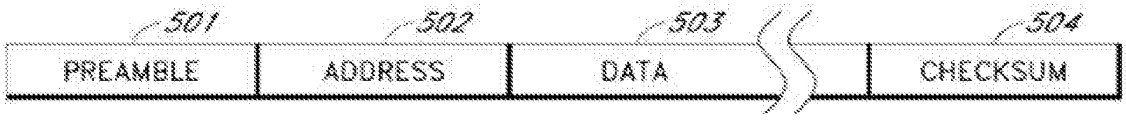
501
502
503
504
PREAMBLE
ADDRESS
DATA
CHECKSUM

FIG. 5

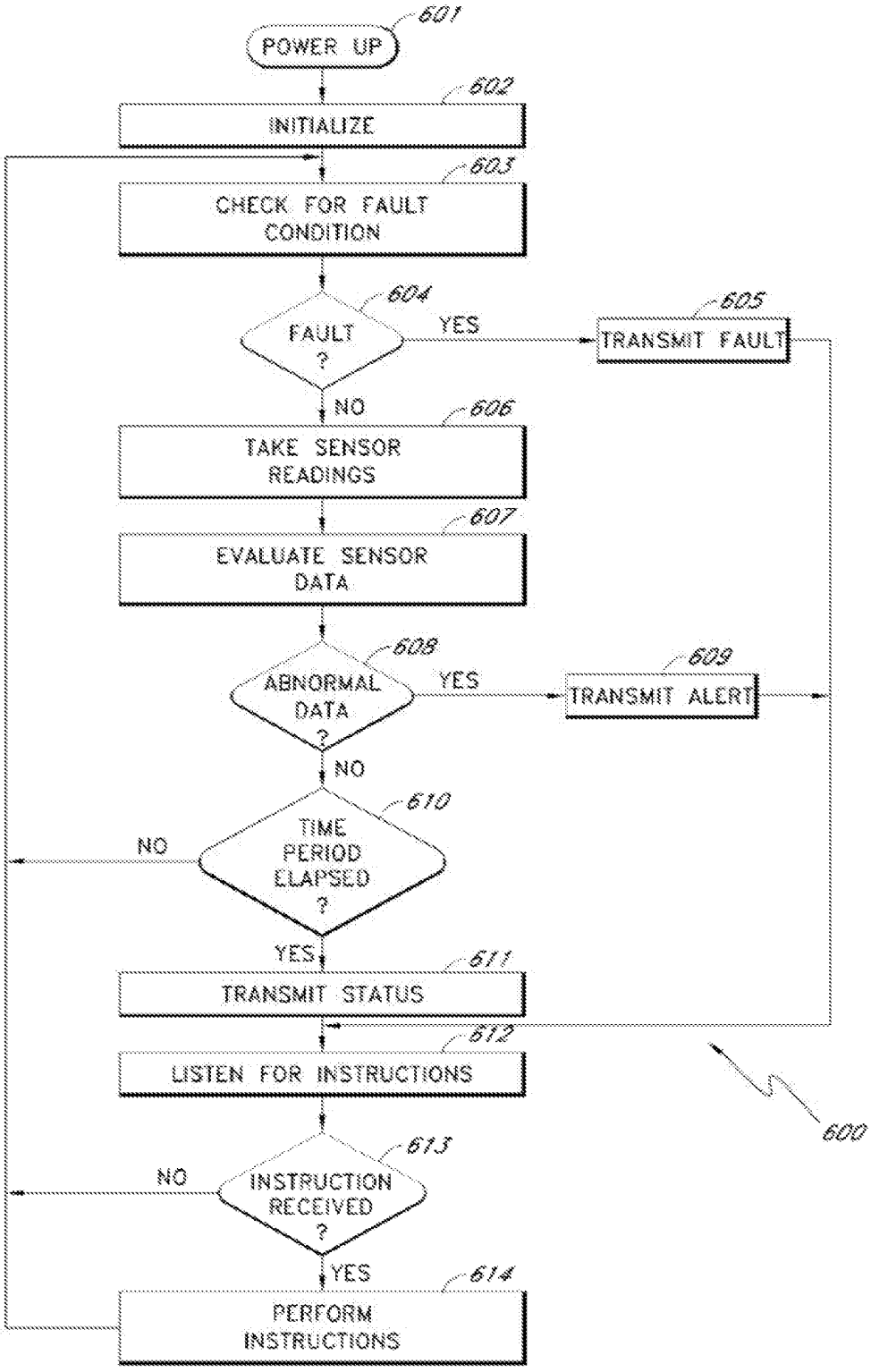
601
POWER UP
602
INITIALIZE
603
CHECK FOR FAULT CONDITION
604
FAULT ?
YES
605
TRANSMIT FAULT
NO
606
TAKE SENSOR READINGS
607
EVALUATE SENSOR DATA
608
ABNORMAL DATA ?
YES
609
TRANSMIT ALERT
NO
610
TIME PERIOD ELAPSED ?
NO
YES
611
TRANSMIT STATUS
612
LISTEN FOR INSTRUCTIONS
613
INSTRUCTION RECEIVED ?
NO
YES
614
PERFORM INSTRUCTIONS
600

FIG. 6

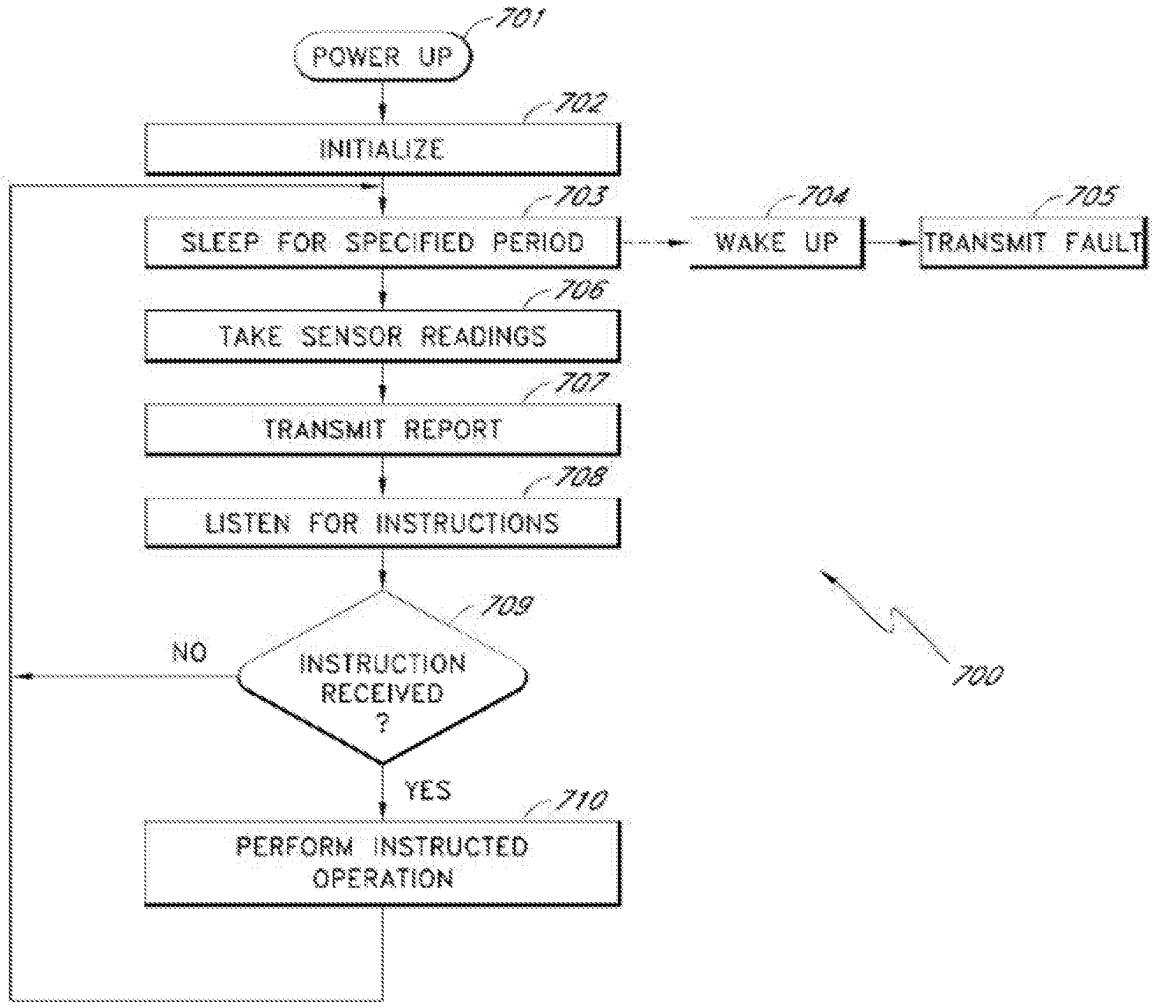
701
POWER UP
702
INITIALIZE
703
SLEEP FOR SPECIFIED PERIOD
704
WAKE UP
705
TRANSMIT FAULT
706
TAKE SENSOR READINGS
707
TRANSMIT REPORT
708
LISTEN FOR INSTRUCTIONS
709
INSTRUCTION RECEIVED ?
NO
YES
710
PERFORM INSTRUCTED OPERATION
700

FIG. 7

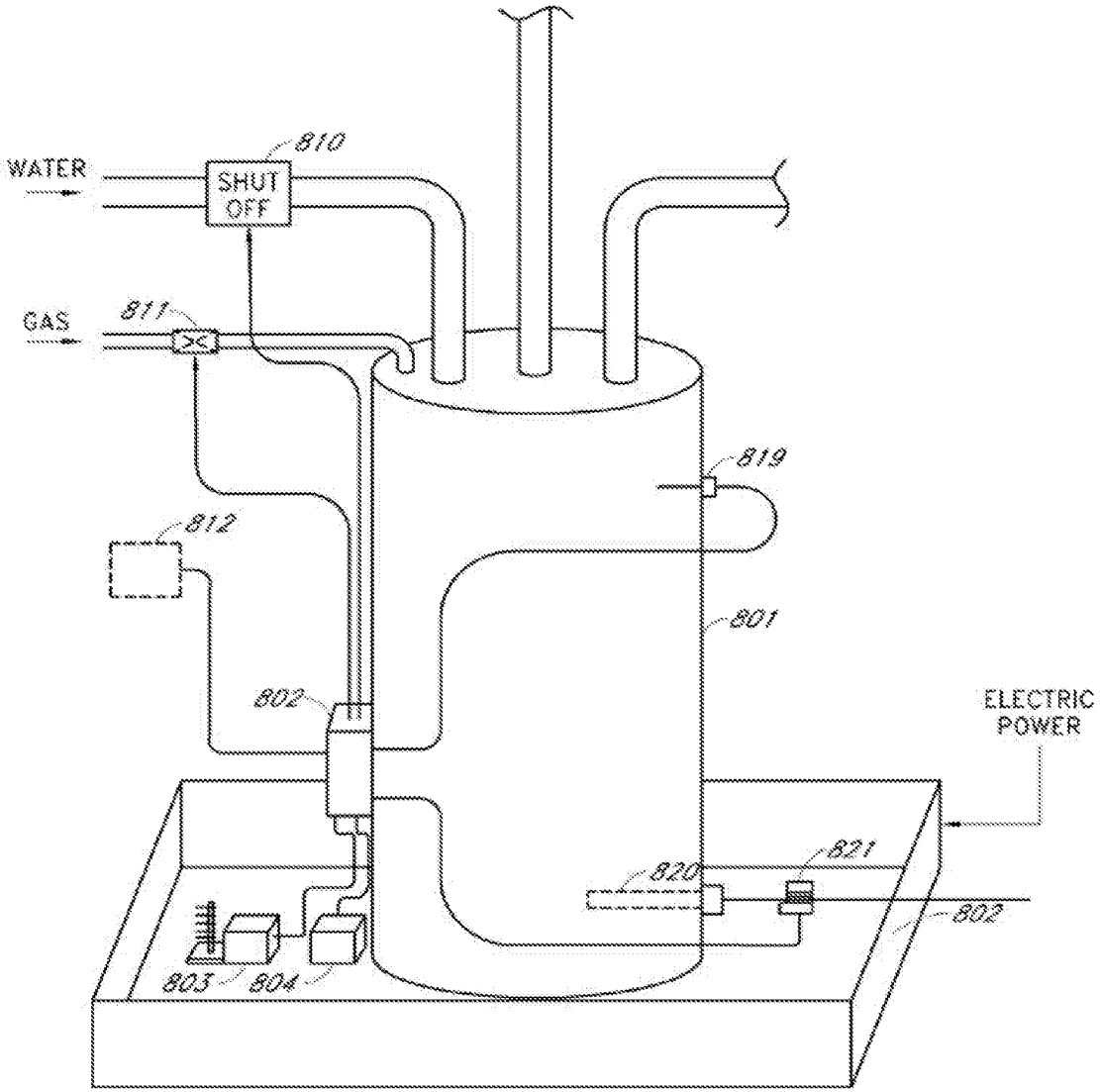
WATER
SHUT OFF
810
GAS
811
819
812
801
802
ELECTRIC POWER
821
820
802
805
804

FIG. 8

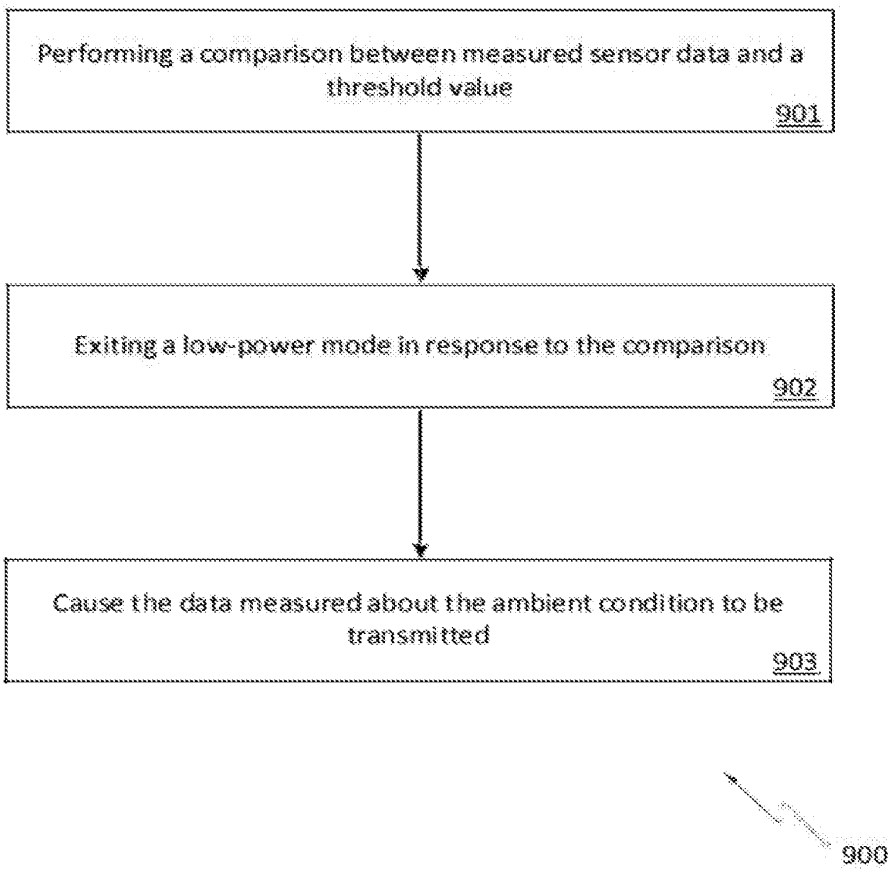
Performing a comparison between measured sensor data and a threshold value
901
Exiting a low-power mode in response to the comparison
902
Cause the data measured about the ambient condition to be transmitted
903
900

FIG. 9

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

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
	Lawrence		Kates	

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

City	State/Province	Country of Residence
Corona Del Mar	CA	US

Mailing Address of Inventor:

Address 1	c/o Google Inc.
Address 2	1600 Amphitheatre Parkway

City	State/Province	Postal Code	Country
Mountain View	CA	94043	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	124746		
Email Address	docket@sbmc-law.com	Add Email	Remove Email

Application Information:

Title of the Invention	Relaying Communications in a Wireless Sensor System		
Attorney Docket Number	563800USCON14	**Small Entity Status Claimed**	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	7	**Suggested Figure for Publication (if any)**	1

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

Filing By Reference:

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

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

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

Publication Information:

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

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

Representative Information:

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

Please Select One:	● Customer Number	US Patent Practitioner	◯ Limited Recognition (37 CFR 11.9)
Customer Number	124746		

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	15090973	2016-04-05

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15090973	Continuation of	14548137	2014-11-19	9318015	2016-04-19
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14548137	Continuation of	14168876	2014-01-30	9357490	2016-05-31
Prior Application Status	Abandoned				Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
14168876	Continuation of	12905248	2010-10-15		
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12905248	Continuation of	12182079	2008-07-29	7817031	2010-10-19
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12182079	Division of	11562313	2006-11-21	7411494	2008-08-12
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11562313	Continuation of	10856231	2004-05-27	7142107	2006-11-28
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.					Add

Foreign Priority Information:

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

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

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.

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

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.

PTO/AIA/14 (11-15)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

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	Google Inc.		
Mailing Address Information For Applicant:			
Address 1	1600 Amphitheatre Parkway		
Address 2			
City	Mountain View	**State/Province**	CA
Country	US	Postal Code	94043
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

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	Google Inc.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	1600 Amphitheatre Parkway		
Address 2			
City	Mountain View	**State/Province**	CA
Country i	US	Postal Code	94043
Phone Number		Fax Number	
Email Address			

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

Signature:

Remove

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

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

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

Signature	/Matthew Johnson/			Date (YYYY-MM-DD)	2017-05-22
First Name	Matthew	Last Name	Johnson	Registration Number	72,299

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

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	563800USCON14
	Application Number	
Title of Invention	Relaying Communications in a Wireless Sensor System	

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.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

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

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

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

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

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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	WIRELESS TRANSCEIVER

As the below named inventor, I hereby declare that:

This declaration is directed to: ☐ The attached application, or

☒ United States application or PCT international application number 14/168,870

filed on January 30, 2014.

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: Lawrence Kates 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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/601,705

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	280
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 80 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 420 =	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	1600

APPLICATION AS AMENDED - PART II

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

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

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

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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
15/601,705	05/22/2017	2685	1600	563800USCON14	20	3

CONFIRMATION NO. 7309

FILING RECEIPT

124746
Wolfe-SBMC
116 W. Pacific Avenue
Suite 300
Spokane, WA 99201

OC000000091780249

Date Mailed: 06/02/2017

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)

Lawrence Kates, Corona Del Mar, CA;

Applicant(s)

Google Inc., Mountain View, CA;

Assignment For Published Patent Application

Google Inc., Mountain View, CA

Power of Attorney: The patent practitioners associated with Customer Number 124746

Domestic Priority data as claimed by applicant

This application is a CON of 15/090,973 04/05/2016
which is a CON of 14/548,137 11/19/2014 PAT 9318015
which is a CON of 14/168,876 01/30/2014 PAT 9357490
which is a CON of 12/905,248 10/15/2010 ABN
which is a CON of 12/182,079 07/29/2008 PAT 7817031
which is a DIV of 11/562,313 11/21/2006 PAT 7411494
which is a CON of 10/856,231 05/27/2004 PAT 7142107

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

If Required, Foreign Filing License Granted: 05/30/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/601,705**

Projected Publication Date: 09/07/2017

Non-Publication Request: No

Early Publication Request: No

Title

Relaying Communications in a Wireless Sensor System

Preliminary Class

340

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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NOT GRANTED

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/601,705	05/22/2017	Lawrence Kates	563800USCON14	7309

124746 7590 06/16/2017

Wolfe-SBMC
116 W. Pacific Avenue
Suite 300
Spokane, WA 99201

EXAMINER	
NWUGO, OJIAKO K	

ART UNIT	PAPER NUMBER
2685	

NOTIFICATION DATE	DELIVERY MODE
06/16/2017	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):

docket@sbmc-law.com

Office Action Summary	Application No. 15/601,705	Applicant(s) KATES, LAWRENCE	
	Examiner OJIAKO NWUGO	Art Unit 2685	AIA (First Inventor to File) 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 *07/22/2017*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *1-20* is/are pending in the application.

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

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-5,8-12 and 15-19* is/are rejected.

8)☒ Claim(s) *6,7,13,14 and 20* is/are objected to.

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

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

Application Papers

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

11)☒ The drawing(s) filed on *5/22/2017* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

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

DETAILED ACTION

Claim Rejections - 35 USC § 103

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

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

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 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.

Claim 1-5,8-12,15-19 is/are rejected under 35 U.S.C. 103 as being unpatentable over Marman US6624750.

Regarding **Claim 1**, Marman discloses A method of bi-directional (two-way transceivers of col.2:30-33) communication within a wireless sensor system comprising: receiving, at a wireless repeater unit (In col. 30:1-4 disclosed are smoke sensors with transceivers to relay messages) , a communication packet including an address portion

that comprises a first code (house code of col. 12:54-63) and a second code(facility code of col. 12:54-63); determining if the first code in the communication packet corresponds to a building code associated with the wireless repeater unit.

Marman fails to explicitly disclose based on the determining that the first code corresponds to the building code associated with the wireless repeater unit, comparing the second code to wireless sensor identifiers in a table of the wireless sensor identifiers stored in the wireless repeater unit; and based on the second code matching a wireless sensor identifier in the table, relaying the communication packet.

However Marman discloses in col.12:60-63 “Every sensor transmits both codes, and the receivers listen for both codes to be correct before decoding the data.”

Therefore, it would have been obvious for one of ordinary skill in the art adapt Marman such that based on the determining that the first code corresponds to the building code associated with the wireless repeater unit, comparing the second code to wireless sensor identifiers in a table of the wireless sensor identifiers stored in the wireless repeater unit; and based on the second code matching a wireless sensor identifier in the table, relaying the communication packet for system to function effectively.

Regarding **Claim 2**, Marman's disclosures in col. 30:1-4 renders obvious wherein the communication packet is received from a wireless sensor unit, and wherein the communication packet is relayed to a base unit associated with the first code.

Regarding **Claim 3**, Marman's disclosures in col. 30:1-4 in view of col.14:1-5 renders obvious wherein the communication packet is received from a base unit, and

wherein the communication packet is relayed to a wireless sensor unit associated with the second code.

Regarding **Claim 4**, Marman's disclosures in col.29:24-27 renders obvious wherein the wireless repeater unit listens to a radio frequency channel before beginning a transmission for the relaying the communication packet on the radio frequency channel.

Regarding **Claim 5**, Marman's disclosures in col.28:12-15,55-57 renders obvious wherein the wireless repeater unit is operable to wirelessly communicate at a frequency in a 900 MHz frequency band as obvious design choice.

Regarding **Claim 8**, it is rejected on similar grounds as **claim 1**.

Regarding **Claim 9**, it is rejected on similar grounds as **claim 2**.

Regarding **Claim 10**, it is rejected on similar grounds as **claim 3**.

Regarding **Claim 11**, it is rejected on similar grounds as **claim 4**.

Regarding **Claim 12**, it is rejected on similar grounds as **claim 5**.

Regarding **Claim 15**, it is rejected on similar grounds as **claim 1**.

Regarding **Claim 16**, Marman's disclosure in col. 12:64-col.13:15 renders obvious further comprising: a base unit associated with the first code; and one or more wireless sensor units; the wireless repeater unit configured to: receive the communication packet from one of the wireless sensor units; and relay the communication packet to the base unit.

Regarding **Claim 17**, Marman's disclosure in col. 30:1-4 in view of col.14:1-5 renders obvious receive an additional communication packet from the base unit; and

relay the additional communication packet to a wireless sensor unit that is associated with the first code and the second code.

Regarding **Claim 18**, Marman's disclosure in figs. 1,2 and col.7:66-col.8:30 renders obvious wherein the base unit, the wireless repeater unit, and the one or more wireless sensor units are disposed about a building structure, and wherein the first code is associated with the building structure.

Regarding **Claim 19**, it is rejected on similar grounds as **claim 4**.

Allowable Subject Matter

Claims 6, 7, 13, 14 and **20** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OJIAKO NWUGO whose telephone number is (571)272-9755. 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, HAI PHAN can be reached on 5712726338. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

/OJIAKO NWUGO/
Primary Examiner, Art Unit 2685

Notice of References Cited	Application/Control No. 15/601,705	Applicant(s)/Patent Under Reexamination KATES, LAWRENCE	
	Examiner OJIAKO NWUGO	Art Unit 2685	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-6,624,750 B1	09-2003	Marman; Douglas H.	G08B25/003	340/4.3
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

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BIB DATA SHEET

CONFIRMATION NO. 7309

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
15/601,705	05/22/2017 RULE	340	2685	563800USCON14

APPLICANTS
Google Inc., Mountain View, CA;

INVENTORS
Lawrence Kates, Corona Del Mar, CA;

**** CONTINUING DATA **************************
This application is a CON of 15/090,973 04/05/2016
which is a CON of 14/548,137 11/19/2014 PAT 9318015
which is a CON of 14/168,876 01/30/2014 PAT 9357490
which is a CON of 12/905,248 10/15/2010 ABN
which is a CON of 12/182,079 07/29/2008 PAT 7817031
which is a DIV of 11/562,313 11/21/2006 PAT 7411494
which is a CON of 10/856,231 05/27/2004 PAT 7142107

**** FOREIGN APPLICATIONS **************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
05/30/2017

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /OJIAKO K NWUGO/ Examiner's Signature	☐ Met after Allowance OKN Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	7	20	3

ADDRESS
Wolfe-SBMC
116 W. Pacific Avenue
Suite 300
Spokane, WA 99201
UNITED STATES

TITLE
Relaying Communications in a Wireless Sensor System

FILING FEE RECEIVED		
1600	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15601705	KATES, LAWRENCE
	Examiner	Art Unit
	OJIAKO NWUGO	2685

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

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

CLAIM		DATE								
Final	Original	06/09/2017								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	O								
	7	O								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	O								
	14	O								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	O								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:03
L2	0	"15601705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:03
L3	0	"15601705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:03
L4	136	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:04
S1	17	(Kates near3 lawrence).inv. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:35
S2	11	(Kates near3 lawrence).inv. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:36
S3	1	("20140203943" "20110025501" "20080278316" "20070090946" "20050275528").pn. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:43
S4	232	(sensor$1 detector$1) and (low near	US-PGPUB;	OR	OFF	2015/02/20

		power near3 mode with (transmit transmission)) and @ad<="20040527"	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			15:45
S5	10	(sensor$1 detector$1) and (low near power near3 mode with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:46
S6	0	(09/194809).APP.	US-PGPUB; USOCR	OR	OFF	2015/02/20 15:48
S7	31	(sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:50
S8	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:05
S9	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:06
S10	137	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:07
S11	129	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:07
S12	8	Gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:15
S13	7	ambient with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2015/02/20 16:17

			JPO; DERWENT; IBM_TDB			
S14	87	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:18
S15	1	gas with (sensor$1 detector$1) with (((low near power near3 mode) (sleep)) with (transmit transmission)) and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:18
S16	76	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:19
S17	1	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:44
S18	51	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:44
S19	5	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and (sensor detector) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:45
S20	100	(sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and (sensor detector) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:47
S21	4	(sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with (sensor detector) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:47
S22	249	Gas with (sensor$1 detector$1) with (address identifier identity) and	US-PGPUB; USPAT;	OR	OFF	2015/02/20 16:52

		@ad<="20040527" not (kates near3 lawrence).inv.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S23	1	Gas with (sensor$1 detector$1) with (address identifier identity) with (transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:52
S24	834	(sensor$1 detector$1) with (address identifier identity) with (transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:53
S25	0	(ambient enviromental) with (sensor$1 detector$1) with (address identifier identity) with (transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:53
S26	30	wireless with (sensor$1 detector$1) with (address identifier identity) with (transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:54
S27	0	wireless with (sensor$1 detector$1) with (address identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:23
S28	198	(sensor$1 detector$1) with (address identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:23
S29	58	wireless and (sensor$1 detector$1) with (address identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:23
S30	19	wireless and (sensor$1 detector$1) with (identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:24

S31	48	(sensor$1 detector$1) with (identifier identity adress) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:31
S32	8	(sensor$1 detector$1) with (identifier identity adress) with (installation (set$1up)) with (controller processor micro$1processor) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:32
S33	451	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (tranceiver transmitter receiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:53
S34	217	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (tranceiver transmitter) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:54
S35	0	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (tranceiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:54
S36	65	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (transceiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:54
S37	0	(Gas oxygen carbon) with (sensor$1 detector$1) with (sleep stand$1by low$1power) with (transceiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:56
S38	0	(09/831425).APP.	US-PGPUB; USOCR	OR	OFF	2015/02/22 11:25
S39	10	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (transceiver) and tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:26
S40	0	(sensor$1 detector$1) and (sleep stand$1by low$1power) with (transceiver) with tamper$3 and	US-PGPUB; USPAT; USOCR;	OR	OFF	2015/02/22 12:29

		@ad<="20040527" not (kates near3 lawrence).inv.	FPRS; EPO; JPO; DERWENT; IBM_TDB			
S41	0	(sleep stand$1by low$1power) with (transceiver) with tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:29
S42	47	(sensor$1 detector$1) and (sleep stand$1by low$1power) with tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:29
S43	9	(sensor$1 detector$1) with (sleep stand$1by low$1power) with tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:29
S44	4	network with routing near3 table and @ad<="20040527" and (Gutierrez).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 17:16
S45	317	(sensor$1 detector$1) with (message signal) with authentication and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 17:20
S46	37	(sensor$1 detector$1) with (message) with authentication and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 17:21
S47	2301	alarm with transmi$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/05/07 12:22
S48	4652	alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/05/07 12:23
S49	1020	"340"/$.ccls. and alarm with transmit$3	US-PGPUB;	OR	OFF	2015/05/07

		with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			12:23
S50	84	"340"/573.1.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/05/07 12:50
S51	11	(low near power near3 mode with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:53
S52	12	(low near3 power near3 mode with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:53
S53	385	((low near3 power near3 mode)(sleep) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:54
S54	366	((low near3 power near3 mode)(sleep with power) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:54
S55	366	((low near3 power near3 mode)(sleep with power) with (transmit$1 transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:54
S56	368	((low near3 power near3 mode)(sleep with power) with (transmit$3 transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:55
S57	26	(((low near3 power near3 mode)(sleep with power)) with (transmit$3 transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2015/08/26 12:57

			IBM_TDB			
S58	22	(sensor$1 detector$1) with (message) with checksum and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 14:03
S59	2	"US 20140118109"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2015/08/26 14:25
S60	2	"US 20150070192"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2015/08/26 14:25
S61	4	(sensor$1 detector$1) with (message) with checksum and encryp$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 15:17
S62	2	((wireless remote) near3 (sensor$1 detector$1)) and (message) with checksum with encrypt$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 15:19
S63	84	"340"/573.1.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 17:24
S64	138	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 17:24
S65	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:39
S66	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:40
S67	0	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) with	US-PGPUB; USPAT;	OR	OFF	2015/12/03 16:56

		ambient with power with encrypted and @ad<="20040527" not (kates near3 lawrence).inv.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S68	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and alarm with transmit$3 with (data measure$4) with ambient with power with encrypted and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:56
S69	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and alarm with transmit$3 with (data measure$4) with ambient with power with encrypted and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:58
S70	235	(("Kates") near2 ("Lawrence")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2015/12/03 17:00
S75	1	"2004164855".pn.	US-PGPUB; USPAT; USOCR; JPO; IBM_TDB	OR	OFF	2016/11/03 10:55
S76	1	"20040164855".pn.	US-PGPUB; USPAT; USOCR; JPO; IBM_TDB	OR	OFF	2016/11/03 10:55
S77	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:56
S78	131	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:56
S79	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:56
S80	4740	alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:57
S81	259	(("Kates") near2 ("Lawrence")).INV.	US-PGPUB; USPAT;	OR	OFF	2017/02/27 12:34

			USOCR			
S82	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/02/27 12:34
S83	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/02/27 12:34
S88	31	(sensor$1 detector$1) and ((low near power near3 mode) (sleep)) with (transmit transmission) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 11:18
S89	0	(sensor$1 detector$1) with (message) with checksum with authent$4 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 15:02
S90	0	(message) with checksum with authent$4 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 15:02

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S71	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:57
S72	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:58
S73	0	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:58
S74	0	340/$.ccls. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:59
S84	78	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:35

S85	1	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:36
S86	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and (alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:37
S87	11	(alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:49

6/9/2017 6:12:32 PM
C:\Users\onwugo\Documents\EAST\Workspaces\15601705.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15601705	KATES, LAWRENCE
	Examiner	Art Unit
	OJIAKO NWUGO	2685

CPC- SEARCHED		
Symbol	Date	Examiner
G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10	6/9/2017	O.N.

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
340			

SEARCH NOTES		
Search Notes	Date	Examiner
G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10 with text	6/9/2017	O.N.
340/573.1,870.39 with text	6/9/2017	O.N.
See attached search history	6/9/2017	O.N.

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

	/OJIAKO NWUGO/ Primary Examiner.Art Unit 2685

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Courtesy Reminder for
Application Serial No: 15/601,705

Attorney Docket No: 563800USCON14
Customer Number: 124746
Date of Electronic Notification: 06/16/2017

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PTO/AIA/82A (07-13)
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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15/601,705
Filing Date	May 22, 2017
First Named Inventor	Lawrence Kates
Title	Relaying Communications in a Wireless Sensor System
Art Unit	2685
Examiner Name	Ojiako K. Nwugo
Attorney Docket Number	563800USCON14

SIGNATURE of Applicant or Patent Practitioner

Signature	/Matthew Johnson/	Date (Optional)	July 10, 2017
Name	Matthew Johnson	Registration Number	72299
Title (if Applicant is a juristic entity)	Attorney of Record		
Applicant Name (if Applicant is a juristic entity)	Google Inc.		

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

☑ *Total of 1 forms are submitted.

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

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

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

PTO/AIA/82B (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date

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

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 149118

OR

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

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

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

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

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

Google Inc.

☐ 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	Allen Lo		
Title	Deputy General Counsel & Assistant Secretary of Google Inc.		

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

☐ Total of forms are submitted.

Electronic Acknowledgement Receipt

EFS ID:	29734622
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	124746
Filer:	Michael K. Colby/Todd Richards
Filer Authorized By:	Michael K. Colby
Attorney Docket Number:	563800USCON14
Receipt Date:	10-JUL-2017
Filing Date:	22-MAY-2017
Time Stamp:	15:52:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	GP-5638-00-US-CON14_POA.pdf	752580 7288af8d42aca6cbeee06b0fb442c52c68491c6e	no	2

Warnings:

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing	
Information:	
Total Files Size (in bytes):	752580

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/601,705	05/22/2017	Lawrence Kates	563800USCON14

CONFIRMATION NO. 7309

124746
Wolfe-SBMC
116 W. Pacific Avenue
Suite 300
Spokane, WA 99201

POWER OF ATTORNEY NOTICE

OC00000092708788

Date Mailed: 07/12/2017

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/10/2017.

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

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

/kxaysana/

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
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/601,705	05/22/2017	Lawrence Kates	563800USCON14

CONFIRMATION NO. 7309

149118
Colby Nipper / Google
291 East Shore Drive
Suite 200
Eagle, ID 83616

POA ACCEPTANCE LETTER

OC000000092708809

Date Mailed: 07/12/2017

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/10/2017.

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

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

/kxaysana/

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
15/601,705	05/22/2017	Lawrence Kates	563800USCON14

CONFIRMATION NO. 7309

149118
Colby Nipper / Google
291 East Shore Drive
Suite 200
Eagle, ID 83616

PUBLICATION NOTICE

OC000000093913764

Title: Relaying Communications in a Wireless Sensor System

Publication No.US-2017-0257826-A1
Publication Date:09/07/2017

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Lawrence Kates	APPLICATION NO.:	15/601,705
EXAMINER:	Ojiako K. Nwugo	CONFIRMATION NO.:	7309
DATE FILED:	May 22, 2017	GROUP ART UNIT:	2685
TITLE:	Relaying Communications in a Wireless Sensor System		

RESPONSE TO OFFICE ACTION DATED JUNE 16, 2017

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

LIST OF CLAIMS

This list of claims replaces all prior versions and listings.

1. (Currently Amended) A method of bi-directional communication within a wireless sensor system comprising:

receiving, at a wireless repeater unit, a communication packet including an address portion that comprises a first code, [[and]] a second code, a checksum, and an authenticity code for use in verifying an authenticity of the communication packet;

determining if the first code in the communication packet corresponds to a building code associated with the wireless repeater unit;

based on the determining that the first code corresponds to the building code associated with the wireless repeater unit, comparing the second code to wireless sensor identifiers in a table of the wireless sensor identifiers stored in the wireless repeater unit; and

based on the second code matching a wireless sensor identifier in the table, relaying the communication packet.

2. (Original) The method of claim 1, wherein the communication packet is received from a wireless sensor unit, and wherein the communication packet is relayed to a base unit associated with the first code.

3. (Original) The method of claim 1, wherein the communication packet is received from a base unit, and wherein the communication packet is relayed to a wireless sensor unit associated with the second code.

4. (Original) The method of claim 1, wherein the wireless repeater unit listens to a radio frequency channel before beginning a transmission for the relaying the communication packet on the radio frequency channel.

5. (Original) The method of claim 1, wherein the wireless repeater unit is operable to wirelessly communicate at a frequency in a 900 MHz frequency band.

6. (Canceled)

7. (Currently Amended) The method of claim [[6]] 1, wherein the communication packet is encrypted.

8. (Currently Amended) A wireless repeater device comprising:

a wireless transceiver configured to receive a communication packet including an address portion that comprises a first code, [[and]] a second code, a checksum, and an authenticity code for use in verifying an authenticity of the communication packet; and

a controller, comprising a table of wireless sensor identifiers, the controller configured to:

determine if the first code in the communication packet corresponds to a building code associated with the wireless repeater device;

based on the determination that the first code corresponds to the building code associated with the wireless repeater device, compare the second code to the wireless sensor identifiers in the table; and

based on the second code matching to a wireless sensor identifier in the table, relay the communication packet using the wireless transceiver.

9. (Original) The wireless repeater device of claim 8, wherein the communication packet is received from a wireless sensor unit, and wherein the communication packet is relayed to a base unit associated with the first code.

10. (Original) The wireless repeater device of claim 8, wherein the communication packet is received from a base unit, and wherein the communication packet is relayed to a wireless sensor unit associated with the second code.

11. (Original) The wireless repeater device of claim 8, wherein the controller is configured to:

listen to a radio frequency channel, using the wireless transceiver, before beginning a transmission to said relay the communication packet on the radio frequency channel.

12. (Original) The wireless repeater device of claim 8, wherein the wireless transceiver is operable to wirelessly communicate at a frequency in a 900 MHz frequency band.

13. (Canceled)

14. (Currently Amended) The wireless repeater device of claim [[13]] 8, wherein the communication packet is encrypted.

15. (Currently Amended) A wireless sensor system comprising:

a wireless repeater unit comprising a table of wireless sensor identifiers, the wireless repeater unit configured to:

receive a communication packet including an address portion that comprises a first code, [[and]] a second code, a checksum, and an authenticity code for use in verifying an authenticity of the communication packet;

determine if the first code in the communication packet corresponds to a building code associated with the wireless sensor system;

based on the determination that the first code corresponds to the building code associated with the wireless sensor system, compare the second code to the wireless sensor identifiers in the table; and

based on the comparison matching the second code to a wireless sensor identifier in the table, relay the communication packet.

16. (Original) The wireless sensor system of claim 15, further comprising:

a base unit associated with the first code; and

one or more wireless sensor units;

the wireless repeater unit configured to:

receive the communication packet from one of the wireless sensor units; and

relay the communication packet to the base unit.

17. (Original) The wireless sensor system of claim 16, wherein the wireless repeater unit is configured to:

receive an additional communication packet from the base unit; and

relay the additional communication packet to a wireless sensor unit that is associated with the first code and the second code.

18. (Original) The wireless sensor system of claim 16, wherein the base unit, the wireless repeater unit, and the one or more wireless sensor units are disposed about a building structure, and wherein the first code is associated with the building structure.

19. (Original) The wireless sensor system of claim 15, wherein the wireless repeater unit is configured to listen to a radio frequency channel before beginning a transmission to said relay the communication packet on the radio frequency channel.

20. (Currently Amended) The wireless sensor system of claim 15, ~~wherein the communication packet further includes a checksum and an authenticity code for use in verifying an authenticity of the communication packet, and~~ wherein the communication packet is encrypted.

21. (New) The wireless sensor system of clam 16, wherein the one or more sensor units are configured to sense humidity, carbon monoxide, smoke, or any combination thereof.

22. (New) The method of claim 2, wherein the wireless sensor unit is configured to sense humidity, carbon monoxide, smoke, or any combination thereof.

REMARKS

Applicant respectfully requests reconsideration and allowance of the application. Claims 1-5, 7-12, and 14-22 are pending, of which claims 1, 7, 8, 14, 15, and 20 are amended, and claims 21 and 22 are new. No new matter is added. Claims 6 and 13 are canceled without prejudice, waiver, or disclaimer of the subject matter.

§ 103 Claim Rejections

Claims 1-5, 8-12, and 15-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,624,750 to Marman et al. ("Marman"). (*Office Action*, p. 2).

Applicant makes no representation that cited references are prior art. This response and any remarks, comments, or amendments included herein are not intended to be, and are not interpreted to be, an admission that the cited references are prior art or that the rejections are proper or conceded. Applicant reserves the right to dispose of any cited references under 35 U.S.C. § 103.

Allowable Subject Matter

Claims 6, 7, 13, 14, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant thanks the Office for the indication of allowable subject matter.

The claims have been amended to place them in condition for allowance. Specifically, subject matter of claim 6 has been amended into independent claim 1. Subject matter of claim 13 has been amended into independent claim 8. Subject matter of claim 20 has been amended into independent claim 14. Claims 21 and 22 are new and are allowable as depending from an allowable base claim.

The references of record do not disclose, teach, or suggest the subject matter of claims 1-5, 7-12, and 14-22. Accordingly, claims 1-5, 7-12, and 14-22 are in condition for allowance.

Conclusion

Applicant respectfully requests that the Office issue a Notice of Allowability. If the Office's next anticipated action is to be anything other than issuance of a Notice of Allowability, Applicant respectfully requests a telephone call for the purpose of scheduling an interview.

Respectfully submitted,

Dated: September 15, 2017 By: /Matthew Johnson/

Matthew Johnson
Reg. No. 72,299
(509) 990-9959

Electronic Acknowledgement Receipt	
EFS ID:	30383194
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	149118
Filer:	Michael K. Colby/Todd Richards
Filer Authorized By:	Michael K. Colby
Attorney Docket Number:	563800USCON14
Receipt Date:	15-SEP-2017
Filing Date:	22-MAY-2017
Time Stamp:	17:52:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		563800USCON14_Response_to_Non_Final_Office_Action.pdf	102201 cd9b1f7a925bcee4f2972a78bab93267d93b4b0c	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	9
Warnings:			
Information:			
	Total Files Size (in bytes):	102201	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/601,705	Filing Date 05/22/2017	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☒ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	280
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	280

APPLICATION AS AMENDED – PART II

AMENDMENT 09/15/2017

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $80 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $420 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

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

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

LIE
GLORIA J. TRAMMELL

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	2101637		1937-12-07	DAVIS	
	2	2233297		1941-02-25	POLIN, et al.	
	3	3805265		1974-04-16	LESTER	
	4	4056780		1977-11-01	FAULKNER	
	5	4061442		1977-12-06	CLARK, et al.	
	6	4099168		1978-07-04	KEDJIERSKI, et al.	
	7	4136823		1979-01-30	KULLBERG	
	8	4165024		1979-08-21	OSWALT, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	9	4226533		1980-10-07	SNOWMAN	
	10	4266220		1981-05-05	MALINSOWSKI	
	11	4400694		1983-08-23	WONG, et al.	
	12	4420746		1983-12-13	MALINOWSKI	
	13	4437336		1984-03-20	ABE	
	14	4455553		1984-06-19	JOHNSON	
	15	4514720		1985-04-30	OBERSTEIN, et al.	
	16	4535450		1985-08-13	TAN	
	17	4543570		1985-09-24	BRESSETT, et al.	
	18	4556873		1985-12-03	YAMADA, et al.	
	19	4613990		1986-09-23	HALPEM	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	20	4652859		1987-03-24	VAN WIENEN	
	21	4661804		1987-04-28	ABEL	
	22	4670739		1987-06-02	KELLY	
	23	4675661		1987-06-23	ISHII	
	24	4679742		1987-07-04	ELLIS	
	25	4680583		1987-07-14	GROVER	
	26	4688244		1987-08-18	HANNON, et al.	
	27	4692742		1987-09-08	RAIZEN, et al.	
	28	4692750		1987-09-08	MURAKAMI, et al.	
	29	4727359		1988-02-23	YUCHI, et al.	
	30	4750197		1988-06-07	DENEKAMP, et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	31	4772876		1988-09-20	LAUD	
	32	4801856		1989-01-31	WAJIMA	
	33	4801865		1989-01-31	MILLER, et al.	
	34	4802240		1989-01-31	YAMAGUCHI, et al.	
	35	4811011		1989-03-07	SOLLINGER	
	36	4817131		1989-03-28	THORNBOROUGH, et al.	
	37	4817537		1989-04-04	CRIPE, et al.	
	38	4827244		1989-05-02	BELLAVIA, et al.	
	39	4857895		1989-08-15	KAPRELIAN	
	40	4862514		1989-08-29	KEDJIERSKI	
	41	4871999		1989-10-03	ISHII, et al.	

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	42	4901316		1990-02-13	IGARASHI, et al.	
	43	4916432		1990-04-10	TICE, et al.	
	44	4918690		1990-04-17	MARKKULA, JR, et al.	
	45	4939504		1990-07-03	MILLER	
	46	4951029		1990-08-21	SEVERSON	
	47	4964121		1990-10-16	MOORE	
	48	4977527		1990-12-11	SHAW, et al.	
	49	4996518		1991-02-26	TAKAHASHI, et al.	
	50	5040238		1991-08-13	COMROE, et al.	
	51	5054052		1991-10-01	NONAMI	
	52	5107446		1992-04-21	SHAW, et al.	

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	53	5117501		1992-05-26	CHILDRESS, et al.	
	54	5129096		1992-07-07	BURNS	
	55	5134644		1992-07-28	GARTON, et al.	
	56	5138562		1992-08-11	SHAW, et al.	
	57	5151683		1992-09-29	TAKAHASHI, et al.	
	58	5159315		1992-10-27	TAKAHASHI, et al.	
	59	5168262		1992-12-01	OKAYAMA	
	60	5188143		1993-02-23	KREBS	
	61	5201061		1993-04-06	GOLDBERG, et al.	
	62	5210540		1993-05-11	MASUMOTO	
	63	5224648		1993-07-06	SIMON, et al.	

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	64	5229750		1993-07-20	WELCH, et al.	
	65	5240022		1993-08-31	FRANKLIN	
	66	5260687		1993-11-09	YAMAUCHI, et al.	
	67	5265025		1993-11-23	HIRATA	
	68	5400254		1993-11-23	HIRATA	
	69	5267180		1993-11-30	OKAYAMA	
	70	5281951		1994-01-25	OKAYAMA	
	71	5295154		1994-03-15	MEIER, et al.	
	72	5315291		1994-05-24	FURR	
	73	5319698		1994-06-07	GLIDEWELL, et al.	
	74	5331637		1994-07-19	FRANCIS, et al.	

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	75	5335186		1994-08-02	TARRANT	
	76	5345224		1994-09-06	BROWN	
	77	5355518		1994-10-11	KINDINGER, et al.	
	78	5357241		1994-10-18	WELCH	
	79	5369784		1994-11-29	NELSON	
	80	5400246		1995-03-21	WILSON, et al.	
	81	5408223		1995-04-18	GUILLEMOT	
	82	5424720		1995-06-13	KIRKPATRICK	
	83	5425051		1995-06-13	MAHANY	
	84	5428964		1995-07-04	LOBDELL	
	85	5430433		1995-07-04	SHIMA	

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	86	5432500		1995-07-11	SCRIPPS	
	87	5442758		1995-08-15	SLINGWINE, et al.	
	88	5511232		1996-04-23	O'DEA, et al.	
	89	5530433		1996-06-25	MORITA	
	90	5540092		1996-07-30	HANDFIELD, et al.	
	91	5564626		1996-10-15	KETTLER, et al.	
	92	5565852		1996-10-15	PETLIER, et al.	
	93	5565858		1996-10-15	GUTHRIE	
	94	5568121		1996-10-22	LAMENSDORF	
	95	5574435		1996-11-12	MOCHIZUKI	
	96	5579306		1996-11-26	DENT	

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	97	5590409		1996-12-31	SAWAHASHI, et al.	
	98	5596652		1997-01-21	PIATEK, et al.	
	99	5604892		1997-02-18	NUTTALL, et al.	
	100	5606313		1997-02-25	ALLEN, et al.	
	101	5627515		1997-05-06	ANDERSON	
	102	5640151		1997-06-17	REIS, et al.	
	103	5652751		1997-07-29	SHARONY	
	104	5655561		1997-08-12	WENDEL, et al.	
	105	5682379		1997-10-28	MAHANY, et al.	
	106	5686902		1997-11-11	REIS, et al.	
	107	5719556		1998-02-17	ALBIN, et al.	

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	108	5723848		1998-03-03	BILENKO, et al.	
	109	5732007		1998-03-24	GRUSHIN, et al.	
	110	5732077		1998-03-24	WHITEHEAD	
	111	5736928		1998-04-07	TICE, et al.	
	112	5478092		1998-05-05	ARSENAULT, et al.	
	113	5748092		1998-05-05	ARSENAULT, et al.	
	114	5761195		1998-06-02	LU, et al.	
	115	5790946		1998-08-04	ROTZOLL	
	116	5793882		1998-08-11	PIATEK, et al.	
	117	5802274		1998-09-01	DORAK, et al.	
	118	5833910		1998-11-10	TEIXIDO	

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	119	5854994		1998-12-29	CANADA, et al.	
	120	5859536		1999-01-12	STOCKTON	
	121	5862803		1999-01-26	BESSON	
	122	5881951		1999-03-16	CARPENTER	
	123	5889468		1999-03-30	BANGA	
	124	5890054		1999-03-30	LODGSON, et al.	
	125	5892441		1999-04-06	WOOLLEY, et al.	
	126	5892758		1999-04-06	ARGYROUDIS	
	127	5898374		1999-04-27	SCHEPKA	
	128	5907491		1999-05-25	CANADA, et al.	
	129	5913180		1999-06-15	RYAN	

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	130	5914656		1999-06-22	OJALA, et al.	
	131	5917423		1999-06-29	DUVALL	
	132	5917433		1999-06-29	KEILLOR, et al.	
	133	5923102		1999-07-13	KOENIG, et al.	
	134	5939982		1999-08-17	GAGNON, et al.	
	135	5943610		1999-08-24	ENDO	
	136	5949332		1999-09-07	KIM	
	137	5950124		1999-09-07	TROMPOWER, et al.	
	138	5959529		1999-09-28	KAIL	
	139	5959568		1999-09-28	WOOLLEY	
	140	5966079		1999-10-12	TANGUAY	

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	141	5973603		1999-10-26	JUDY	
	142	5974236		1999-10-26	SHERMAN	
	143	5977913		1999-11-02	CHRIST	
	144	6005884		1999-12-21	COOK, et al.	
	145	6006100		1999-12-21	KOENCK, et al.	
	146	6025788		2000-02-02	DIDUCK	
	147	6023476		2000-02-08	LO	
	148	6031455		2000-02-29	GRUBE, et al.	
	149	6046675		2000-04-04	HANNA	
	150	6049273		2000-04-11	HESS	
	151	6060994		2000-05-09	CHEN	

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	152	6072784		2000-06-06	AGRAWAL, et al.	
	153	6075451		2000-06-13	LEBOWITZ, et al.	
	154	6078050		2000-06-20	CASTLEMAN	
	155	6078269		2000-06-20	MARKWELL, et al.	
	156	6078785		2000-06-20	BUSH	
	157	6078789		2000-06-20	BODENMANN, et al.	
	158	6084522		2000-07-04	ADDY	
	159	6091724		2000-07-18	CHANDRA, et al.	
	160	6097288		2000-08-01	KOEPPE, JR	
	161	6097707		2000-08-01	HODZIC, et al.	
	162	6104512		2000-08-15	BATEY, et al.	

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	163	6108544		2000-08-22	DORENBOSCH, et al.	
	164	6108614		2000-08-22	LINCOLN, et al.	
	165	6111511		2000-08-29	SIVATHANU, et al.	
	166	6118988		2000-09-12	CHOI	
	167	6124806		2000-09-26	CUNNINGHAM, et al.	
	168	6125306		2000-09-26	SHIMADA, et al.	
	169	6127928		2000-10-03	ISSACMAN	
	170	6127976		2000-10-03	BOYD, et al.	
	171	6134587		2000-10-17	OKANOUE	
	172	6134589		2000-10-17	HULTGREN	
	173	6154658		2000-11-28	CACI	

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	174	6157307		2000-12-05	HARDIN	
	175	6175310		2001-01-16	GOTT	
	176	6192400		2001-02-20	HANSON, et al.	
	177	6198913		2001-03-06	SUNG, et al.	
	178	6201974		2001-03-13	LIETSALMI, et al.	
	179	6208247		2001-03-27	AGRE, et al.	
	180	6215404		2001-04-10	MORALES	
	181	6225894		2001-05-01	KYRTSOS	
	182	6239690		2001-05-29	BURBIDGE, et al.	
	183	6246882		2001-06-12	LACHANCE	
	184	6256303		2001-07-03	DRAKOULIS, et al.	

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	185	6281840		2001-08-28	MIYOSHI, et al.	
	186	6313646		2001-11-06	DAVIS, et al.	
	187	6313745		2001-11-06	SUZUKI	
	188	6320501		2001-11-20	TICE, et al.	
	189	6354493		2002-03-12	MON	
	190	6360169		2002-03-19	DUDANEY	
	191	6366217		2002-04-02	CUNNINGHAM, et al.	
	192	6369714		2002-04-09	WALTER	
	193	6377181		2002-04-23	KROLL, et al.	
	194	6380860		2002-04-30	GOETZ	
	195	6381467		2002-04-30	HILL, et al.	

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	196	6388399		2002-05-14	ECKEL, et al.	
	197	6404082		2002-06-11	RASINSKI, et al.	
	198	6405102		2002-06-11	SWARTZ, et al.	
	199	6409082		2002-06-25	DAVIS, et al.	
	200	6418299		2002-07-09	RAMANATHAN	
	201	6420973		2002-07-16	ACEVEDO	
	202	6421539		2002-07-16	JEONG	
	203	6421731		2002-07-16	CIOTTI, et al.	
	204	6424260		2002-07-23	MALONEY	
	205	6424264		2002-07-23	GIRALDIN, et al.	
	206	6427913		2002-08-06	MALONEY	

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	207	6437692		2002-08-20	PETITE, et al.	
	208	6441731		2002-08-27	HESS	
	209	6445292		2002-09-03	JEN, et al.	
	210	6452493		2002-09-17	MA, et al.	
	211	6453687		2002-09-24	SHAROOD, et al.	
	212	6473607		2002-10-29	SHOHARA, et al.	
	213	6476708		2002-11-05	JOHNSON	
	214	6480149		2002-11-12	TWITCHELL	
	215	6481222		2002-11-19	DENNISTON	
	216	6489895		2002-12-03	APELMAN	
	217	6512478		2003-01-28	CHIEN	

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	218	6515283		2003-02-04	CASTLEMAN, et al.	
	219	6519509		2003-02-11	NIERLICH, et al.	
	220	6526807		2003-03-04	DOUMIT, et al.	
	221	6529142		2003-03-04	YEH, et al.	
	222	6535110		2003-03-18	ARORA, et al.	
	223	6542114		2003-04-04	EAGLESON, et al.	
	224	6547137		2003-04-15	BEGELFER, et al.	
	225	6552647		2003-04-22	THIESEN, et al.	
	226	6553336		2003-04-22	JOHNSON, et al.	
	227	6559620		2003-05-06	ZHOU, et al.	
	228	6583720		2003-06-24	QUIGLEY	

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	229	6587755		2003-07-01	SMITH, et al.	
	230	6600418		2003-07-29	FRANCIS, et al.	
	231	6601016		2003-07-29	BROWN	
	232	6611556		2003-08-26	KOENER, et al.	
	233	6614349		2003-09-02	PROCTOR, et al.	
	234	6615658		2003-09-09	SNELLING	
	235	6617962		2003-09-09	HORWITZ, et al.	
	236	6619055		2003-09-16	ADDY	
	237	6624750		2003-09-23	MARMAN, et al.	
	238	6628835		2003-09-30	BRILL, et al.	
	239	6639517		2003-10-28	CHAPMAN, et al.	

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	240	6665585		2003-12-16	KAWASE	
	241	6666086		2003-12-23	COLMAN, et al.	
	242	6679400		2004-01-20	GOODMAN	
	243	6690657		2004-02-10	LAU, et al.	
	244	6693907		2004-02-17	WESLEY, et al.	
	245	6700533		2004-03-02	WERB, et al.	
	246	6800533		2004-03-02	WERB	
	247	6704681		2004-03-09	NASSOF, et al.	
	248	6714977		2004-03-30	FOWLER, et al.	
	249	6717507		2004-04-06	BAYLEY, et al.	
	250	6720888		2004-04-13	EAGLESON, et al.	

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	251	6731215		2004-05-04	HARMS, et al.	
	252	6735630		2004-05-11	GELVIN, et al.	
	253	6737974		2004-05-18	DICKINSON	
	254	6744740		2004-06-01	CHEN	
	255	6745027		2004-06-01	TWITCHELL, et al.	
	256	6747558		2004-06-08	THORNE, et al.	
	257	6747562		2004-06-08	GIRALDIN, et al.	
	258	6748804		2004-06-15	LISEC, et al.	
	259	6753775		2004-06-22	AUERBACH, et al.	
	260	6759956		2004-07-06	MENARD, et al.	
	261	6760578		2004-07-06	ROTZOLL	

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	262	6761312		2004-07-13	PIATEK, et al.	
	263	6765484		2004-07-20	EAGLESON, et al.	
	264	6789220		2004-09-07	LOVEJOY	
	265	6789739		2004-09-14	ROSEN	
	266	6796187		2004-09-28	SRINIVASAN, et al.	
	267	6798220		2004-09-28	FLANIGAN, et al.	
	268	6799210		2004-09-28	GENTRY, et al.	
	269	6803728		2004-10-12	BALASUBRAMANIAM, et al.	
	270	6825777		2004-11-01	VOCK, et al.	
	271	6816063		2004-11-09	KUBLER, et al.	
	272	6825758		2004-11-30	LAITSAARI	

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	273	6826948		2004-12-07	BHATTI, et al.	
	274	6847892		2005-01-25	ZHOU	
	275	6851621		2005-02-08	WACKER, et al.	
	276	6870476		2005-03-22	COCKBURN, et al.	
	277	6874037		2005-03-29	ABRAM, et al.	
	278	6882274		2005-04-19	RICHARDSON, et al.	
	279	6891470		2005-05-10	BOHINC	
	280	6891838		2005-05-10	PETITE, et al.	
	281	6892751		2005-05-17	SANDERS	
	282	6900731		2005-05-31	KRIENER	
	283	6909921		2005-06-21	BILGER	

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	284	6919803		2005-07-19	BREED	
	285	6927688		2005-08-09	TICE	
	286	6930596		2005-08-16	KULESZ, et al.	
	287	6934540		2005-08-23	TWITCHELL, et al.	
	288	6935570		2005-08-30	ACKER	
	289	6940392		2005-09-06	CHAN, et al.	
	290	6940403		2005-09-06	KAIL	
	291	6965314		2005-11-15	BOHINC	
	292	6972682		2005-12-06	LAREAU, et al.	
	293	6975614		2005-12-13	KENNEDY	
	294	6988079		2006-01-17	OR-BACH, et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] ¡	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
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EXAMINER SIGNATURE			
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.			

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	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

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

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

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

☐ See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Matthew Johnson/	Date (YYYY-MM-DD)	2017-09-18
Name/Print	Matthew Johnson	Registration Number	72,299

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

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Application Number:	15601705
Filing Date:	22-May-2017
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Filer:	Michael K. Colby/Travis R. Henderson
Attorney Docket Number:	563800USCON14

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($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	30395639
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	149118
Filer:	Michael K. Colby/Travis R. Henderson
Filer Authorized By:	Michael K. Colby
Attorney Docket Number:	563800USCON14
Receipt Date:	18-SEP-2017
Filing Date:	22-MAY-2017
Time Stamp:	15:55:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$180
RAM confirmation Number	091917INTEFSW15571600
Deposit Account	601804
Authorized User	Travis Henderson
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	563800USCON14IDSTransmittal.pdf	121521 8bb8e22f811c1e2871b20edb0179bb6df5f8724f	no	2
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2.pdf	298042 1c12962b26071bbe1a17bc4a70aac511bcb20b61	no	67
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Other Reference-Patent/App/Search documents	14534848NFOA061317.pdf	395553 e68a55f96fa761a3555920658867058 6f11dca57	no	11
Warnings:					
Information:					
4	Other Reference-Patent/App/Search documents	15161880NOA090817.pdf	802762 ac7b6a41cde48fcb1f22ae3ceee6b7832cda58ac	no	5
Warnings:					
Information:					
5	Other Reference-Patent/App/Search documents	15590880NFOA081117.pdf	1147374 bf363aafb456dd6b409c36b22f0625aee1f69d7d	no	12
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	30464 8df4e53775f47bd0079816c8e725352ebe3aff19	no	2
Warnings:					

Information:	
Total Files Size (in bytes):	2795716

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	Lawrence Kates	Examiner:	Ojiako K. Nwugo
Serial No.:	15/601,705	Group Art Unit:	2685
Filed:	May 22, 2017	Docket:	563800USCON14
Title:	Relaying Communications in a Wireless Sensor System		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 et. seq., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. § 1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. § 1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 60-1804.

Pursuant to 37 C.F.R. § 1.98(d), copies of the listed documents are not provided as these references were previously cited by or submitted to the U.S. Patent Office in connection with Applicants' prior U.S. application, Serial No. 13/676,701, filed on Nov 14, 2012, or referenced to be provided in an earlier priority filing which is relied upon for an earlier filing date under 35 U.S.C. § 120.

Respectfully submitted,

Lawrence Kates

By their Representatives,

Date September 18, 2017 By /Matthew Johnson/
Matthew Johnson
Reg. No. 72,299

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

149118 7590 10/05/2017

Colby Nipper / Google
291 East Shore Drive
Suite 200
Eagle, ID 83616

EXAMINER
NWUGO, OJIAKO K

ART UNIT	PAPER NUMBER
2685	

DATE MAILED: 10/05/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/601,705	05/22/2017	Lawrence Kates	563800USCON14	7309

TITLE OF INVENTION: Relaying Communications in a Wireless Sensor System

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	01/05/2018

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

IMPORTANT REMINDER: 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.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

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

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

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

149118 7590 10/05/2017
Colby Nipper / Google
291 East Shore Drive
Suite 200
Eagle, ID 83616

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/601,705	05/22/2017	Lawrence Kates	563800USCON14	7309

TITLE OF INVENTION: Relaying Communications in a Wireless Sensor System

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	01/05/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
NWUGO, OJIAKO K	2685	340-870390

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

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

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

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

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

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

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

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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

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.
15/601,705	05/22/2017	Lawrence Kates	563800USCON14	7309

149118 7590 10/05/2017

Colby Nipper / Google
291 East Shore Drive
Suite 200
Eagle, ID 83616

EXAMINER	
NWUGO, OJIAKO K	
ART UNIT	**PAPER NUMBER**
2685	

DATE MAILED: 10/05/2017

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

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

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

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.

PTOL-85 (Rev. 02/11)

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

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

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 15/601,705	Applicant(s) KATES, LAWRENCE	
	Examiner OJIAKO NWUGO	Art Unit 2685	AIA (First Inventor to File) 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 *amendments of 9/15/2017*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-5,7-12,14-22*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

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

   * Certified copies not received: _____.

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

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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

/OJIAKO NWUGO/
Primary Examiner, Art Unit 2685

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	2101637		1937-12-07	DAVIS	
	2	2233297		1941-02-25	POLIN, et al.	
	3	3805265		1974-04-16	LESTER	
	4	4056780		1977-11-01	FAULKNER	
	5	4061442		1977-12-06	CLARK, et al.	
	6	4099168		1978-07-04	KEDJIERSKI, et al.	
	7	4136823		1979-01-30	KULLBERG	
	8	4165024		1979-08-21	OSWALT, et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	9	4226533		1980-10-07	SNOWMAN	
	10	4266220		1981-05-05	MALINSOWSKI	
	11	4400694		1983-08-23	WONG, et al.	
	12	4420746		1983-12-13	MALINOWSKI	
	13	4437336		1984-03-20	ABE	
	14	4455553		1984-06-19	JOHNSON	
	15	4514720		1985-04-30	OBERSTEIN, et al.	
	16	4535450		1985-08-13	TAN	
	17	4543570		1985-09-24	BRESSETT, et al.	
	18	4556873		1985-12-03	YAMADA, et al.	
	19	4613990		1986-09-23	HALPEM	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	20	4652859		1987-03-24	VAN WIENEN	
	21	4661804		1987-04-28	ABEL	
	22	4670739		1987-06-02	KELLY	
	23	4675661		1987-06-23	ISHII	
	24	4679742		1987-07-04	ELLIS	
	25	4680583		1987-07-14	GROVER	
	26	4688244		1987-08-18	HANNON, et al.	
	27	4692742		1987-09-08	RAIZEN, et al.	
	28	4692750		1987-09-08	MURAKAMI, et al.	
	29	4727359		1988-02-23	YUCHI, et al.	
	30	4750197		1988-06-07	DENEKAMP, et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	31	4772876		1988-09-20	LAUD	
	32	4801856		1989-01-31	WAJIMA	
	33	4801865		1989-01-31	MILLER, et al.	
	34	4802240		1989-01-31	YAMAGUCHI, et al.	
	35	4811011		1989-03-07	SOLLINGER	
	36	4817131		1989-03-28	THORNBOROUGH, et al.	
	37	4817537		1989-04-04	CRIPE, et al.	
	38	4827244		1989-05-02	BELLAVIA, et al.	
	39	4857895		1989-08-15	KAPRELIAN	
	40	4862514		1989-08-29	KEDJIERSKI	
	41	4871999		1989-10-03	ISHII, et al.	

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	42	4901316		1990-02-13	IGARASHI, et al.	
	43	4916432		1990-04-10	TICE, et al.	
	44	4918690		1990-04-17	MARKKULA, JR, et al.	
	45	4939504		1990-07-03	MILLER	
	46	4951029		1990-08-21	SEVERSON	
	47	4964121		1990-10-16	MOORE	
	48	4977527		1990-12-11	SHAW, et al.	
	49	4996518		1991-02-26	TAKAHASHI, et al.	
	50	5040238		1991-08-13	COMROE, et al.	
	51	5054052		1991-10-01	NONAMI	
	52	5107446		1992-04-21	SHAW, et al.	

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	53	5117501		1992-05-26	CHILDRESS, et al.	
	54	5129096		1992-07-07	BURNS	
	55	5134644		1992-07-28	GARTON, et al.	
	56	5138562		1992-08-11	SHAW, et al.	
	57	5151683		1992-09-29	TAKAHASHI, et al.	
	58	5159315		1992-10-27	TAKAHASHI, et al.	
	59	5168262		1992-12-01	OKAYAMA	
	60	5188143		1993-02-23	KREBS	
	61	5201061		1993-04-06	GOLDBERG, et al.	
	62	5210540		1993-05-11	MASUMOTO	
	63	5224648		1993-07-06	SIMON, et al.	

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	64	5229750		1993-07-20	WELCH, et al.	
	65	5240022		1993-08-31	FRANKLIN	
	66	5260687		1993-11-09	YAMAUCHI, et al.	
	67	5265025		1993-11-23	HIRATA	
	68	5400254		1993-11-23	HIRATA	
	69	5267180		1993-11-30	OKAYAMA	
	70	5281951		1994-01-25	OKAYAMA	
	71	5295154		1994-03-15	MEIER, et al.	
	72	5315291		1994-05-24	FURR	
	73	5319698		1994-06-07	GLIDEWELL, et al.	
	74	5331637		1994-07-19	FRANCIS, et al.	

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	75	5335186		1994-08-02	TARRANT	
	76	5345224		1994-09-06	BROWN	
	77	5355518		1994-10-11	KINDINGER, et al.	
	78	5357241		1994-10-18	WELCH	
	79	5369784		1994-11-29	NELSON	
	80	5400246		1995-03-21	WILSON, et al.	
	81	5408223		1995-04-18	GUILLEMOT	
	82	5424720		1995-06-13	KIRKPATRICK	
	83	5425051		1995-06-13	MAHANY	
	84	5428964		1995-07-04	LOBDELL	
	85	5430433		1995-07-04	SHIMA	

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	86	5432500		1995-07-11	SCRIPPS	
	87	5442758		1995-08-15	SLINGWINE, et al.	
	88	5511232		1996-04-23	O'DEA, et al.	
	89	5530433		1996-06-25	MORITA	
	90	5540092		1996-07-30	HANDFIELD, et al.	
	91	5564626		1996-10-15	KETTLER, et al.	
	92	5565852		1996-10-15	PETLIER, et al.	
	93	5565858		1996-10-15	GUTHRIE	
	94	5568121		1996-10-22	LAMENSDORF	
	95	5574435		1996-11-12	MOCHIZUKI	
	96	5579306		1996-11-26	DENT	

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	97	5590409		1996-12-31	SAWAHASHI, et al.	
	98	5596652		1997-01-21	PIATEK, et al.	
	99	5604892		1997-02-18	NUTTALL, et al.	
	100	5606313		1997-02-25	ALLEN, et al.	
	101	5627515		1997-05-06	ANDERSON	
	102	5640151		1997-06-17	REIS, et al.	
	103	5652751		1997-07-29	SHARONY	
	104	5655561		1997-08-12	WENDEL, et al.	
	105	5682379		1997-10-28	MAHANY, et al.	
	106	5686902		1997-11-11	REIS, et al.	
	107	5719556		1998-02-17	ALBIN, et al.	

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	108	5723848		1998-03-03	BILENKO, et al.	
	109	5732007		1998-03-24	GRUSHIN, et al.	
	110	5732077		1998-03-24	WHITEHEAD	
	111	5736928		1998-04-07	TICE, et al.	
	112	5478092		1998-05-05	ARSENAULT, et al.	
	113	5748092		1998-05-05	ARSENAULT, et al.	
	114	5761195		1998-06-02	LU, et al.	
	115	5790946		1998-08-04	ROTZOLL	
	116	5793882		1998-08-11	PIATEK, et al.	
	117	5802274		1998-09-01	DORAK, et al.	
	118	5833910		1998-11-10	TEIXIDO	

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	119	5854994		1998-12-29	CANADA, et al.	
	120	5859536		1999-01-12	STOCKTON	
	121	5862803		1999-01-26	BESSON	
	122	5881951		1999-03-16	CARPENTER	
	123	5889468		1999-03-30	BANGA	
	124	5890054		1999-03-30	LODGSON, et al.	
	125	5892441		1999-04-06	WOOLLEY, et al.	
	126	5892758		1999-04-06	ARGYROUDIS	
	127	5898374		1999-04-27	SCHEPKA	
	128	5907491		1999-05-25	CANADA, et al.	
	129	5913180		1999-06-15	RYAN	

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	130	5914656		1999-06-22	OJALA, et al.	
	131	5917423		1999-06-29	DUVALL	
	132	5917433		1999-06-29	KEILLOR, et al.	
	133	5923102		1999-07-13	KOENIG, et al.	
	134	5939982		1999-08-17	GAGNON, et al.	
	135	5943610		1999-08-24	ENDO	
	136	5949332		1999-09-07	KIM	
	137	5950124		1999-09-07	TROMPOWER, et al.	
	138	5959529		1999-09-28	KAIL	
	139	5959568		1999-09-28	WOOLLEY	
	140	5966079		1999-10-12	TANGUAY	

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	141	5973603		1999-10-26	JUDY	
	142	5974236		1999-10-26	SHERMAN	
	143	5977913		1999-11-02	CHRIST	
	144	6005884		1999-12-21	COOK, et al.	
	145	6006100		1999-12-21	KOENCK, et al.	
	146	6025788		2000-02-02	DIDUCK	
	147	6023476		2000-02-08	LO	
	148	6031455		2000-02-29	GRUBE, et al.	
	149	6046675		2000-04-04	HANNA	
	150	6049273		2000-04-11	HESS	
	151	6060994		2000-05-09	CHEN	

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	152	6072784		2000-06-06	AGRAWAL, et al.	
	153	6075451		2000-06-13	LEBOWITZ, et al.	
	154	6078050		2000-06-20	CASTLEMAN	
	155	6078269		2000-06-20	MARKWELL, et al.	
	156	6078785		2000-06-20	BUSH	
	157	6078789		2000-06-20	BODENMANN, et al.	
	158	6084522		2000-07-04	ADDY	
	159	6091724		2000-07-18	CHANDRA, et al.	
	160	6097288		2000-08-01	KOEPPE, JR	
	161	6097707		2000-08-01	HODZIC, et al.	
	162	6104512		2000-08-15	BATEY, et al.	

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	163	6108544		2000-08-22	DORENBOSCH, et al.	
	164	6108614		2000-08-22	LINCOLN, et al.	
	165	6111511		2000-08-29	SIVATHANU, et al.	
	166	6118988		2000-09-12	CHOI	
	167	6124806		2000-09-26	CUNNINGHAM, et al.	
	168	6125306		2000-09-26	SHIMADA, et al.	
	169	6127928		2000-10-03	ISSACMAN	
	170	6127976		2000-10-03	BOYD, et al.	
	171	6134587		2000-10-17	OKANOUE	
	172	6134589		2000-10-17	HULTGREN	
	173	6154658		2000-11-28	CACI	

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	174	6157307		2000-12-05	HARDIN	
	175	6175310		2001-01-16	GOTT	
	176	6192400		2001-02-20	HANSON, et al.	
	177	6198913		2001-03-06	SUNG, et al.	
	178	6201974		2001-03-13	LIETSALMI, et al.	
	179	6208247		2001-03-27	AGRE, et al.	
	180	6215404		2001-04-10	MORALES	
	181	6225894		2001-05-01	KYRTSOS	
	182	6239690		2001-05-29	BURBIDGE, et al.	
	183	6246882		2001-06-12	LACHANCE	
	184	6256303		2001-07-03	DRAKOULIS, et al.	

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	185	6281840		2001-08-28	MIYOSHI, et al.	
	186	6313646		2001-11-06	DAVIS, et al.	
	187	6313745		2001-11-06	SUZUKI	
	188	6320501		2001-11-20	TICE, et al.	
	189	6354493		2002-03-12	MON	
	190	6360169		2002-03-19	DUDANEY	
	191	6366217		2002-04-02	CUNNINGHAM, et al.	
	192	6369714		2002-04-09	WALTER	
	193	6377181		2002-04-23	KROLL, et al.	
	194	6380860		2002-04-30	GOETZ	
	195	6381467		2002-04-30	HILL, et al.	

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	196	6388399		2002-05-14	ECKEL, et al.	
	197	6404082		2002-06-11	RASINSKI, et al.	
	198	6405102		2002-06-11	SWARTZ, et al.	
	199	6409082		2002-06-25	DAVIS, et al.	
	200	6418299		2002-07-09	RAMANATHAN	
	201	6420973		2002-07-16	ACEVEDO	
	202	6421539		2002-07-16	JEONG	
	203	6421731		2002-07-16	CIOTTI, et al.	
	204	6424260		2002-07-23	MALONEY	
	205	6424264		2002-07-23	GIRALDIN, et al.	
	206	6427913		2002-08-06	MALONEY	

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	207	6437692		2002-08-20	PETITE, et al.	
	208	6441731		2002-08-27	HESS	
	209	6445292		2002-09-03	JEN, et al.	
	210	6452493		2002-09-17	MA, et al.	
	211	6453687		2002-09-24	SHAROOD, et al.	
	212	6473607		2002-10-29	SHOHARA, et al.	
	213	6476708		2002-11-05	JOHNSON	
	214	6480149		2002-11-12	TWITCHELL	
	215	6481222		2002-11-19	DENNISTON	
	216	6489895		2002-12-03	APELMAN	
	217	6512478		2003-01-28	CHIEN	

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	218	6515283		2003-02-04	CASTLEMAN, et al.	
	219	6519509		2003-02-11	NIERLICH, et al.	
	220	6526807		2003-03-04	DOUMIT, et al.	
	221	6529142		2003-03-04	YEH, et al.	
	222	6535110		2003-03-18	ARORA, et al.	
	223	6542114		2003-04-04	EAGLESON, et al.	
	224	6547137		2003-04-15	BEGELFER, et al.	
	225	6552647		2003-04-22	THIESEN, et al.	
	226	6553336		2003-04-22	JOHNSON, et al.	
	227	6559620		2003-05-06	ZHOU, et al.	
	228	6583720		2003-06-24	QUIGLEY	

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	229	6587755		2003-07-01	SMITH, et al.	
	230	6600418		2003-07-29	FRANCIS, et al.	
	231	6601016		2003-07-29	BROWN	
	232	6611556		2003-08-26	KOENER, et al.	
	233	6614349		2003-09-02	PROCTOR, et al.	
	234	6615658		2003-09-09	SNELLING	
	235	6617962		2003-09-09	HORWITZ, et al.	
	236	6619055		2003-09-16	ADDY	
	237	6624750		2003-09-23	MARMAN, et al.	
	238	6628835		2003-09-30	BRILL, et al.	
	239	6639517		2003-10-28	CHAPMAN, et al.	

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	240	6665585		2003-12-16	KAWASE	
	241	6666086		2003-12-23	COLMAN, et al.	
	242	6679400		2004-01-20	GOODMAN	
	243	6690657		2004-02-10	LAU, et al.	
	244	6693907		2004-02-17	WESLEY, et al.	
	245	6700533		2004-03-02	WERB, et al.	
	246	6800533		2004-03-02	WERB	
	247	6704681		2004-03-09	NASSOF, et al.	
	248	6714977		2004-03-30	FOWLER, et al.	
	249	6717507		2004-04-06	BAYLEY, et al.	
	250	6720888		2004-04-13	EAGLESON, et al.	

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	251	6731215		2004-05-04	HARMS, et al.	
	252	6735630		2004-05-11	GELVIN, et al.	
	253	6737974		2004-05-18	DICKINSON	
	254	6744740		2004-06-01	CHEN	
	255	6745027		2004-06-01	TWITCHELL, et al.	
	256	6747558		2004-06-08	THORNE, et al.	
	257	6747562		2004-06-08	GIRALDIN, et al.	
	258	6748804		2004-06-15	LISEC, et al.	
	259	6753775		2004-06-22	AUERBACH, et al.	
	260	6759956		2004-07-06	MENARD, et al.	
	261	6760578		2004-07-06	ROTZOLL	

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	262	6761312		2004-07-13	PIATEK, et al.	
	263	6765484		2004-07-20	EAGLESON, et al.	
	264	6789220		2004-09-07	LOVEJOY	
	265	6789739		2004-09-14	ROSEN	
	266	6796187		2004-09-28	SRINIVASAN, et al.	
	267	6798220		2004-09-28	FLANIGAN, et al.	
	268	6799210		2004-09-28	GENTRY, et al.	
	269	6803728		2004-10-12	BALASUBRAMANIAM, et al.	
	270	6825777		2004-11-01	VOCK, et al.	
	271	6816063		2004-11-09	KUBLER, et al.	
	272	6825758		2004-11-30	LAITSAARI	

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	60	20040017291		2004-01-29	HARDMAN, et al.	
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	Attorney Docket Number	563800USCON14

CERTIFICATION STATEMENT

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

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

OR

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

☐ See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Matthew Johnson/	Date (YYYY-MM-DD)	2017-09-18
Name/Print	Matthew Johnson	Registration Number	72,299

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

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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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15601705	KATES, LAWRENCE
	Examiner	Art Unit
	OJIAKO NWUGO	2685

CPC- SEARCHED		
Symbol	Date	Examiner
G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10	6/9/2017	O.N.
G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10	10/2/2017	O.N.

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
340	573.1,870.39	10/2/2017	O.N.

* 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
G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10 with text	6/9/2017	O.N.
340/573.1,870.39 with text	6/9/2017	O.N.
See attached search history	6/9/2017	O.N.
G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10 with text	10/2/2017	O.N.
340/573.1,870.39 with text	10/2/2017	O.N.
See attached search history, Inventor name search has been completed.	10/2/2017	O.N.

INTERFERENCE SEARCH

	/OJIAKO NWUGO/ Primary Examiner.Art Unit 2685

US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	same as searched	10/2/2017	O.N.

	/OJIAKO NWUGO/ Primary Examiner.Art Unit 2685

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15601705	KATES, LAWRENCE
	Examiner	**Art Unit**
	OJIAKO NWUGO	2685

CPC						
Symbol					**Type**	**Version**
H04W		52	/	0225	F	2013-01-01
G08B		1	/	08	I	2013-01-01
H04Q		9	/	00	I	2013-01-01
G06F		1	/	3209	I	2013-01-01
G08B		25	/	10	I	2013-01-01
G08B		17	/	00	I	2013-01-01
G08B		25	/	001	I	2013-01-01
G08B		17	/	10	I	2013-01-01
G08B		25	/	007	I	2013-01-01
H04Q		9	/	02	I	2013-01-01
Y02B		60	/	50	A	2013-01-01
G08B		21	/	182	I	2013-01-01
H04W		84	/	18	I	2013-01-01
G08B		21	/	14	I	2013-01-01
G08B		13	/	04	I	2013-01-01
G08B		25	/	009	I	2013-01-01

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

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/OJIAKO NWUGO/ Primary Examiner.Art Unit 2685 (Primary Examiner)	10/02/2017 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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	Examiner	Art Unit
	OJIAKO NWUGO	2685

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
340	870.39	G 0 8 C 19 / 04 (2006.01)	

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
340	573.1				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/OJIAKO NWUGO/ Primary Examiner.Art Unit 2685	10/02/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15601705	KATES, LAWRENCE
	Examiner	**Art Unit**
	OJIAKO NWUGO	2685

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
2	2	18	18												
4	3	19	19												
5	4	20	20												
6	5	16	21												
	6	3	22												
7	7														
8	8														
9	9														
10	10														
11	11														
12	12														
	13														
13	14														
14	15														
15	16														

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/OJIAKO NWUGO/ Primary Examiner.Art Unit 2685 (Primary Examiner)	10/02/2017 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	17	(Kates near3 lawrence).inv. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:35
S2	11	(Kates near3 lawrence).inv. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:36
S3	1	("20140203943" "20110025501" "20080278316" "20070090946" "20050275528").pn. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:43
S4	232	(sensor$1 detector$1) and (low near power near3 mode with (transmit transmission)) and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:45
S5	10	(sensor$1 detector$1) and (low near power near3 mode with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:46
S6	0	(09/194809).APP.	US-PGPUB; USOCR	OR	OFF	2015/02/20 15:48
S7	31	(sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 15:50
S8	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2015/02/20 16:05

			IBM_TDB			
S9	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:06
S10	137	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:07
S11	129	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:07
S12	8	Gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:15
S13	7	ambient with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:17
S14	87	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:18
S15	1	gas with (sensor$1 detector$1) with (((low near power near3 mode) (sleep)) with (transmit transmission)) and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:18
S16	76	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:19
S17	1	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with (address identifier identity) and	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2015/02/20 16:44

		@ad<="20040527" not (kates near3 lawrence).inv.	JPO; DERWENT; IBM_TDB			
S18	51	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:44
S19	5	gas with (sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and (sensor detector) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:45
S20	100	(sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) and (sensor detector) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:47
S21	4	(sensor$1 detector$1) and (((low near power near3 mode) (sleep)) with (transmit transmission)) with (sensor detector) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:47
S22	249	Gas with (sensor$1 detector$1) with (address identifier identity) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:52
S23	1	Gas with (sensor$1 detector$1) with (address identifier identity) with (transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:52
S24	834	(sensor$1 detector$1) with (address identifier identity) with (transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:53
S25	0	(ambient enviromental) with (sensor$1 detector$1) with (address identifier identity) with (transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 16:53
S26	30	wireless with (sensor$1 detector$1) with (address identifier identity) with	US-PGPUB; USPAT;	OR	OFF	2015/02/20 16:54

		(transmissiom message) and @ad<="20040527" not (kates near3 lawrence).inv.	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S27	0	wireless with (sensor$1 detector$1) with (address identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:23
S28	198	(sensor$1 detector$1) with (address identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:23
S29	58	wireless and (sensor$1 detector$1) with (address identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:23
S30	19	wireless and (sensor$1 detector$1) with (identifier identity) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/20 17:24
S31	48	(sensor$1 detector$1) with (identifier identity adress) with (installation (set$1up)) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:31
S32	8	(sensor$1 detector$1) with (identifier identity adress) with (installation (set$1up)) with (controller processor micro$1processor) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:32
S33	451	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (tranceiver transmitter receiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:53
S34	217	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (tranceiver transmitter) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:54

S35	0	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (tranceiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:54
S36	65	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (transceiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:54
S37	0	(Gas oxygen carbon) with (sensor$1 detector$1) with (sleep stand$1by low$1power) with (transceiver) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 03:56
S38	0	(09/831425).APP.	US-PGPUB; USOCR	OR	OFF	2015/02/22 11:25
S39	10	(sensor$1 detector$1) with (sleep stand$1by low$1power) with (transceiver) and tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:26
S40	0	(sensor$1 detector$1) and (sleep stand$1by low$1power) with (transceiver) with tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:29
S41	0	(sleep stand$1by low$1power) with (transceiver) with tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:29
S42	47	(sensor$1 detector$1) and (sleep stand$1by low$1power) with tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:29
S43	9	(sensor$1 detector$1) with (sleep stand$1by low$1power) with tamper$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 12:29
S44	4	network with routing near3 table and @ad<="20040527" and (Gutierrez).inv.	US-PGPUB; USPAT; USOCR;	OR	OFF	2015/02/22 17:16

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S45	317	(sensor$1 detector$1) with (message signal) with authentication and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 17:20
S46	37	(sensor$1 detector$1) with (message) with authentication and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/02/22 17:21
S47	2301	alarm with transmi$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/05/07 12:22
S48	4652	alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/05/07 12:23
S49	1020	"340"/$.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/05/07 12:23
S50	84	"340"/573.1.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/05/07 12:50
S51	11	(low near power near3 mode with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:53
S52	12	(low near3 power near3 mode with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:53
S53	385	((low near3 power near3 mode)(sleep)	US-PGPUB;	OR	OFF	2015/08/26

		with (transmit transmission)) with threshold and @ad<="20040527"	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			12:54
S54	366	((low near3 power near3 mode)(sleep with power) with (transmit transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:54
S55	366	((low near3 power near3 mode)(sleep with power) with (transmit$1 transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:54
S56	368	((low near3 power near3 mode)(sleep with power) with (transmit$3 transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:55
S57	26	(((low near3 power near3 mode)(sleep with power)) with (transmit$3 transmission)) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 12:57
S58	22	(sensor$1 detector$1) with (message) with checksum and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 14:03
S59	2	"US 20140118109"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2015/08/26 14:25
S60	2	"US 20150070192"	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2015/08/26 14:25
S61	4	(sensor$1 detector$1) with (message) with checksum and encryp$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 15:17
S62	2	((wireless remote) near3 (sensor$1 detector$1)) and (message) with checksum with encrypt$3 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2015/08/26 15:19

			DERWENT; IBM_TDB			
S63	84	"340"/573.1.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 17:24
S64	138	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/08/26 17:24
S65	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and low near power near3 mode and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:39
S66	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:40
S67	0	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) with ambient with power with encrypted and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:56
S68	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and alarm with transmit$3 with (data measure$4) with ambient with power with encrypted and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:56
S69	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and alarm with transmit$3 with (data measure$4) with ambient with power with encrypted and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2015/12/03 16:58
S70	235	(("Kates") near2 ("Lawrence")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2015/12/03 17:00
S75	1	"2004164855".pn.	US-PGPUB; USPAT; USOCR; JPO; IBM_TDB	OR	OFF	2016/11/03 10:55
S76	1	"20040164855".pn.	US-PGPUB; USPAT;	OR	OFF	2016/11/03 10:55

			USOCR; JPO; IBM_TDB			
S77	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:56
S78	131	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:56
S79	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:56
S80	4740	alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/11/03 10:57
S81	259	(("Kates") near2 ("Lawrence")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/02/27 12:34
S82	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/02/27 12:34
S83	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/02/27 12:34
S88	31	(sensor$1 detector$1) and ((low near power near3 mode) (sleep)) with (transmit transmission) with threshold and @ad<="20040527"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 11:18
S89	0	(sensor$1 detector$1) with (message) with checksum with authent$4 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 15:02

S90	0	(message) with checksum with authent$4 and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 15:02
S91	87	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:03
S92	0	"15601705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:03
S93	0	"15601705"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:03
S94	136	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/09 18:04
S95	89	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/02 00:21
S96	263	(("KATES") near3 ("Lawrence")).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/02 00:22
S97	89	340/573.1,870.39.ccls. and alarm with transmit$3 with (data measure$4) and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/02 00:24
S98	138	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and low near power near3 mode and @ad<="20040527" not (kates near3 lawrence).inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/10/02 00:24

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S71	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).pn. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:57
S72	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:58
S73	0	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:58
S74	0	340/$.ccls. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2015/12/03 16:59
S84	78	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:35
S85	1	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:36
S86	0	(G08B1/08 G06F1/3209 G08B17/00 G08B25/009 G08B25/001 G08B17/10 G08B25/10).cpc. and (alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:37
S87	11	(alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/02/27 12:49
S99	1	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/10/02 00:25
S100	0	340/573.1,870.39.ccls. and (alarm with transmit$3 with (data measure$4) with ambient with power with encrypted).clm.	US-PGPUB; USPAT	OR	OFF	2017/10/02 00:25
S101	12	(alarm with transmit$3 with (data measure$4) with (wake sleep)).clm.	US-PGPUB; USPAT	OR	OFF	2017/10/02 00:25

10/2/2017 10:26:43 AM
C:\Users\onwugo\Documents\EAST\Workspaces\15601705.wsp

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

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	1	20030051023		2003-03-13	REICHEL, et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	1	"Final Office Action", Application Number 14/536,108, 11/29/17, 20 pages	

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Matthew Johnson/	Date (YYYY-MM-DD)	2017-12-01
Name/Print	Matthew Johnson	Registration Number	72,299

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

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Electronic Patent Application Fee Transmittal

Application Number:	15601705
Filing Date:	22-May-2017
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Filer:	Michael K. Colby/Travis R. Henderson
Attorney Docket Number:	563800USCON14

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($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	31107487
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	149118
Filer:	Michael K. Colby/Travis R. Henderson
Filer Authorized By:	Michael K. Colby
Attorney Docket Number:	563800USCON14
Receipt Date:	01-DEC-2017
Filing Date:	22-MAY-2017
Time Stamp:	16:40:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$180
RAM confirmation Number	120417INTEFSW16404300
Deposit Account	601804
Authorized User	Travis Henderson
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

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1	Transmittal Letter	563800USCON14IDSTransmittal.pdf	66345 7050eaf6b94630bdfb8c508450fdac6ebc85b1b3	no	2
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	563800USCON14SupplementalIDS.pdf	612272 17a56309c9affa560e35a53825b2e47c4a7be824	no	4
Warnings:					
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3	Other Reference-Patent/App/Search documents	14536108FOA112917.pdf	741028 dc7eba76cfafaff4e1847bd0b3ef84c72783b588	no	20
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30464 3bf37e75a0e054dc45c2445a5506d5f2dfce4b73	no	2
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	Lawrence Kates	Examiner:	Ojiako K. Nwugo
Serial No.:	15/601,705	Group Art Unit:	2685
Filed:	May 22, 2017	Docket:	563800USCON14
Title:	Relaying Communications in a Wireless Sensor System		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. § 1.97(e)(2), Applicant states that no item of information contained in the the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign aplication, and, to the knowledge of the person sigining the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any indiviudal designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of the information disclosure statement.

Pursuant to 37 C.F.R. § 1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. § 1.17(p).

Respectfully submitted,

Lawrence Kates

By their Representatives,

Date December 1, 2017 By /Matthew Johnson/
Matthew Johnson
Reg. No. 72,299

PART B - FEE(S) TRANSMITTAL

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

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

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

149118 7590 10/05/2017

Colby Nipper / Google
291 East Shore Drive
Suite 200
Eagle, ID 83616

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

Certificate of Mailing or Transmission

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

	(Depositor's name)
Filed via EFS Website	(Signature)
	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/601,705	05/22/2017	Lawrence Kates	563800USCON14	7309

TITLE OF INVENTION: Relaying Communications in a Wireless Sensor System

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	01/05/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
NWUGO, OJIAKO K	2685	340-870390

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

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

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

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

(A) NAME OF ASSIGNEE: Google LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Mountain View, CA

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

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

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☒ Payment by credit card. ~~Form PTO-2038 is attached.~~
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number ______ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

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

Authorized Signature /Matthew Johnson/ Date December 1, 2017

Typed or printed name Matthew Johnson Registration No. 72,299

Electronic Patent Application Fee Transmittal

Application Number:	15601705
Filing Date:	22-May-2017
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Filer:	Michael K. Colby/Travis R. Henderson
Attorney Docket Number:	563800USCON14

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	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**960**

Electronic Acknowledgement Receipt	
EFS ID:	31107895
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	149118
Filer:	Michael K. Colby/Travis R. Henderson
Filer Authorized By:	Michael K. Colby
Attorney Docket Number:	563800USCON14
Receipt Date:	01-DEC-2017
Filing Date:	22-MAY-2017
Time Stamp:	16:56:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$960
RAM confirmation Number	120417INTEFSW16564500
Deposit Account	601804
Authorized User	Travis Henderson
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

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)	563800USCON14IssueFeeTransmittal.pdf	235196 ce4145bda13ee1cba3f576a56557f029dd8405a1	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30740 d7325f52d498c46acd5183c3ac1eb625f2c10af2	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	265936		

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.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	15601705
Filing Date	2017-05-22
First Named Inventor	Kates
Art Unit	2685
Examiner Name	Ojiako K. Nwugo
Attorney Docket Number	563800USCON14

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030051023		2003-03-13	REICHEL, et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	1	"Final Office Action", Application Number 14/536,108, 11/29/17, 20 pages	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/OJIAKO K NWUGO/	Date Considered	12/15/2017

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Matthew Johnson/	Date (YYYY-MM-DD)	2017-12-01
Name/Print	Matthew Johnson	Registration Number	72,299

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

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 record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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

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

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

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /O.K.N/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/601,705	01/16/2018	9872249	563800USCON14	7309

149118 7590 12/27/2017

Colby Nipper / Google
291 East Shore Drive
Suite 200
Eagle, ID 83616

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Lawrence Kates, Corona Del Mar, CA;
Google Inc., Mountain View, CA;

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	15601705
	Filing Date	2017-05-22
	First Named Inventor	Kates
	Art Unit	2685
	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	9860839		2018-01-02	KATES	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	15601705
	Filing Date	2017-05-22
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	Examiner Name	Ojiako K. Nwugo
	Attorney Docket Number	563800USCON14

	1	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2017-05-22
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See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/Matthew Johnson/	Date (YYYY-MM-DD)	2018-01-14
Name/Print	Matthew Johnson	Registration Number	72,299

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

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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.

Electronic Acknowledgement Receipt

EFS ID:	31497891
Application Number:	15601705
International Application Number:	
Confirmation Number:	7309
Title of Invention:	Relaying Communications in a Wireless Sensor System
First Named Inventor/Applicant Name:	Lawrence Kates
Customer Number:	149118
Filer:	Michael K. Colby/Travis R. Henderson
Filer Authorized By:	Michael K. Colby
Attorney Docket Number:	563800USCON14
Receipt Date:	14-JAN-2018
Filing Date:	22-MAY-2017
Time Stamp:	21:29:14
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	Transmittal Letter	563800USCON14IDSTransmittal.pdf	100300 71fc259d7ba9151876d72edc2005aeebed2a85df	no	1
Warnings:					

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	563800USCON14SupplementalIDS.pdf	612192 a785ecbbcd947836e09de031b70a2f61024c5218	no	4
Warnings:					
Information:					
			Total Files Size (in bytes):	712492	

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventorship:	Lawrence Kates	Examiner:	Ojiako K. Nwugo
Serial No.:	15/601,705	Group Art Unit:	2685
Filed:	May 22, 2017	Docket:	563800USCON14
Title:	Relaying Communications in a Wireless Sensor System		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 et. seq., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. It is believed no fee is due with this submission, however, if deemed to be required, authorization is hereby granted to charge deposit account 60-1804 for the appropriate fee amount.

Respectfully submitted,

Ojiako K. Nwugo

By their Representatives,

Date January 14, 2018 By /Matthew Johnson/
Matthew Johnson
Reg. No. 72,299