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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	03/24/2020	10602448	5750/0472PUS1	6489

60601 7590 03/04/2020
Muncy, Geissler, Olds & Lowe, P.C.
4000 Legato Road
Suite 310
Fairfax, VA 22033

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 14 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):

Yong-Sheng Chen, Taipei, TAIWAN;
ThroughTek Technology (ShenZhen) Co., Ltd., Shenzhen, CHINA;
ThroughTek Co., Ltd., Taipei, TAIWAN;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

60601 7590 01/28/2020
Muncy, Geissler, Olds & Lowe, P.C.
4000 Legato Road
Suite 310
Fairfax, VA 22033

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1	6489

TITLE OF INVENTION: REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	04/28/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
GEORGE, AYANAH S	2467	370-311000

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

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

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

2. For printing on the patent front page, list

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

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 **Muncy, Geissler, Olds & Lowe, P.C.**
2
3

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

THROUGHTTEK TECHNOLOGY (SHENZHEN) CO., LTD.
THROUGHTTEK CO., LTD.

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

SHENZHEN, CHINA
TAIPEI CITY, TAIWAN

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

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

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

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

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. **50-3828**

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

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

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

Authorized Signature **ROBERT F. GNUSE**

Date **February 6, 2020**

Typed or printed name **Joe McKinney Muncy Registration #27295**

Registration No. **32334**

Electronic Patent Application Fee Transmittal				
Application Number:		15685661		
Filing Date:		24-Aug-2017		
Title of Invention:		REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		
First Named Inventor/Applicant Name:		Yong-Sheng Chen		
Filer:		Joe McKinney Muncy/EJ Bernabe		
Attorney Docket Number:		5750/0472PUS1		
Filed as Small 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	2501	1	500	500

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt	
EFS ID:	38515578
Application Number:	15685661
International Application Number:	
Confirmation Number:	6489
Title of Invention:	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE
First Named Inventor/Applicant Name:	Yong-Sheng Chen
Customer Number:	60601
Filer:	Joe McKinney Muncy/EJ Bernabe
Filer Authorized By:	Joe McKinney Muncy
Attorney Docket Number:	5750/0472PUS1
Receipt Date:	06-FEB-2020
Filing Date:	24-AUG-2017
Time Stamp:	15:59:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 500
RAM confirmation Number	E202026F59242717
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	2020-02-06- Issue_Fee_Transmittal_Sheet. pdf	243073	no	1
			d871f620627e9cadfe7a8bfd3272fcd83bed511d		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30574	no	2
			5465bfd1344fcb4bab4e5feda84f442693442da		
Warnings:					
Information:					
Total Files Size (in bytes):			273647		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



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NOTICE OF ALLOWANCE AND FEE(S) DUE

60601 7590 01/28/2020
Muncy, Geissler, Olds & Lowe, P.C.
4000 Legato Road
Suite 310
Fairfax, VA 22033

EXAMINER

GEORGE, AYANAH S

ART UNIT

PAPER NUMBER

2467

DATE MAILED: 01/28/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1	6489

TITLE OF INVENTION: REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	04/28/2020

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

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60601 7590 01/28/2020
Muncy, Geissler, Olds & Lowe, P.C.
4000 Legato Road
Suite 310
Fairfax, VA 22033

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1	6489

TITLE OF INVENTION: REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE

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nonprovisional	SMALL	\$500	\$0.00	\$0.00	\$500	04/28/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
GEORGE, AYANAH S	2467	370-311000

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

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

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

2. For printing on the patent front page, list

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

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. **NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1	6489
60601	7590	01/28/2020	EXAMINER	
Muncy, Geissler, Olds & Lowe, P.C.			GEORGE, AYANAH S	
4000 Legato Road			ART UNIT	
Suite 310			PAPER NUMBER	
Fairfax, VA 22033			2467	
DATE MAILED: 01/28/2020				

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

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

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

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

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 15/685,661	Applicant(s) Chen, Yong-Sheng	
	Examiner AYANAH S GEORGE	Art Unit 2467	AIA (FITF) Status Yes

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

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

1. ☒ This communication is responsive to an RCE filed 12/12/2019.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3. ☒ The allowed claim(s) is/are 1-25 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

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

Certified copies:

a) ☒ All b) ☐ Some *c) ☐ None of the:

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

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

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

* Certified copies not received: _____ .

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

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

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

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

/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	
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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/12/19 has been entered.

Notice of Pre-AIA or AIA Status

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

Allowable Subject Matter

3. Claims 1-25 are allowed.

The following is an examiner's statement of reasons for allowance: Applicant's claimed invention teaches a method for remote wakeup. The closest prior arts: Winter, Wu and Siegmund fail to disclose all the limitations of the independent claims. Specifically, they fail to a segment of data within a packet that determines whether the entire apparatus is awakened.

EXAMINER'S AMENDMENT

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

Authorization for this examiner's amendment was given in an interview with Kentaro Higuchi on January 14, 2020.

The application has been amended as follows: Please see attached set of claims

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AYANAH S GEORGE whose telephone number is (571)272-8880. The examiner can normally be reached on 7:00 AM - 5:00 PM.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 572-272-3940. 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.

AYANAH S. GEORGE

Primary Examiner

Art Unit 2467

/AYANAH S GEORGE/

Primary Examiner, Art Unit 2467

<i>Examiner-Initiated Interview Summary</i>	Application No. 15/685,661	Applicant(s) Chen, Yong-Sheng	
	Examiner AYANAH S GEORGE	Art Unit 2467	AIA (FITF) Status Yes

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

(1) AYANAH S. GEORGE. (3) ____.

(2) Kentaro Higuchi. (4) ____.

Date of Interview: 14 January 2020.

Type: ☒ Telephonic ☐ Video Conference
 ☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
 If Yes, brief description: ____.

Issues Discussed ☐ 101 ☐ 112 ☐ 102 ☐ 103 ☒ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1,11 and 19.

Identification of prior art discussed: None.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Clarification of claims 1, 11 and 19 were requested. Prior to the discussion the claims contained confusion language. The examiner and attorney agreed on an amendment that would properly describe the invention. An updated search was made and the claim was determined to be allowable. A notice of allowance will be issued upon approval of the attorney..

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

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

☐ Attachment

/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	
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<i>Notice of References Cited</i>	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng	
	Examiner AYANAH S GEORGE	Art Unit 2467	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-20150074432-A1	03-2015	Winter; Robert	G06F1/3209	713/300
*	B	US-20150172423-A1	06-2015	Wu; Yongjian	H04L69/08	370/310
*	C	US-20070050645-A1	03-2007	Siegmund; Dieter W.	H04L12/12	713/300
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Search Notes</i> 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Inventor search in EAST - (see search history print out)	12/27/2018	AG
Searched in EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO ; DERWENT; IBM TDB) - (see search history print out)	01/14/2020	AG

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
H04W52/02	H04W52/02	01/14/2020	AG

/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	
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Issue Classification 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

CPC						
Symbol					Type	Version
H04W	/	52	/	0229	F	2013-01-01
H04W	/	52	/	0216	I	2013-01-01
H04L	/	12	/	12	I	2013-01-01
H04W	/	52	/	027	I	2013-01-01
Y02D	/	70	/	22	A	2018-01-01
Y02D	/	70	/	00	A	2018-01-01

CPC Combination Sets					
Symbol				Type	Set
	/		/		

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	15 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

Issue Classification 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

INTERNATIONAL CLASSIFICATION			
CLAIMED			
H04W		52	02
NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	15 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

Issue Classification 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

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

CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12	21	21										
4	4	13	13	22	22										
5	5	14	14	23	23										
6	6	15	15	24	24										
7	7	16	16	25	25										
8	8	17	17												
9	9	18	18												

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	15 January 2020	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	5

<i>Index of Claims</i> 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant					☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE								
Final	Original	01/03/2019	08/07/2019	01/15/2020						
	1	✓	✓	=						
	2	✓	✓	=						
	3	✓	✓	=						
	4	✓	✓	=						
	5	✓	✓	=						
	6	✓	✓	=						
	7	✓	✓	=						
	8	✓	✓	=						
	9	✓	✓	=						
	10	✓	✓	=						
	11	✓	✓	=						
	12	✓	✓	=						
	13	✓	✓	=						
	14	✓	✓	=						
	15	✓	✓	=						
	16	✓	✓	=						
	17	✓	✓	=						
	18	✓	✓	=						
	19	✓	✓	=						
	20	✓	✓	=						
	21	✓	✓	=						
	22	✓	✓	=						
	23	✓	✓	=						
	24	✓	✓	=						
	25	✓	✓	=						

EXAMINER'S AMENDMENT

1. (Currently Amended) A remote wakeup method, comprising: a connection server receiving a wakeup request packet from a first apparatus, wherein the wakeup request packet comprises a device identifier of a second apparatus, wherein the first apparatus is connected to the connection server via local area network or internet; the connection server obtaining wakeup information stored in the connection server according to the wakeup request packet, wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus; the connection server generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the device identifier of the second apparatus from the wakeup request packet and the obtained wakeup information; the connection server obtaining a network address corresponding to the second apparatus from a storage unit of the connection server according to the wakeup request packet; and the connection server sending the apparatus wakeup packet to the second apparatus based on the network address, wherein a segment of data of the apparatus wakeup packet is as wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus.

the connection server sending the apparatus wakeup packet to the second apparatus based on the network address, wherein wakeup feature data is a segment of data of the apparatus wakeup packet is as wakeup feature data and is for determining whether whole of the entire second apparatus be awoken by the second apparatus.

2. (Original) The remote wakeup method according to claim 1, wherein the step of generating the apparatus wakeup packet comprises: combining the wakeup request packet and the wakeup information into an unencrypted packet; and performing an encryption calculation on the unencrypted packet to generate the apparatus wakeup packet.

3. (Original) The remote wakeup method according to claim 2, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information.

4. (Original) The remote wakeup method according to claim 2, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

5. (Original) The remote wakeup method according to claim 2, further comprising: receiving, by the second apparatus, the apparatus wakeup packet; obtaining, by the second apparatus, a wakeup feature data from the apparatus wakeup packet, and the wakeup feature packet comprises entire data or partial data of the device identifier and the wakeup information; comparing the wakeup feature data with a pre-stored feature data, wherein the pre-stored feature data is pre-stored in the second apparatus before the second apparatus sleeps; and when the wakeup feature data is consistent with the pre-stored feature data, waking up the entire second apparatus.

6. (Original) The remote wakeup method according to claim 5, wherein a data size of the wakeup feature data and a data size of the pre-stored feature data are both at least one encryption unit of the encryption calculation.

7. (Previously Presented) The remote wakeup method according to claim 1, further comprising: receiving a sleep login packet from the second apparatus; and recording a running state of the second apparatus as a sleep state in the storage unit according to the sleep login packet.

8. (Previously Presented) The remote wakeup method according to claim 7, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state.

9. (Previously Presented) The remote wakeup method according to claim 1, further comprising: receiving a connection request packet from the first apparatus, wherein the connection request packet is used to request for performing communication connection to the second apparatus; determining a running state of the second apparatus according to the connection request packet; and when the running state of the second apparatus is a sleep state, replying to the first apparatus that the second apparatus sleeps.

10. (Previously presented) The remote wakeup method according to claim 1, wherein the steps of obtaining the wakeup information and the network address comprise: reading the wakeup information and the network address that correspond to the device identifier from a storage unit.

11. (Currently Amended) [[An]] A connection server, comprising:

a network module; a storage unit, which stores a network address and wakeup information that

correspond to a second apparatus; and a control unit, which connects to the network module and storage unit, receives a wakeup request packet from a first apparatus through the network module, obtains the wakeup information stored in the storage unit and the network address stored in the storage unit according to the wakeup request packet, generates an apparatus wakeup packet according to the received wakeup request packet and the obtained wakeup information, and sends the generated apparatus wakeup packet to the second apparatus through the network module according to the network address, wherein the wakeup request packet comprises a device identifier of the second apparatus, and the apparatus wakeup packet comprises the device identifier from the wakeup request packet and the obtained wakeup information of the second apparatus, wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus, and wherein a segment of data of the apparatus wakeup packet is as a ~~wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus,~~ and wherein wakeup feature data is a segment of data of the apparatus wakeup packet is as a ~~wakeup feature data and is for determining whether whole of the entire second apparatus be awoken by the second apparatus.~~

12. (Original) The connection server according to claim 11, wherein the control unit combines the wakeup request packet and the wakeup information into one unencrypted packet and performs an encryption calculation on the unencrypted packet to generate an apparatus wakeup packet.

13. (Original) The connection server according to claim 12, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information.

14. (Original) The connection server according to claim 12, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

15. (Previously Presented) The connection server according to claim 11, wherein the storage unit further stores a running state of the second apparatus, and the control unit receives a sleep login packet from the second apparatus through the network module and updates the

running state of the second apparatus in the storage unit as a sleep state according to the sleep login packet.

16. (Previously Presented) The connection server according to claim 15, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state.

17. (Previously Presented) The connection server according to claim 11, wherein when the control unit receives a connection request packet used to request for performing communication connection to the second apparatus from the first apparatus through the network module, the control unit determines a running state of the second apparatus according to the connection request packet and when determining that the running state of the second apparatus is a sleep state, replies to the first apparatus that the second apparatus sleeps.

18. (Previously Presented) The connection server according to claim 11, wherein the storage unit records the device identifier and correspondences between the device identifier and the wakeup information and between the network address and the wakeup information.

19. (Currently Amended) A networking apparatus having a normal running mode and a sleep mode, comprising: a network module; a storage unit, which stores a device identifier and wakeup information; and a control unit, which connects to the network module and storage unit, and before entering the sleep mode, generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit, wherein the pre-stored feature data comprises entire data or partial data of the device identifier and the wakeup information, wherein: in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus; in the sleep mode, the control unit sleeps, but the network module still keeps running and when receiving an apparatus wakeup packet sent to the network address of the networking apparatus from a connection server and generated by the connection server, compares ~~performs comparison according to the pre-stored feature data and a wakeup feature data being a segment of data of the apparatus wakeup packet to determine whether to, so as to wake up whole of the networking apparatus.~~ and a wakeup feature data being a segment of data of the apparatus wakeup packet to determine whether to wake up ~~whole of the entire networking apparatus.~~

20. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein the control unit generates a comparison packet and obtains the pre-stored feature data from the comparison packet according to the device identifier and the wakeup information.

21. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 20, wherein in the sleep mode, when the network module receives the apparatus wakeup packet from an connection server, the network module captures a wakeup feature data from the apparatus wakeup packet according to a given data position and compares the wakeup feature data with the pre-stored feature data, wherein when the wakeup feature data is consistent with the pre-stored feature data, the network module wakes up the entire networking apparatus.

22. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

23. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein the storage unit stores a login data, before entering the sleep mode, the control unit generates, according to the login data and a feature flag, a sleep login packet having the login data, and the feature flag indicates that a running state of the networking apparatus is sleep.

24. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 23, wherein the feature flag is located at a header of the sleep login packet.

25. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 23, wherein in the sleep mode, the network module periodically sends the sleep login packet to the connection server.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	15	((("THROUGHTTEK") near3 ("TECHNOLOGY") near3 ("SHENZHEN") near3 ("CO") near3 ("LTD")) OR ((("THROUGHTTEK") near3 ("CO") near3 ("LTD"))).AS,AANM.	USPAT	OR	OFF	2018/12/27 12:47
S2	10	((("CHEN") near3 ("Yong-Sheng"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2018/12/27 12:47
S3	1	(S1 or S2) and (remote near2 wakeup) same (connection) same (ID or identifier or identity) near5 (device or terminal)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 12:50
S4	2	(remote near2 wakeup) same (connection) near2 server	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S5	567	(remote near2 wakeup)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S6	6	(remote near2 wakeup) same (wakeup near2 packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S7	133	(remote near2 wakeup) same (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S8	1	(remote near2 wakeup) same (packet) with (device or terminal) near4 (ID or identity or identifier)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2018/12/27 13:06

			DERWENT; IBM_TDB			
S9	27	(remote near2 wakeup) with (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:06
S10	82	(wakeup) with (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:09
S11	54	(wakeup) near3 (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:11
S12	163	(wakeup or wake or wake-up) near3 (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:12
S13	1088	unencrypt\$4 same (encryption) near2 (calculation or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 11:51
S14	83	unencrypt\$4 near4 (packet) same (encryption) near2 (calculation or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 11:54
S15	2	unencrypt\$4 near4 (packet) same (encryption) near2 (calculation)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S16	669	unencrypt\$4 near4 (packet) same (encryption)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S17	80	unencrypt\$4 near4 (packet) with (encryption) near3 (calculation or algorithm or method)	US-PGPUB; USPAT; USOCR;	OR	OFF	2018/12/30 12:04

			FPRS; EPO; JPO; DERWENT; IBM_TDB			
S18	19	sleep near2 login	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:40
S19	2572	sleep near2 status	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:42
S20	5	sleep near2 status near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:42
S21	2135	sleep near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:42
S22	1391	(sleep or doze or (low near2 power)) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:44
S23	153	(sleep or doze or (low near2 power)) near3 (status or mode or state) near5 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:01
S24	39	(sleep or doze or (low near2 power)) near3 (status or mode or state) near2 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:03
S25	39	(sleep or doze or (low near2 power)) near3 (status or mode or state or flag or bit) near2 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:03
S26	12	(sleep or doze or (low near2 power))	US-PGPUB;	OR	OFF	2019/01/02

		near3 (flag or bit) near2 (packet)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			10:04
S27	2	(record\$3 or writ\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:10
S28	3	(record\$3 or writ\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state or status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:10
S29	139	(record\$3 or writ\$3 or sav\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state or status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:10
S30	34	(sleep or doze or (low near2 power)) near3 (flag or bit) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:13
S31	4979	(sleep or doze or (low near2 power)) near3 (flag or bit)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:15
S32	253	(sleep or doze) near3 (flag or bit) same (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:15
S33	141	(sleep or doze) near3 (flag or bit) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:18
S34	3	(record or save) with (sleep or doze) near3 (flag or bit) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	OFF	2019/01/02 10:18

			IBM_TDB			
S35	3	(record or save) with (sleep or doze) near3 (status) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:45
S36	5521	(record or save) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:46
S37	74	(record or save) with (sleep or doze) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:46
S38	101	(record\$3 or stor\$3) with (sleep or doze) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:47
S39	8522	(record\$3 or stor\$3) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:00
S40	7334	(stor\$3) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:00
S41	185	(stor\$3) with (sleep or doze) near3 (status or mode) with (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:00
S42	329	(stor\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:05
S43	1962	(transmi\$5 or receiv\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2019/01/02 12:24

			JPO; DERWENT; IBM_TDB			
S44	24	(transmi\$5 or receiv\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode) same (stor\$3) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:24
S45	922	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze or (low near2 power))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:28
S46	522	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:29
S47	5	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze) with packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:29
S48	75	(record\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:34
S49	17	(periodically) near5 (transmi\$5 or send\$3) near5 (login) with (server)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 16:41
S50	84	(comparison near2 packet) with (pre-stored or stored) near2 data	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 16:51
S51	290	(remote) near3 (wakeup or (wake-up) or (wake adj up)) near5 (request or packet or message)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/08/07 09:27
S52	38	(remote) near3 (wakeup or (wake-up) or (wake adj up)) near5 (request or packet	US-PGPUB; USPAT;	OR	OFF	2019/08/07 09:57

		or message) and (address) with (wakeup or wake-up or (wake-up)) near2 (request or packet or message or signal)	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
S53	0	(wakeup) near2 (feature or indicator or packet) near5 (entire or all or full or total or complete) near5 (apparatus or device or terminal or station or machine) near5 (awoken or waken or woke or awaken\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/01/14 09:26
S54	0	(wake-up or wakeup) near2 (feature or indicator or packet) same(entire or all or full or total or complete) near5 (apparatus or device or terminal or station or machine) near5 (awoken or waken or woke or awaken\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/01/14 09:26
S55	0	(wake-up or wakeup) near2 (feature or indicator or packet or request) same(entire or all or full or total or complete) near5 (apparatus or device or terminal or station or machine) near5 (awoken or waken or woke or awaken\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/01/14 09:27
S56	0	(wake-up or wakeup) near2 (feature or indicator or packet or request) same (entire or all or full or total or complete) near5 (apparatus or device or terminal or station or machine) near5 (awoken or waken or woke or awaken\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/01/14 09:28
S57	13	(wake-up or wakeup) near2 (feature or indicator or packet or request) same (entire or all or full or total or complete or portion or fraction) near5 (apparatus or device or terminal or station or machine) near5 (awoken or waken or woke or awaken\$3 or wake)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/01/14 09:28
S59	2	"15685661"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/01/14 16:28

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S58	0	(wake-up or wakeup) near2 (feature or indicator or packet or request) same (entire or all or full or total or complete or portion or fraction) near5 (apparatus or device or terminal or station or machine) near5 (awoken or waken or woke or awaken\$3 or wake) and H04W52/02.cpc.	US-PGPUB; USPAT	OR	OFF	2020/01/14 09:32

1 / 21 / 2020 6:02:34 AM

C:\Users\ageorge\Documents\EAST\Workspaces\15685661.wsp

Bibliographic Data

Application No: 15/685,661

Foreign Priority claimed: ☒ Yes ☐ No

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

Verified and Acknowledged: /AYANAH S GEORGE/

Examiner's Signature

Initials

Title:

REMOTE WAKEUP METHOD, CONNECTION SERVER, AND
NETWORKING APPARATUS HAVING SLEEP MODE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/24/2017	370	2467	5750/0472PUS1
RULE			

APPLICANTS

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ThroughTek Co., Ltd., Taipei, TAIWAN

INVENTORS

Yong-Sheng Chen Taipei, TAIWAN

CONTINUING DATA

FOREIGN APPLICATIONS

TAIWAN 105127737 08/29/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

09/19/2017

** SMALL ENTITY **

STATE OR COUNTRY

TAIWAN

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Suite 310

Fairfax, VA 22033

UNITED STATES

FILING FEE RECEIVED

\$930

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL **(Submitted Only via EFS-Web)**

Application Number	15685661	Filing Date	2017-08-24	Docket Number (if applicable)	5750/0472PUS1	Art Unit	2467
First Named Inventor	Yong-Sheng CHEN			Examiner Name	GEORGE, Ayanah S.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☒ Other Amendment After Final Under 37 CFR 1.116 filed November 15, 2019

☐ Enclosed

☐ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
 (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.
 The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
 Deposit Account No 503828

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature
 Applicant Signature

Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)

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.

Signature of Registered U.S. Patent Practitioner			
Signature	Joe McKinney Muncy/	Date (YYYY-MM-DD)	2019-12-12
Name	Joe McKinney Muncy	Registration Number	32334

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

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

Privacy Act Statement

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

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

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

Electronic Patent Application Fee Transmittal				
Application Number:		15685661		
Filing Date:		24-Aug-2017		
Title of Invention:		REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		
First Named Inventor/Applicant Name:		Yong-Sheng Chen		
Filer:		Joe McKinney Muncy/Tiana Glascoe		
Attorney Docket Number:		5750/0472PUS1		
Filed as Small 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:				
RCE- 1ST REQUEST	2801	1	650	650
Total in USD (\$)				650

Electronic Acknowledgement Receipt	
EFS ID:	38016075
Application Number:	15685661
International Application Number:	
Confirmation Number:	6489
Title of Invention:	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE
First Named Inventor/Applicant Name:	Yong-Sheng Chen
Customer Number:	60601
Filer:	Joe McKinney Muncy/Tiana Glascoe
Filer Authorized By:	Joe McKinney Muncy
Attorney Docket Number:	5750/0472PUS1
Receipt Date:	12-DEC-2019
Filing Date:	24-AUG-2017
Time Stamp:	17:01:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$650
RAM confirmation Number	E2019BBH01528875
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	2019-12-12-RCE-TRANSMITTAL-AS-FILED.pdf	697709	no	3
			c4bee13bbabe8e490340f3714b3189f2e548ebc1		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30476	no	2
			f81b44874b05e53a1ff033292b1b05275aa64f53		
Warnings:					
Information:					
Total Files Size (in bytes):			728185		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/685,661		Filing Date 08/24/2017		☐ To be Mailed		
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO										
APPLICATION AS FILED - PART I										
		(Column 1)	(Column 2)							
FOR		NUMBER FILED	NUMBER EXTRA	RATE (\$)		FEE (\$)				
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A	N/A						
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A	N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A						
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 = *		x \$40 =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *		x \$210 =						
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL						
APPLICATION AS AMENDED - PART II										
AMENDMENT	12/12/2019	(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))	* 25	Minus ** 25	= 0	x \$50 =		0			
	Independent (37 CFR 1.16(h))	* 3	Minus *** 3	= 0	x \$230 =		0			
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		0		
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 \$0 =					
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x \$0 =					
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE				
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/VIKKI GRAY/				
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1	6489
60601	7590	12/03/2019	EXAMINER	
Muncy, Geissler, Olds & Lowe, P.C.			GEORGE, AYANAH S	
4000 Legato Road			ART UNIT	
Suite 310			PAPER NUMBER	
Fairfax, VA 22033			2467	
			NOTIFICATION DATE	DELIVERY MODE
			12/03/2019	ELECTRONIC

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

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

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

MAILROOM@MG-IP.COM

Advisory Action Before the Filing of an Appeal Brief	Application No. 15/685,661	Applicant(s) Chen, Yong-Sheng	
	Examiner AYANAH S GEORGE	Art Unit 2467	AIA (FITF) Status Yes

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

THE REPLY FILED 15 November 2019 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:

a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.

b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires _____ months from the mailing date of the prior Advisory Action or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because

a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);

b) ☐ They raise the issue of new matter (see NOTE below);

c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet (See 37CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicants reply has overcome the following rejection(s): _____

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☐ For purposes of appeal, the proposed amendment(s): (a) ☐ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

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

9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
See Continuation Sheet.

13. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____

14. ☐ Other: _____

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____

Claim(s) objected to: _____

Claim(s) rejected: 1-25.

Claim(s) withdrawn from consideration: _____

/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	
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Continuation of 3. NOTE: The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The applicant amended the claims to include "wherein a segment of data of the apparatus wakeup packet is as wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus" this is a new limitation that requires further search and consideration

Continuation of REQUEST FOR RECONSIDERATION/OTHER 12. The request for reconsideration has been considered but does NOT place the application in condition for allowance because: The applicant amended the claims to include "wherein a segment of data of the apparatus wakeup packet is as wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus" this is a new limitation that requires further search and consideration

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: CHEN, Yong-Sheng	Examiner: GEORGE, Ayanah S
Application No.: 15/685,661	Art Unit: 2467
Filed: 24 Aug 2017	Confirmation Number: 6489
Title: REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE	
Attorney Docket No.: 5750/0472PUS1	

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

AMENDMENT AFTER FINAL UNDER 37 CFR 1.116

Dear Sir:

In response to the Final Office Action of 13 Aug 2019, and in view of the Petition for a one (1) month extension of time being filed concurrently herewith, the following are provided:

Amendments to the Specification;
Amendments to the Claims; and
Remarks.

Attachment:

Petition for Extension of Time

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph starting at page 3, line 3 with the following paragraph rewritten in amendment format:

In conclusion, according to the remote wakeup method, connection server, and networking apparatus having a sleep mode of the present invention, the networking apparatus (namely, the second apparatus) may be enabled to enter an ultra-low power consumption state (the sleep state), and a first apparatus can be provided to use a device identifier of the second apparatus to directly initiate a wakeup request (~~an apparatus a~~ wakeup request packet) to the remote second apparatus by means of the connection server, so that it is unnecessary to perform any setting (for example, settings on apparatuses such as a main board, a network card, and a firewall) or use network broadcasting to wake up the remote second apparatus without reducing a number of network packets in a local area network (LAN).

Please replace the paragraph starting at page 19, line 28 with the following paragraph rewritten in amendment format:

In conclusion, according to the remote wakeup method, connection server, and networking apparatus having a sleep mode of the present invention, the networking apparatus (namely, the second apparatus) may be enabled to enter an ultra-low power consumption state (the sleep state), and a first apparatus 110 can be provided to use a device identifier ID of the second apparatus 130 to directly initiate a wakeup request (~~an apparatus a~~ wakeup request packet WRP) to the remote second apparatus by means of the connection server 150, so that it is unnecessary to perform any setting (for example, settings on apparatuses such as a main board, a network card, and a firewall) or use network broadcasting to wake up the remote second apparatus without reducing a number of network packets in a local area network (LAN).

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A remote wakeup method, comprising:

a connection server receiving a wakeup request packet from a first apparatus, wherein the wakeup request packet comprises a device identifier of a second apparatus, wherein the first apparatus is connected to the connection server via local area network or internet;

the connection server obtaining wakeup information stored in the connection server according to the wakeup request packet, wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus;

the connection server generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the device identifier of the second apparatus from the wakeup request packet and the obtained wakeup information;

the connection server obtaining a network address corresponding to the second apparatus from a storage unit of the connection server according to the wakeup request packet; and

the connection server sending the apparatus wakeup packet to the second apparatus based on the network address, wherein a segment of data of the apparatus wakeup packet is as wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus.

2. (Original) The remote wakeup method according to claim 1, wherein the step of generating the apparatus wakeup packet comprises:

combining the wakeup request packet and the wakeup information into an unencrypted packet; and

performing an encryption calculation on the unencrypted packet to generate the apparatus wakeup packet.

3. (Original) The remote wakeup method according to claim 2, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information.

4. (Original) The remote wakeup method according to claim 2, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

5. (Original) The remote wakeup method according to claim 2, further comprising:
receiving, by the second apparatus, the apparatus wakeup packet;
obtaining, by the second apparatus, a wakeup feature data from the apparatus wakeup packet, and the wakeup feature packet comprises entire data or partial data of the device identifier and the wakeup information;
comparing the wakeup feature data with a pre-stored feature data, wherein the pre-stored feature data is pre-stored in the second apparatus before the second apparatus sleeps; and
when the wakeup feature data is consistent with the pre-stored feature data, waking up the entire second apparatus.

6. (Original) The remote wakeup method according to claim 5, wherein a data size of the wakeup feature data and a data size of the pre-stored feature data are both at least one encryption unit of the encryption calculation.

7. (Previously Presented) The remote wakeup method according to claim 1, further comprising:
receiving a sleep login packet from the second apparatus; and
recording a running state of the second apparatus as a sleep state in the storage unit according to the sleep login packet.

8. (Previously Presented) The remote wakeup method according to claim 7, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state.

9. (Previously Presented) The remote wakeup method according to claim 1, further comprising:

receiving a connection request packet from the first apparatus, wherein the connection request packet is used to request for performing communication connection to the second apparatus;

determining a running state of the second apparatus according to the connection request packet; and

when the running state of the second apparatus is a sleep state, replying to the first apparatus that the second apparatus sleeps.

10. (Previously presented) The remote wakeup method according to claim 1, wherein the steps of obtaining the wakeup information and the network address comprise: reading the wakeup information and the network address that correspond to the device identifier from a storage unit.

11. (Currently Amended) [[An]] A connection server, comprising:

a network module;

a storage unit, which stores a network address and wakeup information that correspond to a second apparatus; and

a control unit, which connects to the network module and storage unit, receives a wakeup request packet from a first apparatus through the network module, obtains the wakeup information stored in the storage unit and the network address stored in the storage unit according to the wakeup request packet, generates an apparatus wakeup packet according to the received wakeup request packet and the obtained wakeup information, and sends the generated apparatus wakeup packet to the second apparatus through the network module according to the network address, wherein the wakeup request packet comprises a device identifier of the second apparatus, and the apparatus wakeup packet comprises the device identifier from the wakeup request packet and the obtained wakeup information of the second apparatus, wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus, and wherein a segment of data of the apparatus wakeup packet is as a

wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus.

12. (Original) The connection server according to claim 11, wherein the control unit combines the wakeup request packet and the wakeup information into one unencrypted packet and performs an encryption calculation on the unencrypted packet to generate an apparatus wakeup packet.

13. (Original) The connection server according to claim 12, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information.

14. (Original) The connection server according to claim 12, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

15. (Previously Presented) The connection server according to claim 11, wherein the storage unit further stores a running state of the second apparatus, and the control unit receives a sleep login packet from the second apparatus through the network module and updates the running state of the second apparatus in the storage unit as a sleep state according to the sleep login packet.

16. (Previously Presented) The connection server according to claim 15, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state.

17. (Previously Presented) The connection server according to claim 11, wherein when the control unit receives a connection request packet used to request for performing communication connection to the second apparatus from the first apparatus through the network module, the control unit determines a running state of the second apparatus according to the

connection request packet and when determining that the running state of the second apparatus is a sleep state, replies to the first apparatus that the second apparatus sleeps.

18. (Previously Presented) The connection server according to claim 11, wherein the storage unit records the device identifier and correspondences between the device identifier and the wakeup information and between the network address and the wakeup information.

19. (Currently Amended) A networking apparatus having a normal running mode and a sleep mode, comprising:

a network module;

a storage unit, which stores a device identifier and wakeup information; and

a control unit, which connects to the network module and storage unit, and before entering the sleep mode, generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit, wherein the pre-stored feature data comprises entire data or partial data of the device identifier and the wakeup information, wherein:

in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus;

in the sleep mode, the control unit sleeps, but the network module still keeps running and when receiving an apparatus wakeup packet sent to the network address of the networking apparatus from a connection server and generated by the connection server, compares ~~performs comparison according to~~ the pre-stored feature data and a wakeup feature data being a segment of data of the apparatus wakeup packet to determine whether to, ~~so as to wake up whole of the~~ networking apparatus.

20. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein the control unit generates a comparison packet and obtains the pre-stored feature data from the comparison packet according to the device identifier and the wakeup information.

21. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 20, wherein in the sleep mode, when the network module receives the apparatus wakeup packet from a connection server, the network module captures a wakeup feature data from the apparatus wakeup packet according to a given data position and compares the wakeup feature data with the pre-stored feature data, wherein when the wakeup feature data is consistent with the pre-stored feature data, the network module wakes up the entire networking apparatus.

22. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

23. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein the storage unit stores a login data, before entering the sleep mode, the control unit generates, according to the login data and a feature flag, a sleep login packet having the login data, and the feature flag indicates that a running state of the networking apparatus is sleep.

24. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 23, wherein the feature flag is located at a header of the sleep login packet.

25. (Previously Presented) The networking apparatus having a normal running mode and a sleep mode according to claim 23, wherein in the sleep mode, the network module periodically sends the sleep login packet to the connection server.

REMARKS

Claims 1-25 remain present in this application.

The specification and claims 1, 11 and 19 have been amended. Favorable consideration of the application, as amended, is respectfully requested.

Entry of Amendments

By this Amendment, claims 1, 11 and 19 have been amended. Support for amended claims 1, 11 and 19 may be found in the paragraphs 28, 48, 51, 55 and 64 of the original specification. It is respectfully submitted that the foregoing amendments do not contain new matter. As such, the Examiner is respectfully requested to enter the same.

Rejections under 35 USC 103

Claims 1, 10, 11 and 18 are rejected under 35 U.S.C. 103 as being unpatentable over Winter et al. (Pub. No.: 2015/0074432; hereinafter “Winter”), Wu et al. (Pub. No.: 2015/0172423; hereinafter “Wu”), and Siegmund et al. (Pub. No.: 2007/0050645; hereinafter “Siegmund”). Claims 2-6, 12-14 and 22 are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Wu, Siegmund and Engel et al. (Pub. No.: 2008/0034197; hereinafter “Engel”). Claims 7-9 and 15-17 are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Wu, Siegmund and Grau (Pub. No.: 2016/0112955; hereinafter “Grau”). Claims 19-21 are rejected under 35 U.S.C. 103 as being unpatentable over Winter and Siegmund. Claims 23 and 24 are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Siegmund and Grau. Claim 25 is rejected under 35 U.S.C. 103 as being unpatentable over Winter, Siegmund, Grau and Takao et al. (Pub. No.: 2014/0072277; hereinafter “Takao”). All of these rejections are respectfully traversed.

Claim 1 recites:

1. A remote wakeup method, comprising:

a connection server receiving a wakeup request packet from a first apparatus, wherein the wakeup request packet comprises a device identifier of a second apparatus, wherein the first apparatus is connected to the connection server via local area network or internet;

the connection server obtaining wakeup information stored in the connection server according to the wakeup request packet, wherein the wakeup

information stored in the connection server is the same as wakeup information stored in the second apparatus;

the connection server generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the device identifier of the second apparatus from the wakeup request packet and the obtained wakeup information;

the connection server obtaining a network address corresponding to the second apparatus from a storage unit of the connection server according to the wakeup request packet; and

the connection server sending the apparatus wakeup packet to the second apparatus based on the network address, wherein a segment of data of the apparatus wakeup packet is as wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus.

(Emphasis added.)

Claims 1 is distinct from the cited art for at least the reason that the cited art fails to disclose the features emphasized above.

That is, in exemplary embodiments of claim 1 of the present invention, when the networking apparatus (namely, the second apparatus) is in an ultra-low power consumption state (the sleep state), a first apparatus 110 can use a device identifier ID of the second apparatus 130 to directly initiate a wakeup request (wakeup request packet WRP) to the remote second apparatus by means of the connection server 150 (*refer to para. 91*). Herein, the connection server 150 generates the apparatus wakeup packet based on the device identifier ID of the second apparatus 130 in the WRP from the first apparatus 110 and the wakeup information WM pre-sent by the second apparatus 130, stored in the connection server 150 and being an authorization key (*refer to para. 38, 40, 42, 43 and 64*). The second apparatus 130 generates a pre-stored feature data according to the device identifier and the wakeup information WM stored therein (*refer to para. 57-63*), and compares the pre-stored feature data with the wakeup feature data generated based on the WRP to determine whether it wakes up the whole of the second apparatus 130 (*refer to para. 49 and 50*). Therefore, it is unnecessary to perform any setting (for example, settings on apparatuses such as a main board, a network card, and a firewall) or use network broadcasting to wake up the remote second apparatus without reducing a number of network packets in a local area network (LAN) (*refer to para. 91*).

However, Winter discloses:

At block 403, method 400 includes determining whether the received frame or packet is a WOA packet. For instance, **IHS 200 may further search the packet or frame for a WOA unique tag or pattern, immediately after the 16 copies of the MAC address. Regardless of whether the WOA tag is found, either at blocks 404 or 405 WOL operations may be performed. Specifically, IHS 200 may transition from the first, lower power state (e.g., S1 through S5) to a second, higher power state (e.g., S0).** If the WOA tag is found, however, control passes to block 406. Otherwise control returns to block 401 (or method 400 ends). *(See, para. 52)*

At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, **IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303).** The local memory may include a table correlating each available application or virtual server residing within IHS 200 with a distinct identification string. **Examples of identification include, but are not limited to, Internet Protocol (IP) addresses, MAC addresses, virtual MAC addresses, and global application tag (strings that uniquely identify software applications).** *(See, para. 53)*

At block 407, method 400 includes enabling communications between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server. After the communication ends, the connection may be closed at block 408 and control returns to block 401. Importantly, in the foregoing example, the entire communication was set up using a single magic packet. In other words, **all parameters necessary for establishing the communications between source and target applications or virtual servers may be provided in a single WOA packet.** *(See, para. 55)*

In Winter, IHS 200 performs the WOL operations by searching the packet or frame for a WOA unique tag or pattern, immediately after the 16 copies of the MAC address, and determines which application or virtual server is to be awoken by comparing the identification (includes Internet Protocol (IP) addresses, MAC addresses, virtual MAC addresses, and global application tag) recognized from the packet or frame with ID stored in local memory, and the single WOA packet has all parameters necessary for establishing the communications between source and target applications or virtual servers.

In other words, in Winter, the parameters in the WOA packet is used **for establishing the communications, NOT for awaking the apparatus represented by the identification.** That is, Winter does **NOT** disclose or teach the wakeup information stored in the server and used for

awaking the apparatus represented by the identification, and does **NOT** disclose or teach **the ID of the awoken apparatus (the identification recited by the examiner) and the wakeup information (the parameters in the WOA packet recited by the examiner) from different apparatus (i.e. the first apparatus and the connection server) which differs from the awoken apparatus (i.e. the second apparatus).**

Wu discloses:

For example, the bridge processor 407 receives a payload originating from the external device 101 to form a communication link. The bridge processor 407 instruct the MICS controller 300 over the communication bus 201 to initiate a communication link with the IMD 104. The bridge processor 407 further instructs the SWCN controller 402 to cease outputting to the SWCN transceiver 405. The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. **The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID, and a channel setup.** The company and transceiver ID may be stored on the memory module 303 or received by the MICS processor 301 within the instructions from the bridge processor 407. **The channel setup contains the MIC channel information, modulation modes, and address data to form a communication link between the IMD 104 and the communication bridge 200. The channel information may be stored on the memory module 303, or the cleanest channel parameters determined by the MICS processor 301 by monitoring MICS channels through the MICS receiver 305. Optionally, the channel information may be predetermined by user input from the external device 101.** (See, para. 68)

In other words, Wu does **NOT** disclose or teach **the ID of the awoken apparatus (the transceiver ID recited by the examiner) and the wakeup information (the channel setup recited by the examiner) from different apparatus (i.e. the first apparatus and the connection server) which differs from the awoken apparatus (i.e. the second apparatus).**

Siegmund discloses:

Hence, what is needed is a method and an apparatus for **waking up a sleeping system from a remote system that is located on a different LAN.** (See, para. 8)
In an embodiment, **the first wake-up packet includes** a DHCP (Dynamic Host Configuration Protocol) reply packet whose header contains **a client hardware address** field which is set to the lower-layer-protocol address of the sleeping target system, **a client Internet Protocol (IP) address** field which is set to an IP address associated with the sleeping target system, and **a relay agent IP address** field which is set to an IP address associated with the relay agent which is coupled with the target LAN. (See, para. 12)

In an embodiment, the **second wake-up packet** is an Ethernet packet whose **destination address** field is set to the lower-layer-protocol address of the sleeping target system, and whose payload contains the magic bit-pattern. (*See, para. 13*)

In other words, Siegmund recites the wake-up packet has IP address, but does **NOT** disclose or teach **the network address of the awoken apparatus (i.e. the second apparatus) stored in the connection server**.

As above, all citations recite the wake-up technology that one device directly wakes up another device, so they all does **NOT** discloses or teach the ID of the awoken apparatus and the wake-up information WM from different apparatus (i.e. the first apparatus and the connection server), so that the wake-up request for requesting to wake up the second apparatus can be raised by the first device 110 and the wakeup operation for waking up the second apparatus is performed by the connection server 150.

That is, all citations fail to discloses or teach **“the connection server obtaining wakeup information stored in the connection server according to the wakeup request packet, wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus”, “the connection server generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the device identifier of the second apparatus from the wakeup request packet and the obtained wakeup information”, “the connection server obtaining a network address corresponding to the second apparatus from a storage unit of the connection server according to the wakeup request packet”, and “the connection server sending the apparatus wakeup packet to the second apparatus based on the network address, wherein a segment of data of the apparatus wakeup packet is as wakeup feature data for determining whether whole of the second apparatus be awoken by the second apparatus”** recited in claim 1.

Therefore, Applicant respectfully asserts that the combination of Winter, Wu and Siegmund does not teach each and every recitation of the claim 1. Moreover, the combination of Winter, Wu and Siegmund in this field also does not render the claim 1 obvious. Applicant respectfully asserts that independent claim 1 is patentable over the cited arts.

Claims 2-10 depend from claim 1, and therefore, the rejections of these claims should be withdrawn for at least the same reasons.

Claims 11 and 19 each contain limitations corresponding to those discussed above in connection with claim 1, and are therefore allowable for corresponding reasons. Likewise claims 12-18 and 20-25 depend from claim 11 or 19 and are likewise allowable.

In view of the foregoing amendments and remarks, it is respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the features of independent claims 1, 11 and 19, as well as their dependent claims. Reconsideration and withdrawal of the 35 USC 103 rejections are respectfully requested.

Conclusion

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require action, it is respectfully requested that the Examiner telephone Joe McKinney Muncy, Applicants' Attorney, at 703.621.7140 so that such issues may be resolved as expeditiously as possible.

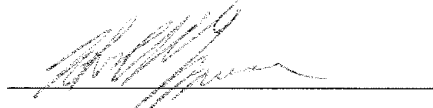
Application No. 15/685,661
Attorney Docket No. 5750/0472PUS1
Response to Final Office Action dated 13 Aug 2019
Page 15 of 15

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3828 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; in particular, extension of time fees.

Date: November 15, 2019

Respectfully submitted,

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) 5750/0472PUS1																														
Application Number 15/685,661	Filed 24 Aug 2017																															
For REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING																																
Art Unit 2467	Examiner GEORGE, Ayanah S																															
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below): <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th style="width: 15%; text-align: center;">Fee</th> <th style="width: 15%; text-align: center;">Small Entity Fee</th> <th style="width: 15%; text-align: center;">Micro Entity Fee</th> <th style="width: 20%;"></th> </tr> </thead> <tbody> <tr> <td>☒ One month (37 CFR 1.17(a)(1))</td> <td style="text-align: center;">\$200</td> <td style="text-align: center;">\$100</td> <td style="text-align: center;">\$50</td> <td style="text-align: center;">\$ 100</td> </tr> <tr> <td>☐ Two months (37 CFR 1.17(a)(2))</td> <td style="text-align: center;">\$600</td> <td style="text-align: center;">\$300</td> <td style="text-align: center;">\$150</td> <td style="text-align: center;">\$</td> </tr> <tr> <td>☐ Three months (37 CFR 1.17(a)(3))</td> <td style="text-align: center;">\$1,400</td> <td style="text-align: center;">\$700</td> <td style="text-align: center;">\$350</td> <td style="text-align: center;">\$</td> </tr> <tr> <td>☐ Four months (37 CFR 1.17(a)(4))</td> <td style="text-align: center;">\$2,200</td> <td style="text-align: center;">\$1,100</td> <td style="text-align: center;">\$550</td> <td style="text-align: center;">\$</td> </tr> <tr> <td>☐ Five months (37 CFR 1.17(a)(5))</td> <td style="text-align: center;">\$3,000</td> <td style="text-align: center;">\$1,500</td> <td style="text-align: center;">\$750</td> <td style="text-align: center;">\$</td> </tr> </tbody> </table> ☐ Applicant asserts small entity status. See 37 CFR 1.27. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☐ The Director has already been authorized to charge fees in this application to a Deposit Account. ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number <u>50-3828</u>. ☒ Payment made via EFS-Web. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. I am the ☐ applicant. ☒ attorney or agent of record. Registration number <u>32,334</u> ☐ attorney or agent acting under 37 CFR 1.34. Registration number _____ Signature ROBERT F. GNUSE Joe McKinney Muncy Typed or printed name November 15, 2019 Date 703-621-7140 Telephone Number NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.				Fee	Small Entity Fee	Micro Entity Fee		☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ 100	☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$	☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$	☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$	☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$
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☒ *Total of 1 forms are submitted.

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

Electronic Patent Application Fee Transmittal				
Application Number:		15685661		
Filing Date:		24-Aug-2017		
Title of Invention:		REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		
First Named Inventor/Applicant Name:		Yong-Sheng Chen		
Filer:		Joe McKinney Muncy/Samantha Pittenger		
Attorney Docket Number:		5750/0472PUS1		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
Total in USD (\$)				100

Electronic Acknowledgement Receipt	
EFS ID:	37768035
Application Number:	15685661
International Application Number:	
Confirmation Number:	6489
Title of Invention:	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE
First Named Inventor/Applicant Name:	Yong-Sheng Chen
Customer Number:	60601
Filer:	Joe McKinney Muncy/Samantha Pittenger
Filer Authorized By:	Joe McKinney Muncy
Attorney Docket Number:	5750/0472PUS1
Receipt Date:	15-NOV-2019
Filing Date:	24-AUG-2017
Time Stamp:	15:52:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$100
RAM confirmation Number	E2019AEF52353914
Deposit Account	503828
Authorized User	Samantha Pittenger
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		2019-11-15_Amendment.pdf	1743488	yes	15
			e01292a22e5ea7e0839bb782857ac0b9992cac8a		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Response After Final Action		1	1	
	Specification		2	2	
	Claims		3	8	
	Applicant Arguments/Remarks Made in an Amendment		9	15	
Warnings:					
Information:					
2	Extension of Time	2019-11-15_1moEoT.pdf	217469	no	1
			f74ac4e403597a9ffe0020d55d9ecbdf12dd0e4		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30819	no	2
			560b0ae27f206a0ce84aed2ac31ca9c992dbe0c8		
Warnings:					
Information:					
Total Files Size (in bytes):			1991776		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/685,661		Filing Date 08/24/2017		☐ To be Mailed		
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO										
APPLICATION AS FILED - PART I										
		(Column 1)	(Column 2)							
FOR		NUMBER FILED	NUMBER EXTRA	RATE (\$)		FEE (\$)				
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A	N/A						
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A	N/A						
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A						
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 = *		x \$40 =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 = *		x \$210 =						
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL						
APPLICATION AS AMENDED - PART II										
AMENDMENT	11/15/2019	(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))	* 25	Minus ** 25	= 0	x \$50 =		0			
	Independent (37 CFR 1.16(h))	* 3	Minus *** 3	= 0	x \$230 =		0			
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE		0		
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 \$0 =					
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x \$0 =					
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE				
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE				
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/VIOLA D ROGERS/				
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".										
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

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

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



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1	6489

60601	7590	08/13/2019
Muncy, Geissler, Olds & Lowe, P.C.		
4000 Legato Road		
Suite 310		
Fairfax, VA 22033		

EXAMINER	
GEORGE, AYANAH S	

ART UNIT	PAPER NUMBER
2467	

NOTIFICATION DATE	DELIVERY MODE
08/13/2019	ELECTRONIC

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

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

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

MAILROOM@MG-IP.COM

DETAILED ACTION

1. This action is a response to an amendment filed 1/4/2019 in which claims 1-25 are pending.

Notice of Pre-AIA or AIA Status

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

Claim Objections

3. All claim objections are withdrawn due to applicant's amendments.

Claim Interpretation

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

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

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

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

The claims in this application are given their broadest reasonable interpretation using the plain meaning of the claim language in light of the specification as it would be understood by one of ordinary skill in the art. The broadest reasonable interpretation of a claim element (also commonly referred to as a claim limitation) is limited by the description in the specification when 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is invoked.

As explained in MPEP § 2181, subsection I, claim limitations that meet the following three-prong test will be interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph:

- (A) the claim limitation uses the term “means” or “step” or a term used as a substitute for “means” that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;
- (B) the term “means” or “step” or the generic placeholder is modified by functional language, typically, but not always linked by the transition word “for” (e.g., “means for”) or another linking word or phrase, such as “configured to” or “so that”; and
- (C) the term “means” or “step” or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Use of the word “means” (or “step”) in a claim with functional language creates a rebuttable presumption that the claim limitation is to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites sufficient structure, material, or acts to entirely perform the recited function.

Absence of the word “means” (or “step”) in a claim creates a rebuttable presumption that the claim limitation is not to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is not interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites function without reciting sufficient structure, material or acts to entirely perform the recited function.

Claim limitations in this application that use the word “means” (or “step”) are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action. Conversely, claim limitations in this application that do not use the word “means” (or

“step”) are not being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action.

This application includes one or more claim limitations that do not use the word “means,” but are nonetheless being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because the claim limitation(s) uses a generic placeholder that is coupled with functional language without reciting sufficient structure to perform the recited function and the generic placeholder is not preceded by a structural modifier. Such claim limitation(s) is/are: unit and module in claims 11-25.

Because this/these claim limitation(s) is/are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, it/they is/are being interpreted to cover the corresponding structure described in the specification as performing the claimed function, and equivalents thereof.

If applicant does not intend to have this/these limitation(s) interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may: (1) amend the claim limitation(s) to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph (e.g., by reciting sufficient structure to perform the claimed function); or (2) present a sufficient showing that the claim limitation(s) recite(s) sufficient structure to perform the claimed function so as to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

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.

4. Claims 1, 10, 11 and 18 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter et al. (Pub. No.: 2015/0074432), herein Winter, Wu et al. (Pub. No.: 2015/0172423), herein Wu and Siegmund et al. (Pub. No.: 2007/0050645), herein Siegmund.

As to claim 1, Winter teaches a remote wakeup method, comprising:

receiving a wakeup request packet from a first apparatus, wherein the wakeup request packet comprises a device identifier of a second apparatus (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

obtaining wakeup information according to the wakeup request packet (Winter [0053] determine which application or virtual server is to be awoken by the received packet);

generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the wakeup information (Winter[0055] enabling communications (generating a wakeup packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server);

Winter does not teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus

However Wu does teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus
(Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu, because Wu [0067] teaches us how to detect high power signals without the need for a local oscillator and synthesizer in the receiver.

Winter nor Wu teach

Obtaining a network address corresponding to the second apparatus according to the wakeup information;

Sending the apparatus wakeup packet to the second apparatus based on the network address.

However Siegmund does teach

Obtaining a network address corresponding to the second apparatus according to the wakeup information (Siegmund Fig 3 and [0012] first wake-up packet includes address of the sleeping target);

Sending the apparatus wakeup packet to the second apparatus based on the network address
(Siegmund [0013] the second wake-up packet includes a destination address based on the network address Fig. 3 (312) send the second wake-up packet)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Siegmund because Siegmund teaches us a method of waking up a system from a remote system that is located on a different LAN (Siegmund [0008])

As to claim 11, Winter teaches a connection server, comprising:

a network module (Winter Fig. 2);

a storage unit, which stores a connection information and a wakeup information that correspond to a second apparatus (Winter Fig. 2 memory); and

a control unit, which connects to the network module and storage unit (Winter Fig. 2 controller),

receives a wakeup request packet from a first apparatus through the network module Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303)

generates an apparatus wakeup packet according to the wakeup request packet and the wakeup information (Winter [0055] enabling communications (generating a wakeup packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server);

the apparatus wakeup packet comprises the wakeup information of the second apparatus Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by

the received packet by attempting to match the recognized identification(s) with IDs (connection information));

Winter does not teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus

However Wu does teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus

(Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu, for the same reasons stated in claim 1.

Winter nor Wu teach

Obtains the wakeup information and the network address according to the wakeup request packet

And sends the apparatus wakeup packet to the second apparatus through the network module according to the network address

However Siegmund does teach

Obtains the wakeup information and the network address according to the wakeup request packet (Siegmund Fig 3 and [0012] first wake-up packet includes address of the sleeping target);

And sends the apparatus wakeup packet to the second apparatus through the network module according to the network address (Siegmond [0013] the second wake-up packet includes a destination address based on the network address Fig. 3 (312) send the second wake-up packet)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Siegmond for the same reasons stated in claim 1.

As to claim 10, the combination of Winter, Wu and Siegmond teach the remote wakeup method according to claim 1, wherein the steps of obtaining the wakeup information and the network address comprise: reading the wakeup information and the network address that correspond to the device identifier from a storage unit (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs and Siegmond Fig 3 and [0012] first wake-up packet includes address of the sleeping target);

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Siegmond for the same reasons stated in claim 1.

As to claim 18, the combination of Winter, Wu and Siegmond teach the connection server according to claim 11, wherein the storage unit records the device identifier and correspondences between the device identifier and the wakeup information and between the connection information and the wakeup information (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to

match the recognized identification(s) with IDs (connection information) (Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup (connection information) Siegmund [0013] the second wake-up packet includes a destination address based on the network address Fig. 3 (312) send the second wake-up packet)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu, for the same reasons stated in claim 1.

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Siegmund for the same reasons stated in claim 1

5. Claims 2-6, 12-14 and 22 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Wu, Siegmund and Engel et al. (Pub. No.: 2008/0034197), herein Engel.

As to claims 2 and 12, the combination of Winter, Wu and Siegmund teach the remote wakeup method according to claim 1 and the connection server of claim 11, wherein the step of generating the apparatus wakeup packet comprises:

combining the wakeup request packet and the wakeup information into a packet (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information/request

packet and wakeup information) and [0055] enabling communications (generating a packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server)

Winter, Wu and Siegmund do not teach
into an unencrypted packet
; and performing an encryption calculation on the unencrypted packet to generate the
apparatus wakeup packet.

However Engel does teach
into an unencrypted packet (Engel [0027] creating an unencrypted coding characteristic for the plurally encrypted data packet and [0033] segmenting characteristic denoting partial data packets obtained by segmenting a single data packet and outputting the segmenting characteristic together with segmented partial data packets to be encrypted.
; and performing an encryption calculation on the unencrypted packet to generate the
apparatus wakeup packet (Engel [0030] output together with the encrypted data packet after encryption in each encryption operation)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu and Siegmund with Engel, because Engel [0014] teaches us a method of encrypting or decrypting data packets of a data stream that is difficult to break by unauthorized third parties even with increased computer power and thus comprises a particularly high level of security.

As to claims 3 and 13, the combination of Winter, Wu, Siegmund and Engel teach the remote wakeup method according to claim 2 and the connection server of claim 12, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information (Engel [0033] Adjusting the data packet to be encrypted may preferably include the following: segmenting the data packet to be encrypted into multiple partial data packets to be encrypted)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu and Siegmund with Engel for the same reasons stated in claim 2.

As to claims 4, 14 and 22, the combination of Winter, Wu, Siegmund and Engel teach the remote wakeup method according to claim 2, the connection server according to claim 12 and the networking apparatus according to claim 19, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer (Engel [0037]-[0038] adjusting the data packet to be encrypted may include the creation of a data block containing the data packet to be encrypted and a block characteristic, said block characteristic identifying the data packet to be encrypted in the data block, and use of the data block instead of the data packet to be encrypted. This procedure is also known as "padding" and produces data blocks based on a respective formatting instruction of a respective coding algorithm the size of which is a multiple of a block size of the respective coding algorithm. A data block to be encrypted can for example be filled at its end with characters (such as random data or predefined data) until the respective block size is reached. The number of inserted characters is noted down in the form of the block characteristic.

The block characteristic may optionally be added, e.g., as the last character (byte) of the data block to the respective data block)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu, Siegmund and Engel with Wu for the same reasons stated in claim 1.

As to claim 5, the combination of Winter, Wu, Siegmund and Engel teach the remote wakeup method according to claim 2, further comprising:

receiving, by the second apparatus, the apparatus wakeup packet (Wu [0069] Once the wake-up signal packet is formed, the MICS processor 301 may output the wake-up signal packet to the SWCN transceiver 405 using the wake-up line 202. The MICS controller 300 may monitor the MICS transceiver awaiting a confirmation signal from the IMD 104 over the MICS channel. Once the MICS controller 300 receives confirmation of a communication link with the IMD 104, the MICS controller 300 may inform or output to the bridge controller 401 that communication with the IMD 104 is established);

obtaining, by the second apparatus, a wakeup feature data from the apparatus wakeup packet, and the wakeup feature packet comprises entire data or partial data of the device identifier and the wakeup information (Wu [0067] The IMD may exit the sleep mode once a wake-up signal of an external device is detected by a wake up system on the IMD);

comparing the wakeup feature data with a pre-stored feature data, wherein the pre-stored feature data is pre-stored in the second apparatus before the second apparatus sleeps (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information)); and

when the wakeup feature data is consistent with the pre-stored feature data, waking up the entire second apparatus (Wu [0067] The IMD may exit the sleep mode once a wake-up signal of an external device is detected by a wake up system on the IMD);

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Siegmund and Engel with Wu for the same reasons stated in claim 1.

As to claim 6, the combination of Winter, Wu, Siegmund and Engel teach the remote wakeup method according to claim 5, wherein a data size of the wakeup feature data and a data size of the pre-stored feature data are both at least one encryption unit of the encryption calculation (*Engel [0033]* *Adjusting the data packet to be encrypted may preferably include the following: segmenting the data packet to be encrypted into multiple partial data packets to be encrypted*)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu and Siegmund with Engel for the same reasons stated in claim 2.

6. Claims 7-9 and 15-17 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Wu, Siegmund and Grau (Pub. No.: 2016/0112955), herein Grau.

As to claims 7 and 15, Winter, Wu and Siegmund teach the remote wakeup method according to claim 1 and the server according to claim 11,

Winter, Wu and Siegmund do not teach

Further comprising:

receiving a sleep login packet from the second apparatus; and

recording a running state of the second apparatus as a sleep state in the storage unit according to the sleep login packet.

However Grau does teach

receiving a sleep login packet from the second apparatus (Grau [0009] transmit messages comprises a sleep flag); and

recording a running state of the second apparatus as a sleep state in the storage unit according to the sleep login packet (Grau [0021] The sleep flag may indicate the mode of the wireless device after a message exchange sequence and [0105] Flash memory 1420 may be used to store data from sensor(s))

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu and Siegmund with Grau, because Grau [0008] teaches a method where the wireless station and the access point go into low power states more quickly, and further reducing the duration of communication.

As to claims 8 and 16, the combination of Winter, Wu, Siegmund and Grau teach the remote wakeup method according to claim 7 and the server according to claim 15, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state (Grau [0009] transmit messages comprises a sleep flag)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu and Siegmund with Grau for the same reasons stated in claim 7.

As to claim 9, the combination of Winter, Wu, Siegmund and Grau teach the remote wakeup method according to claim 1, further comprising:

receiving a connection request packet from the first apparatus, wherein the connection request packet is used to request for performing communication connection to the second apparatus (Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup);

determining a running state of the second apparatus according to the connection request packet (Grau [0009] transmit messages comprises a sleep flag and [0022] the request message comprising a sleep flag); and

when the running state of the second apparatus is sleep, replying to the first apparatus that the second apparatus sleeps (Grau [0022] generating a response message, wherein generating the response message comprises setting a bit in the header of the response message to indicate the wireless station is entering a power save mode (the apparatus is asleep));

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu for the same reasons stated in claim 1. It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu and Siegmund with Grau for the same reasons stated in claim 7.

As to claim 17, the combination of Winter, Wu, Siegmund and Grau teach connection server according to claim 11, wherein when the control unit receives a connection request packet used to request for performing communication connection to the second apparatus from the first apparatus through the network module, the control unit determines a running state of the second apparatus according to the connection request packet and when determining that the running state of the second apparatus is a sleep state, replies to the first apparatus that the second apparatus sleeps (Winter [0053]

At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303) (Grau [0009] transmit messages comprises a sleep flag and [0022] the request message comprising a sleep flag and [0022] generating a response message, wherein generating the response message comprises setting a bit in the header of the response message to indicate the wireless station is entering a power save mode (the apparatus is asleep)):

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter, Wu and Siegmund with Grau for the same reasons stated in claim 7.

7. Claims 19-21 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter and Siegmund.

As to claim 19, Winter teaches a networking apparatus having a sleep mode and a normal running mode, comprising:

a network module (Winter Fig. 2);

a storage unit, which stores a device identifier and wakeup information (Winter Fig. 2 memory);

and

a control unit, which connects to the network module and storage unit (Winter Fig. 2 controller),

and

before entering the sleep mode, generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit (Winter

[0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303).)

wherein the pre-stored feature data comprises entire data or partial data of the device identifier and the wakeup information, (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

wherein: in the sleep mode, the network module still keeps running and when receiving an apparatus wakeup packet, performs comparison according to the pre-stored feature data and the apparatus wakeup packet, so as to wake up the networking apparatus (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303) and [0045] During these sleeping states, IHS 200 may appear to a human user to be off, but may retain enough of its hardware context (e.g., registers, memory caches, RAM, etc.) to return to the working state without rebooting)

Winter does not teach

In the normal running mode, the control unit sends a normal login packet through the network module to provide a network address of the networking apparatus

Sent to the network address of the networking apparatus

However Siegmund does teach

In the normal running mode, the control unit sends a normal login packet through the network module to provide a network address of the networking apparatus (Siegmund Fig 3 and [0012] first wake-up packet includes address of the sleeping target);

Sent to the network address of the networking apparatus (Siegmund [0013] the second wake-up packet includes a destination address based on the network address Fig. 3 (312) send the second wake-up packet)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter with Siegmund for the same reasons stated in claim 1.

As to claim 20, the combination of Winter and Siegmund teach the networking apparatus having a normal mode and a sleep mode according to claim 19, wherein the control unit generates a comparison packet and obtains the pre-stored feature data from the comparison packet according to the device identifier and the wakeup information (Winter [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or

server. For example, IHS 200 may determine which application or virtual server is to be awoken (generates comparison packet) by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

As to claim 21, Winter teaches the networking apparatus having a normal mode and a sleep mode according to claim 20, wherein in the sleep mode, when the network module receives the apparatus wakeup packet from a connection server, the network module captures a wakeup feature data from the apparatus wakeup packet according to a given data position and compares the wakeup feature data with the pre-stored feature data, wherein when the wakeup feature data is consistent with the pre-stored feature data, the network module wakes up the entire networking apparatus (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

8. Claims 23 and 24 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Siegmund and Grau.

As to claim 23, the combination of Winter, Siegmund and Grau teach the networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein the storage unit stores a login data, before entering the sleep mode, the control unit generates, according to the login data and

a feature flag, a sleep login packet having the login data, and the feature flag indicates that a running state of the networking apparatus is sleep (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303) (Grau [0009] transmit messages comprises a sleep flag (Grau [0021] The sleep flag may indicate the mode of the wireless device after a message exchange sequence and [0105] Flash memory 1420 may be used to store data from sensor(s));

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Siegmund with Grau for the same reasons stated in claim 7.

As to claim 24, the combination of Winter, Siegmund and Grau teach the networking apparatus having a sleep mode according to claim 23, wherein the feature flag is located at a header of the sleep login packet (Grau [0014] The sleep flag may be in a header of the at least one of the plurality of transmit messages)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Siegmund with Grau for the same reasons stated in claim 7.

9. Claim 25 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Siegmund, Grau and Takao et al. (Pub. No.: 2014/0072277), herein Takao.

As to claim 25, the combination of Winter, Siegmund and Grau teach the networking apparatus having a sleep mode according to claim 23,

Winter, Siegmund and Grau do not teach
wherein in the sleep mode, the network module periodically sends the sleep login packet to the connection server.

However Takao does teach
the network module periodically sends the sleep login packet to the connection server (Takao [0078] the login state of the electronic device is transmitted to the server periodically)

It would have been obvious before the effective filing date to combine the teaching of Winter, Siegmund and Grau with Takao, because Takao [0078] teaches us this way the server can distinguish between users connected and not connected to the network.

Response to Arguments

Applicant's arguments with respect to claims 1, 10, 11, 19 and their dependents have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AYANAH S GEORGE whose telephone number is (571)272-8880. The examiner can normally be reached on 7:00 AM - 5:00 PM.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 572-272-3940. 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

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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.

AYANAH S. GEORGE

Primary Examiner

Art Unit 2467

/AYANAH S GEORGE/

Primary Examiner, Art Unit 2467

<i>Notice of References Cited</i>	Application/Control No. 15/685,661		Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng	
	Examiner AYANAH S GEORGE		Art Unit 2467	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-20140072277-A1	03-2014	TAKAO; Yuji	G06Q10/109	386/239
*	B	US-20070050645-A1	03-2007	Siegmund; Dieter W.	H04L12/12	713/300
*	C	US-20160112955-A1	04-2016	Grau; Stephen H.	H04W52/0235	370/311
*	D	US-20080034197-A1	02-2008	Engel; Christian	H04L63/0428	713/150
*	E	US-20150172473-A1	06-2015	Estrada; Richard	H04M15/00	379/114.16
*	F	US-20150074432-A1	03-2015	Winter; Robert	G06F1/3209	713/300
	G					
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	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Index of Claims</i> 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS									
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47									
CLAIM		DATE							
Final	Original	01/03/2019	08/07/2019						
	1	✓	✓						
	2	✓	✓						
	3	✓	✓						
	4	✓	✓						
	5	✓	✓						
	6	✓	✓						
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	21	✓	✓						
	22	✓	✓						
	23	✓	✓						
	24	✓	✓						
	25	✓	✓						

<i>Search Notes</i> 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Inventor search in EAST - (see search history print out)	12/27/2018	AG
Searched in EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM TDB) - (see search history print out)	updated 8/7/2019	AG

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

/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	
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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	15	((("THROUGHTTEK") near3 ("TECHNOLOGY") near3 ("SHENZHEN") near3 ("CO") near3 ("LTD")) OR (("THROUGHTTEK") near3 ("CO") near3 ("LTD"))).AS,AANM.	USPAT	OR	OFF	2018/12/27 12:47
S2	10	((("CHEN") near3 ("Yong-Sheng"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2018/12/27 12:47
S3	1	(S1 or S2) and (remote near2 wakeup) same (connection) same (ID or identifier or identity) near5 (device or terminal)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 12:50
S4	2	(remote near2 wakeup) same (connection) near2 server	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S5	567	(remote near2 wakeup)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S6	6	(remote near2 wakeup) same (wakeup near2 packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S7	133	(remote near2 wakeup) same (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S8	1	(remote near2 wakeup) same (packet) with (device or terminal) near4 (ID or identity or identifier)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:06
S9	27	(remote near2 wakeup) with (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2018/12/27 13:06

			DERWENT; IBM_TDB			
S10	82	(wakeup) with (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:09
S11	54	(wakeup) near3 (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:11
S12	163	(wakeup or wake or wake-up) near3 (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:12
S13	1088	unencrypt\$4 same (encryption) near2 (calculation or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 11:51
S14	83	unencrypt\$4 near4 (packet) same (encryption) near2 (calculation or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 11:54
S15	2	unencrypt\$4 near4 (packet) same (encryption) near2 (calculation)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S16	669	unencrypt\$4 near4 (packet) same (encryption)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S17	80	unencrypt\$4 near4 (packet) with (encryption) near3 (calculation or algorithm or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S18	19	sleep near2 login	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:40
S19	2572	sleep near2 status	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 09:42

			DERWENT; IBM_TDB			
S20	5	sleep near2 status near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:42
S21	2135	sleep near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:42
S22	1391	(sleep or doze or (low near2 power)) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:44
S23	153	(sleep or doze or (low near2 power)) near3 (status or mode or state) near5 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:01
S24	39	(sleep or doze or (low near2 power)) near3 (status or mode or state) near2 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:03
S25	39	(sleep or doze or (low near2 power)) near3 (status or mode or state or flag or bit) near2 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:03
S26	12	(sleep or doze or (low near2 power)) near3 (flag or bit) near2 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:04
S27	2	(record\$3 or writ\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:10
S28	3	(record\$3 or writ\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state or status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:10
S29	139	(record\$3 or writ\$3 or sav\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state or status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 10:10

			DERWENT; IBM_TDB			
S30	34	(sleep or doze or (low near2 power)) near3 (flag or bit) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:13
S31	4979	(sleep or doze or (low near2 power)) near3 (flag or bit)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:15
S32	253	(sleep or doze) near3 (flag or bit) same (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:15
S33	141	(sleep or doze) near3 (flag or bit) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:18
S34	3	(record or save) with (sleep or doze) near3 (flag or bit) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:18
S35	3	(record or save) with (sleep or doze) near3 (status) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:45
S36	5521	(record or save) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:46
S37	74	(record or save) with (sleep or doze) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:46
S38	101	(record\$3 or stor\$3) with (sleep or doze) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:47
S39	8522	(record\$3 or stor\$3) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 12:00

			DERWENT; IBM_TDB			
S40	7334	(stor\$3) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:00
S41	185	(stor\$3) with (sleep or doze) near3 (status or mode) with (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:00
S42	329	(stor\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:05
S43	1962	(transmi\$5 or receiv\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:24
S44	24	(transmi\$5 or receiv\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode) same (stor\$3) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:24
S45	922	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze or (low near2 power))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:28
S46	522	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:29
S47	5	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze) with packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:29
S48	75	(record\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:34
S49	17	(periodically) near5 (transmi\$5 or send\$3) near5 (login) with (server)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 16:41

EAST Search History

			DERWENT; IBM_TDB			
S50	84	(comparison near2 packet) with (pre-stored or stored) near2 data	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 16:51
S51	290	(remote) near3 (wakeup or (wake-up) or (wake adj up)) near5 (request or packet or message)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/08/07 09:27
S52	38	(remote) near3 (wakeup or (wake-up) or (wake adj up)) near5 (request or packet or message) and (address) with (wakeup or wake-up or (wake-up)) near2 (request or packet or message or signal)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/08/07 09:57

EAST Search History (Interference)

< This search history is empty >

8/ 7/ 2019 1:12:02 PM**C:\ Users\ ageorge\ Documents\ EAST\ Workspaces\ 15685661.wsp**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: CHEN, Yong-Sheng	Examiner: GEORGE, Ayanah S
Application No.: 15/685,661	Art Unit: 2467
Filed: 24 Aug 2017	Confirmation Number: 6489
Title: REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE	
Attorney Docket No.: 5750/0472PUS1	

MS AMENDMENT

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

AMENDMENT

Dear Sir:

In response to the Office Action of 4 Jan 2019, the due date for response having been extended one (1) month(s), the following are provided:

Amendments to the Claims; and
Remarks.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) 5750/0472PUS1
---	--

Application Number 15/685,661	Filed 24 Aug 2017
---	-----------------------------

For REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING

Art Unit 2467	Examiner GEORGE, Ayanah S
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This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

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

	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>	
☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ 200.00
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$
☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$

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

☐ Applicant certifies micro entity status. See 37 CFR 1.29.

Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

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

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

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

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to

Deposit Account Number 50-3828.

☒ Payment made via EFS-Web.

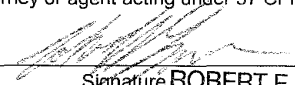
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☒ attorney or agent of record. Registration number **32,334**

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

 Signature ROBERT F. GNUSE Joe McKinney Muncy Typed or printed name	May 3, 2019 Date 703-621-7140 Telephone Number
--	---

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

☒ *Total of 1 forms are submitted.
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This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Electronic Patent Application Fee Transmittal				
Application Number:		15685661		
Filing Date:		24-Aug-2017		
Title of Invention:		REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		
First Named Inventor/Applicant Name:		Yong-Sheng Chen		
Filer:		Joe McKinney Muncy/Tiana Glascoe		
Attorney Docket Number:		5750/0472PUS1		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 1 month with \$0 paid	1251	1	200	200
Miscellaneous:				
Total in USD (\$)				200

Electronic Acknowledgement Receipt	
EFS ID:	35918379
Application Number:	15685661
International Application Number:	
Confirmation Number:	6489
Title of Invention:	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE
First Named Inventor/Applicant Name:	Yong-Sheng Chen
Customer Number:	60601
Filer:	Joe McKinney Muncy/Tiana Glascoe
Filer Authorized By:	Joe McKinney Muncy
Attorney Docket Number:	5750/0472PUS1
Receipt Date:	03-MAY-2019
Filing Date:	24-AUG-2017
Time Stamp:	19:34:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$200
RAM confirmation Number	050619INTEFSW19355800
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2019-05-03-EOT-AMENDMENT.pdf	2026973	yes	18
			ec87ab96d806b07b2bd24bc4f409353d57d6ad2f		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Applicant Arguments/Remarks Made in an Amendment		8	18	
	Claims		3	7	
	Amendment/Req. Reconsideration-After Non-Final Reject		2	2	
	Extension of Time		1	1	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30888	no	2
			e21cc77f23b52285535e43ade2a8f273754d8d39		
Warnings:					
Information:					
Total Files Size (in bytes):			2057861		

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.

REMARKS

Claims 1-25 remain present in this application.

Claims 1, 7-11, 15-25 have been amended. Favorable consideration of the application, as amended, is respectfully requested.

Entry of Amendments

It is respectfully submitted that the foregoing amendments do not contain new matter. Amendment to the claim set is based on paragraph 2 in page 5 and paragraph 2 in page 7 of the specification as original filed. As such, the Examiner is respectfully requested to enter the same.

Objections to the Claims

Claims 1, 9 and 17 stand objected to for certain informalities.

Claims 1, 9 and 19 are amended to correct the grammatical errors. In view of the foregoing amendments, it is respectfully submitted that these informalities have been addressed. Reconsideration and withdrawal of any objection to the claims are respectfully requested.

Rejections under 35 USC 112

Claims 11-25 stand rejected under 35 USC 112, second paragraph (pre-AIA) or 35 USC 112(b). This rejection is respectfully traversed.

The “**storage unit**” is a well-known technical term in the art. To a person having ordinary skill in the art (PHOSITA), the “**storage unit**” recites any device that stores digital information. Paragraph 5, page 19 of the specification as original filed clearly discloses that:

*“....each **storage unit** may be implemented by one or more storage components. Hence, the storage component may be, for example, a memory or a buffer, which is not limited herein. The memory may be, for example, a Read-Only Memory (ROM), a Random Access Memory (RAM), a volatile memory, a non-volatile memory, a static memory, a volatile storage device, a flash memory, and/or any device that stores digital information.”*

The functions of the “**storage device**” are also clearly defined by the limitation of “*stores a network address and wakeup information that correspond to a second apparatus*”. The

structure of the **location list** is also defined by the limitation of “*recording a location and an optimum direction corresponding to the location*”.

Therefore, the term “**storage device**” recites sufficient structure and acts to achieve the function.

In addition, the first paragraph of DETAILED DESCRIPTION of the specification (the last paragraph in page 4) as original filed describes that:

*“The networking apparatuses (the **first apparatus 110** and the **second apparatus 130**) may be any **electronic apparatuses** capable of connecting to a network, for example, a **personal computer**, a **smart phone**, a **navigation device (PND)**, a **notebook computer**, a **tablet computer** (a **Tablet** or a **Pad**), a **video camera**, an **IP cam**, or an **intelligent appliance**.”*

To a PHOSITA, a **personal computer**, a **smart phone**, a **navigation device (PND)**, a **notebook computer**, a **tablet computer** (a **Tablet** or a **Pad**), a **video camera**, an **IP cam**, , or an **intelligent appliance**, inherently includes a memory and/or HDD (“**storage device**”) storing computer code segments and cached data, a data processing unit (“**control unit**”) executing the computer code segments.

Paragraph 4, page 19 further describes that

*“each component may execute a firmware or software calculation stored in its storage unit by means of its **control unit**, so as to perform the foregoing corresponding step. In other words, the **storage unit** is configured to store a relevant software/firmware program, information, data, or a combination thereof.”*

The above description inherently discloses that the “**control unit**” is a data processing unit such as the CPU in an **electronic apparatuses** capable of connecting to a network. And the description discloses that the “**control unit**” connects the network module and the “**storage unit**”, **computer code segments** (firmware or software) are executed by the “**control unit**”, and then the “**control unit**” acts:

obtaining the wakeup information and the network address according to the wakeup request packet;

generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, and sends the apparatus wakeup packet to the second apparatus through the network module according to the network address, wherein the wakeup request packet comprises a device identifier of the second apparatus, in which the apparatus wakeup packet comprises the device identifier and the wakeup information of the second apparatus.

As discussed above, corresponding structures and acts of *the “control unit”* are described in the specification, and the specification complies with the requirement for the 35 U.S.C 112(f).

Therefore, corresponding structures and acts of the *storage unit* and the *control unit* are described in the specification, and the specification complies with the requirement for claimed function for the 35 U.S.C 112 (b).

Accordingly, as discussed above, Claims 11-25 comply with the requirement for the 35 U.S.C 112(b).

In view of the foregoing amendments, it is respectfully submitted that all claims particularly point out and distinctly claim the subject matter of the instant invention. Reconsideration and withdrawal of the 35 USC 112 rejection are respectfully requested.

Rejections under 35 USC 102 and 103

Claims 19-21 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Winter et al. (US 2015/0074432 A1; hereinafter “Winter”). Claims 1, 10, 11 and 18 are rejected under 35U.S.C. 103 as be unpatentable over Winter and Wu (US 2015/0172423 A1). Claims 2-6, 12-14 and 22 are rejected under 235 U.S.C. 103 as being unpatentable over Winter, Wu and Engel (US2008/0034197 A1). Claims 7-9 and 15-17 are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Wu and Grau (US 2016/0112955 A1). Claims 23 and 24 are rejected under 35 U.S.C. 103 as being unpatentable over Winter and Grau. Claim 25 is rejected under 35 U.S.C. 103 as being unpatentable over Winter, Grau and Takao et al. (US 2014/0072277 A1; hereinafter “Takao”). All of these rejections are respectfully traversed.

Regarding to Claim 1

Claim 1 recites a remote wakeup method; the remote wakeup method is executed by a **connector server 150**. As disclosed in paragraph 1, page 5 of the specification, *it is assumed that the **first apparatus 110** is a client apparatus that, on its initiative, proposes a connection request, and the **second apparatus 130** is a remote apparatus that passively accepts the connection request.* It is assumed that the current **network address** of the second apparatus 130 is unknown to the **first apparatus 110**, and the **connector server 150** executes the remote wakeup method to assist the **first apparatus 110** to wake up and establish connection with the **second apparatus 130**.

To assist the **first apparatus 110** to wake up and establish connection with the **second apparatus 130**, a wakeup request packet (from the first apparatus 110) is received and analyzed to generate an apparatus wakeup packet and send to the **second apparatus 150**, therefore, the **second apparatus 130** is awoken by the **connector server 150** and then establish connection with the first **apparatus 110** after receiving a connection request. To assist the **first apparatus 110** to wake up the **second apparatus 150**, the remote wake up method has to:

A. Analyzing the wakeup request packet:

A1. *receiving a **wakeup request packet** from a first apparatus.*

A2. *obtaining wakeup information according to the wakeup request packet; wherein the wakeup request packet comprises a **device identifier** of a **second apparatus 130**.*

B. Generating an apparatus wakeup packet:

B1. *According to the wakeup request packet and the wakeup information, generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information (to wake up the **second apparatus 130**), wherein the apparatus wakeup packet comprises the **device identifier** of the **second apparatus 130** and the wakeup information.*

B2. *obtaining a **network address** corresponding to the **second apparatus 150** according to the wakeup request packet.*

B3. *sending the apparatus wakeup packet to the second apparatus based on the **network address**.*

Therefore, the **first apparatus 110** does need to record the current **network address of the second apparatus 130**, only the **device identifier** of the **second apparatus 130** is required to be recorded or stored in the **first apparatus 110**. According to the **device identifier**, the remote wake up method obtains the current **network address of the second apparatus 130**, and then *sending the apparatus wakeup packet to the second apparatus based on the network address* instead of the **first apparatus 110** sending the apparatus wakeup packet to the current **network address of the second apparatus 130**.

Winter discloses plural applications and/or virtual servers in one information handling system 200 (IHS 200). Upon receiving a packet with identification, the **IHS 200** determines which one applications or virtual server is to be awoken, and connection is established between a source application/virtual server and target application/virtual server. However, all the applications and/or virtual servers are software modules executed within the **IHS 200**, and **IHS 200** directly launches or wakes the applications and/or the virtual servers. A device identifier or a **network address** obtained according to the device identifier is not required for launching an application or a virtual server in the local host (HIS 200). Therefore, **Winter** fails or suggests the limitations of “*obtaining a network address corresponding to the second apparatus 150 according to the wakeup request packet*” and “*sending the apparatus wakeup packet to the second apparatus based on the network address*”

In **Wu**, the MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID, and a channel setup.

[0069] of **Wu** discloses that *once the wake-up signal packet is formed, the MICS processor 301 may output the wake-up signal packet to the SWCN transceiver 405 using the wake-up line 202*. Fig. 2 shows that the *wake-up signal packet* is wirelessly broadcasted by the antenna 408, instead of sending to a designated **network address**. That is, **Wu** also fails to teach or suggest “*obtaining a network address corresponding to the second apparatus 150 according to the wakeup request packet*” and “*sending the apparatus wakeup packet to the second apparatus based on the network address*”.

Regarding to **Engel**, **Engel** only discloses data packet encryption method, and fails to teach or suggest “*obtaining a network address corresponding to the second apparatus 150*”

*according to the wakeup request packet” and “sending the apparatus wakeup packet to the second apparatus based on the **network address**”.*

Grau discloses an improved communication protocol between an access point and a wireless station is disclosed for ultra-low-power wireless communications, and fails to teach or suggest *“obtaining a **network address** corresponding to the **second apparatus 150** according to the wakeup request packet” and “sending the apparatus wakeup packet to the second apparatus based on the **network address**”.*

Takao discloses that *the login state of the electronic device is transmitted to the server periodically. Therefore, the server can distinguish between a user not connected to the network, a user connected to the network, and a user who is connected to the network and is watching the same program ([0078], and fails to teach or suggest “obtaining a **network address** corresponding to the **second apparatus 150** according to the wakeup request packet” and “sending the apparatus wakeup packet to the second apparatus based on the **network address**”.*

Therefore, Applicant respectfully asserts that the combination of cited references (**Winter, Wu, Engel, Grau, Takao**) at least fail to teach or suggest the limitations of *“obtaining a **network address** corresponding to the **second apparatus 150** according to the wakeup request packet” and “sending the apparatus wakeup packet to the second apparatus based on the **network address**”.* Claim 1 is patentable over the cited references (**Winter, Wu, Engel, Grau, and Takao**).

Regarding to Claims 2-10

Claims 2-10 directly or indirectly depend upon Claim 1. Because Claim 1 is patentable, Claims 2-10 are patentable.

Regarding to Claim 11

Claim 11 recites a **connection server 150** to assist a **first apparatus 110** to wake up and establish connection with a **second apparatus 130**.

To assist the **first apparatus 110** to wake up and establish connection with the **second apparatus 130**, a wakeup request packet (from the first apparatus 110) is received through the network module and analyzed by the control unit to generate an apparatus wakeup packet and

send to the **second apparatus 150** through network module, therefore, the **second apparatus 130** is awoken by the **connector server 150** and then establish connection with the **first apparatus 110** after receiving a connection request. To assist the **first apparatus 110** to wake up the **second apparatus 150**, the **connector server 150** has to:

A. Analyzing the wakeup request packet:

A1. *The network module receiving a **wakeup request packet** from a first apparatus.*

A2. *The control unit obtaining wakeup information according to the wakeup request packet in the storage unit; wherein the wakeup request packet comprises a **device identifier** of a **second apparatus 130**.*

B. Generating an apparatus wakeup packet:

B1. *According to the wakeup request packet and the wakeup information, the control unit generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information (to wake up the **second apparatus 130**), wherein the apparatus wakeup packet comprises the **device identifier** of the **second apparatus 130** and the wakeup information.*

B2. *The control unit obtaining a **network address** corresponding to the **second apparatus 150** according to the wakeup request packet.*

B3. *The network module sending the apparatus wakeup packet to the second apparatus based on the **network address**.*

Therefore, the **first apparatus 110** does need to record the current **network address of the second apparatus 130**, only the **device identifier** of the **second apparatus 130** is required to be recorded or stored in the **first apparatus 110**. According to the **device identifier**, the remote wake up method obtains the current **network address of the second apparatus 130**, and then *sending the apparatus wakeup packet to the second apparatus based on the **network address*** instead of the **first apparatus 110** sending the apparatus wakeup packet to the current **network address of the second apparatus 130**.

*As discussed above, cited references (Winter, Wu, Engel, Grau, and Takao) fail to teach or suggest “obtaining a **network address** corresponding to the **second apparatus 150** according to the wakeup request packet” and “sending the apparatus wakeup packet to the*

*second apparatus based on the **network address***". Claim 11 is patentable over the cited references (**Winter, Wu, Engel, Grau, and Takao**).

Regarding to Claims 12-18

Claims 12-18 directly or indirectly depend upon Claim 11. Due to Claim 11 is patentable, Claims 12-18 are patentable.

Regarding to Claim 19

Claim 19 recites a networking apparatus (the **second apparatus 130**) having a normal running mode and a sleep mode. The networking apparatus is able to be awoken by a **first apparatus 110** remotely via a **connection server 150**.

To be located and awoken, *in the normal running mode, the control unit of the networking apparatus sends a normal login packet through the network module, to provide a **network address** of the networking apparatus*. Therefore, the connection server can store the current *network address* of the storage unit and correlates the *network address* to the device identifier of the network apparatus.

In addition, in the sleep mode, the network module still keeps running and when receiving an apparatus wakeup packet **sent to the network address** of the networking apparatus, performs comparison according to the pre-stored feature data and the apparatus wakeup packet, so as to wake up the networking apparatus.

Winter discloses plural applications and/or virtual servers in one information handling system 200 (IHS 200). Upon receiving a packet with identification, the **IHS 200** determines which one applications or virtual server is to be awoken, and connection is established between a source application/virtual server and target application/virtual server. However, all the applications and/or virtual servers are software modules executed within the **IHS 200**, and **IHS 200** directly launches or wakes the applications and/or the virtual servers. The plural applications and/or virtual servers do not generate or send a **network address** to the **IHS 200**, and the **network address** is not required for launching an application or a virtual server in the local host (IHS 200). Therefore, **Winter** fails or suggests the limitations of "*in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network*

address of the networking apparatus” and “receiving an apparatus wakeup packet sent to the network address”.

In **Wu**, the *wake-up signal packet* is wirelessly broadcasted by the antenna 408, instead of sending to a designated **network address**. That is, **Wu** also fails to teach or suggest “*in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus*” and “*receiving an apparatus wakeup packet sent to the network address*”.

Regarding to **Engel**, **Engel** only discloses data packet encryption method, and fails to teach or suggest “*in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus*” and “*receiving an apparatus wakeup packet sent to the network address*”.

Grau discloses an improved communication protocol between an access point and a wireless station is disclosed for ultra-low-power wireless communications, and fails to teach or suggest “*in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus*” and “*receiving an apparatus wakeup packet sent to the network address*”.

Takao discloses that *the login state of the electronic device is transmitted to the server periodically. Therefore, the server can distinguish between a user not connected to the network, a user connected to the network, and a user who is connected to the network and is watching the same program* ([0078], and fails to teach or suggest “*in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus*” and “*receiving an apparatus wakeup packet sent to the network address*”.

Therefore, Applicant respectfully asserts that the combination of cited references (**Winter, Wu, Engel, Grau, Takao**) at least fail to teach or suggest the limitations of “*in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus*” and “*receiving an apparatus wakeup packet sent to the network address*”. Claim 19 is patentable over the cited references (**Winter, Wu, Engel, Grau, and Takao**).

Regarding to Claims 20-25

Claims 20-25 directly or indirectly depend upon Claim 19. Due to Claim 19 is patentable, Claims 20-25 are patentable.

In view of the foregoing amendments and remarks, it is respectfully submitted that the prior art utilized by the Examiner fails to teach or suggest the features of independent claims 1, 11 and 19, and their dependent claims. Reconsideration and withdrawal of the 35 USC 102 and 03 rejections are respectfully requested.

Conclusion

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application.

Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require action, it is respectfully requested that the Examiner telephone Joe McKinney Muncy, Applicants' Attorney, at 703.621.7140 so that such issues may be resolved as expeditiously as possible.

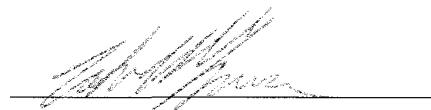
Application No. 15/685,661
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Response to Office Action dated 4 Jan 2019
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3828 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; in particular, extension of time fees.

Date: May 3, 2019

Respectfully submitted,

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AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A remote wakeup method, comprising:
receiving a wakeup request packet from a first apparatus, wherein the wakeup request packet comprises a device identifier of a second apparatus;
obtaining ~~[[a]]~~ wakeup information according to the wakeup request packet;
generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the device identifier of the second apparatus and the wakeup information;
obtaining a ~~connection information~~ network address corresponding to the second apparatus according to the wakeup request packet; and
sending the apparatus wakeup packet to the second apparatus based on the ~~connection information~~ network address.
2. (Original) The remote wakeup method according to claim 1, wherein the step of generating the apparatus wakeup packet comprises:
combining the wakeup request packet and the wakeup information into an unencrypted packet; and
performing an encryption calculation on the unencrypted packet to generate the apparatus wakeup packet.
3. (Original) The remote wakeup method according to claim 2, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information.
4. (Original) The remote wakeup method according to claim 2, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.
5. (Original) The remote wakeup method according to claim 2, further comprising:
receiving, by the second apparatus, the apparatus wakeup packet;
obtaining, by the second apparatus, a wakeup feature data from the apparatus wakeup packet, and the wakeup feature packet comprises entire data or partial data of the device identifier and the wakeup information;

comparing the wakeup feature data with a pre-stored feature data, wherein the pre-stored feature data is pre-stored in the second apparatus before the second apparatus sleeps; and

when the wakeup feature data is consistent with the pre-stored feature data, waking up the entire second apparatus.

6. (Original) The remote wakeup method according to claim 5, wherein a data size of the wakeup feature data and a data size of the pre-stored feature data are both at least one encryption unit of the encryption calculation.

7. (Currently Amended) The remote wakeup method according to claim 1, further comprising:

receiving a sleep login packet from the second apparatus; and

recording a running state of the second apparatus as a sleep state in the storage unit according to the sleep login packet.

8. (Currently Amended) The remote wakeup method according to claim 7, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state.

9. (Currently Amended) The remote wakeup method according to claim 1, further comprising:

receiving a connection request packet from the first apparatus, wherein the connection request packet is used to request for performing communication connection to the second apparatus;

determining a running state of the second apparatus according to the connection request packet; and

when the running state of the second apparatus is a sleep state, replying to the first apparatus that the second apparatus ~~is in the sleep~~ sleeps.

10. (Currently Amended) The remote wakeup method according to claim 1, wherein the steps of obtaining the wakeup information and the ~~connection information~~ network address comprise: reading the wakeup information and the ~~connection information~~ network address that correspond to the device identifier from a storage unit.

11. (Currently Amended) An connection server, comprising:
a network module;

a storage unit, which stores a ~~connection information~~ network address and ~~[[a]]~~ wakeup information that correspond to a second apparatus; and

a control unit, which connects to the network module and storage unit, receives a wakeup request packet from a first apparatus through the network module, obtains the wakeup information and the ~~connection information~~ network address according to the wakeup request packet, generates an apparatus wakeup packet according to the wakeup request packet and the wakeup information, and sends the apparatus wakeup packet to the second apparatus through the network module according to the ~~connection information~~ network address, wherein the wakeup request packet comprises a device identifier of the second apparatus, and the apparatus wakeup packet comprises the device identifier and the wakeup information of the second apparatus.

12. (Original) The connection server according to claim 11, wherein the control unit combines the wakeup request packet and the wakeup information into one unencrypted packet and performs an encryption calculation on the unencrypted packet to generate an apparatus wakeup packet.

13. (Original) The connection server according to claim 12, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information.

14. (Original) The connection server according to claim 12, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

15.(Currently Amended) The connection server according to claim 11, wherein the storage unit further stores a running state of the second apparatus, and the control unit receives a sleep login packet from the second apparatus through the network module and updates the running state of the second apparatus in the storage unit as a sleep state according to the sleep login packet.

16. (Currently Amended) The connection server according to claim 15, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state.

17. (Currently Amended) The connection server according to claim 11, wherein when the control unit receives a connection request packet used to request for performing communication

connection to the second apparatus from the first apparatus through the network module, the control unit determines a running state of the second apparatus according to the connection request packet and when determining that the running state of the second apparatus is a sleep state, replies to the first apparatus that the second apparatus ~~is in the sleep~~ sleeps.

18. (Currently Amended) The connection server according to claim 11, wherein the storage unit records the device identifier and correspondences between the device identifier and the wakeup information and between the ~~connection information~~ network address and the wakeup information.

19. (Currently Amended) A networking apparatus having a normal running mode and a sleep mode, comprising:

a network module;

a storage unit, which stores a device identifier and ~~[[a]]~~ wakeup information; and

a control unit, which connects to the network module and storage unit, and before entering the sleep mode, generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit, wherein the pre-stored feature data comprises entire data or partial data of the device identifier and the wakeup information, wherein:

in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus;

in the sleep mode, the network module still keeps running and when receiving an apparatus wakeup packet sent to the network address of the networking apparatus, performs comparison according to the pre-stored feature data and the apparatus wakeup packet, so as to wake up the networking apparatus.

20. (Currently Amended) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein the control unit generates a comparison packet and obtains the pre-stored feature data from the comparison packet according to the device identifier and the wakeup information.

21. (Currently Amended) The networking apparatus having a normal running mode and a sleep mode according to claim 20, wherein in the sleep mode, when the network module receives the apparatus wakeup packet from an connection server, the network module captures a wakeup

feature data from the apparatus wakeup packet according to a given data position and compares the wakeup feature data with the pre-stored feature data, wherein when the wakeup feature data is consistent with the pre-stored feature data, the network module wakes up the entire networking apparatus.

22. (Currently Amended) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

23. (Currently Amended) The networking apparatus having a normal running mode and a sleep mode according to claim 19, wherein the storage unit stores a login data, before entering the sleep mode, the control unit generates, according to the login data and a feature flag, a sleep login packet having the login data, and the feature flag indicates that a running state of the networking apparatus is sleep.

24. (Currently Amended) The networking apparatus having a normal running mode and a sleep mode according to claim 23, wherein the feature flag is located at a header of the sleep login packet.

25. (Currently Amended) The networking apparatus having a normal running mode and a sleep mode according to claim 23, wherein in the sleep mode, the network module periodically sends the sleep login packet to the connection server.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/685,661		Filing Date 08/24/2017		☐ To be Mailed	
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED - PART I									
		(Column 1)	(Column 2)						
FOR		NUMBER FILED	NUMBER EXTRA	RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A	N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A	N/A	N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A	N/A					
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =	*	x \$40 =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*	x \$210 =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL					
APPLICATION AS AMENDED - PART II									
AMENDMENT	05/03/2019	(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))	* 25	Minus ** 25	= 0	x \$50 =		0		
	Independent (37 CFR 1.16(h))	* 3	Minus *** 3	= 0	x \$230 =		0		
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE		0	
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 \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x \$0 =				
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
						TOTAL ADD'L FEE			
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.						LIE			
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".						/AMANDA N FORD/			
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".									
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1	6489
60601	7590	01/04/2019		
Muncy, Geissler, Olds & Lowe, P.C. 4000 Legato Road Suite 310 Fairfax, VA 22033			EXAMINER GEORGE, AYANAH S	
			ART UNIT	PAPER NUMBER
			2467	
			MAIL DATE	DELIVERY MODE
			01/04/2019	PAPER

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

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

8/24/DETAILED ACTION

1. This action is a response to an application filed 8/24/2017 in which claims 1-25 are pending.

Notice of Pre-AIA or AIA Status

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

Claim Objections

3. Claims 1, 9 and 17 are objected to because of the following informalities: Grammatical errors, claim 1 “a” should be removed prior to “wakeup information.” Claims 9 and 17 state “in the sleep”, the examiner suggest changing this to “asleep.” Appropriate correction is required.

Claim Rejections - 35 USC § 112

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

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

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

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

Claims 11-25 rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim limitation “unit” invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph.

However, the written description fails to disclose the corresponding structure, material, or acts for performing the entire claimed function and to clearly link the structure, material, or acts to the function.

Therefore, the claim is indefinite and is rejected under 35 U.S.C. 112(b) or pre-AIA 35 U.S.C. 112, second paragraph.

Applicant may:

- (a) Amend the claim so that the claim limitation will no longer be interpreted as a limitation under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph;
- (b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the entire claimed function, without introducing any new matter (35 U.S.C. 132(a)); or
- (c) Amend the written description of the specification such that it clearly links the structure, material, or acts disclosed therein to the function recited in the claim, without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts and clearly links them to the function so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant should clarify the record by either:

- (a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or
- (b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function.

For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claim Rejections - 35 USC § 102

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

4. Claim(s) 19-21 is/are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Winter et al.

(Pub. No.: 2015/0074432), herein Winter

As to claim 19, Winter teaches a networking apparatus having a sleep mode, comprising:

a network module (Winter Fig. 2);

a storage unit, which stores a device identifier and a wakeup information (Winter Fig. 2 memory); and

a control unit, which connects to the network module and storage unit (Winter Fig. 2 controller),
and

before entering the sleep mode, generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303).)

wherein the pre-stored feature data comprises entire data or partial data of the device identifier and the wakeup information, (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

wherein: in the sleep mode, the network module still keeps running and when receiving an apparatus wakeup packet, performs comparison according to the pre-stored feature data and the

apparatus wakeup packet, so as to wake up the networking apparatus (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303) and [0045] During these sleeping states, IHS 200 may appear to a human user to be off, but may retain enough of its hardware context (e.g., registers, memory caches, RAM, etc.) to return to the working state without rebooting)

As to claim 20, Winter teaches the networking apparatus having a sleep mode according to claim 19, wherein the control unit generates a comparison packet and obtains the pre-stored feature data from the comparison packet according to the device identifier and the wakeup information (Winter [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken (generates comparison packet) by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

As to claim 21, Winter teaches the networking apparatus having a sleep mode according to claim 20, wherein in the sleep mode, when the network module receives the apparatus wakeup packet from an connection server, the network module captures a wakeup feature data from the apparatus wakeup packet according to a given data position and compares the wakeup feature data with the pre-stored feature data, wherein when the wakeup feature data is consistent with the pre-stored feature data, the network module wakes up the entire networking apparatus (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

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.

5. Claims 1, 10, 11 and 18 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter and Wu et al. (Pub. No.: 2015/0172423), herein Wu.

As to claim 1, Winter teaches a remote wakeup method, comprising:

receiving a wakeup request packet from a first apparatus, wherein the wakeup request packet comprises a device identifier of a second apparatus (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303).)

obtaining a wakeup information according to the wakeup request packet (Winter [0053] determine which application or virtual server is to be awoken by the received packet);

generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the wakeup information (Winter[0055] enabling communications (generating a wakeup packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server);

obtaining a connection information corresponding to the second apparatus according to the wakeup request packet (Winter [0053] For example, IHS 200 may determine which application or virtual server

is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information)); and

sending the apparatus wakeup packet to the second apparatus based on the connection information (Winter[0055] enabling communications (generating a wakeup packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server);

Winter does not teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus

However Wu does teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus (Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu, because Wu [0067] teaches us how to detect high power signals without the need for a local oscillator and synthesizer in the receiver.

As to claim 11, Winter teaches a connection server, comprising:

a network module (Winter Fig. 2);

a storage unit, which stores a connection information and a wakeup information that correspond to a second apparatus (Winter Fig. 2 memory); and

a control unit, which connects to the network module and storage unit (Winter Fig. 2 controller), receives a wakeup request packet from a first apparatus through the network module Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target

application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303))

obtains the wakeup information and the connection information according to the wakeup request packet (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303).)

generates an apparatus wakeup packet according to the wakeup request packet and the wakeup information (Winter[0055] enabling communications (generating a wakeup packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server);

and

sends the apparatus wakeup packet to the second apparatus through the network module according to the connection information (Winter[0055] enabling communications (generating a wakeup packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server);

the apparatus wakeup packet comprises the wakeup information of the second apparatus Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information));

Winter does not teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus

However Wu does teach

wherein the apparatus wakeup packet comprises the device identifier of the second apparatus (Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu, for the same reasons stated in claim 1.

As to claim 10, the combination of Winter and Wu teach the remote wakeup method according to claim 1, wherein the steps of obtaining the wakeup information and the connection information comprise: reading the wakeup information and the connection information that correspond to the device identifier from a storage unit (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information));

As to claim 18, the combination of Winter and Wu teach the connection server according to claim 11, wherein the storage unit records the device identifier and correspondences between the device identifier and the wakeup information and between the connection information and the wakeup information (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information) (Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup (connection information))

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu, for the same reasons stated in claim 1.

6. Claims 2-6, 12-14 and 22 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Wu and Engel et al. (Pub. No.: 2008/0034197), herein Engel.

As to claims 2 and 12, the combination of Winter and Wu teach the remote wakeup method according to claim 1 and the connection server of claim 11, wherein the step of generating the apparatus wakeup packet comprises:

combining the wakeup request packet and the wakeup information into a packet (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information/request packet and wakeup information) and [0055] enabling communications (generating a packet) between the source application/virtual server and the target application/virtual server. For example, IHS 200 may launch a software application or wake up a virtual server)

Winter and Wu do not teach
into an unencrypted packet
; and performing an encryption calculation on the unencrypted packet to generate the apparatus wakeup packet.

However Engel does teach
into an unencrypted packet (Engel [0027] creating an unencrypted coding characteristic for the plurally encrypted data packet and [0033] segmenting characteristic denoting partial data packets obtained by segmenting a single data packet and outputting the segmenting characteristic together with segmented partial data packets to be encrypted.

; and performing an encryption calculation on the unencrypted packet to generate the apparatus wakeup packet (Engel [0030] output together with the encrypted data packet after encryption in each encryption operation)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Engel, because Engel [0014] teaches us a method of encrypting or

decrypting data packets of a data stream that is difficult to break by unauthorized third parties even with increased computer power and thus comprises a particularly high level of security.

As to claims 3 and 13, the combination of Winter, Wu and Engel teach the remote wakeup method according to claim 2 and the connection server of claim 12, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information (Engel [0033] Adjusting the data packet to be encrypted may preferably include the following: segmenting the data packet to be encrypted into multiple partial data packets to be encrypted)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Engel for the same reasons stated in claim 2.

As to claims 4, 14 and 22, the combination of Winter, Wu and Engel teach the remote wakeup method according to claim 2, the connection server according to claim 12 and the networking apparatus according to claim 19, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer (Engel [0037]-[0038] adjusting the data packet to be encrypted may include the creation of a data block containing the data packet to be encrypted and a block characteristic, said block characteristic identifying the data packet to be encrypted in the data block, and use of the data block instead of the data packet to be encrypted. This procedure is also known as "padding" and produces data blocks based on a respective formatting instruction of a respective coding algorithm the size of which is a multiple of a block size of the respective coding algorithm. A data block to be encrypted can for example be filled at its end with characters (such as random data or predefined data) until the respective block size is reached. The number of inserted characters is noted down in the form of the block characteristic. The block characteristic may optionally be added, e.g., as the last character (byte) of the data block to the respective data block)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Engel with Wu for the same reasons stated in claim 1.

As to claim 5, the combination of Winter, Wu and Engel teach the remote wakeup method according to claim 2, further comprising:

receiving, by the second apparatus, the apparatus wakeup packet (Wu [0069] Once the wake-up signal packet is formed, the MICS processor 301 may output the wake-up signal packet to the SWCN transceiver 405 using the wake-up line 202. The MICS controller 300 may monitor the MICS transceiver awaiting a confirmation signal from the IMD 104 over the MICS channel. Once the MICS controller 300 receives confirmation of a communication link with the IMD 104, the MICS controller 300 may inform or output to the bridge controller 401 that communication with the IMD 104 is established);

obtaining, by the second apparatus, a wakeup feature data from the apparatus wakeup packet, and the wakeup feature packet comprises entire data or partial data of the device identifier and the wakeup information (Wu [0067] The IMD may exit the sleep mode once a wake-up signal of an external device is detected by a wake up system on the IMD);

comparing the wakeup feature data with a pre-stored feature data, wherein the pre-stored feature data is pre-stored in the second apparatus before the second apparatus sleeps (Winter [0053] For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs (connection information)); and

when the wakeup feature data is consistent with the pre-stored feature data, waking up the entire second apparatus (Wu [0067] The IMD may exit the sleep mode once a wake-up signal of an external device is detected by a wake up system on the IMD);

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Engel with Wu for the same reasons stated in claim 1.

As to claim 6, the combination of Winter, Wu and Engel teach the remote wakeup method according to claim 5, wherein a data size of the wakeup feature data and a data size of the pre-stored feature data are both at least one encryption unit of the encryption calculation (Engel [0033] Adjusting the data packet to be encrypted may preferably include the following: segmenting the data packet to be encrypted into multiple partial data packets to be encrypted).

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Engel for the same reasons stated in claim 2.

7. Claims 7-9 and 15-17 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Wu and Grau (Pub. No.: 2016/0112955), herein Grau.

As to claims 7 and 15, Winter and Wu teach the remote wakeup method according to claim 1 and the server according to claim 11, further comprising:

Winter and Wu do not teach
receiving a sleep login packet from the second apparatus; and
recording a running state of the second apparatus as sleep in the storage unit according to the sleep login packet.

However Grau does teach
receiving a sleep login packet from the second apparatus (Grau [0009] transmit messages comprises a sleep flag); and

recording a running state of the second apparatus as sleep in the storage unit according to the sleep login packet (Grau [0021] The sleep flag may indicate the mode of the wireless device after a message exchange sequence and [0105] Flash memory 1420 may be used to store data from sensor(s))

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Grau, because Grau [0008] teaches a method where the wireless station and the access point go into low power states more quickly, and further reducing the duration of communication.

As to claims 8 and 16, the combination of Winter, Wu and Grau teach the remote wakeup method according to claim 7 and the server according to claim 15, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is sleep (Grau [0009] transmit messages comprises a sleep flag)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Grau for the same reasons stated in claim 7.

As to claim 9, the combination of Winter, Wu and Grau teach the remote wakeup method according to claim 1, further comprising:

receiving a connection request packet from the first apparatus, wherein the connection request packet is used to request for performing communication connection to the second apparatus (Wu [0068] The MICS processor 301 receives the instructions and forms a wake-up data signal packet for the IMD 104. The wake-up signal packet includes three fields, a start sequence (informs the IMD 104 of the packet), a company and transceiver ID (device identifier of the second apparatus), and a channel setup);

determining a running state of the second apparatus according to the connection request packet (Grau [0009] transmit messages comprises a sleep flag and [0022] the request message comprising a sleep flag); and

when the running state of the second apparatus is sleep, replying to the first apparatus that the second apparatus is in the sleep (Grau [0022] generating a response message, wherein generating the response message comprises setting a bit in the header of the response message to indicate the wireless station is entering a power save mode (the apparatus is asleep));

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu for the same reasons stated in claim 1. It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Grau for the same reasons stated in claim 7.

As to claim 17, the combination of Winter, Wu and Grau teach connection server according to claim 11, wherein when the control unit receives a connection request packet used to request for performing communication connection to the second apparatus from the first apparatus through the network module, the control unit determines a running state of the second apparatus according to the connection request packet and when determining that the running state of the second apparatus is sleep, replies to the first apparatus that the second apparatus is in the sleep (Winter [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s)

with IDs stored in local memory (e.g., memory 303) (Grau [0009] transmit messages comprises a sleep flag and [0022] the request message comprising a sleep flag and [0022] generating a response message, wherein generating the response message comprises setting a bit in the header of the response message to indicate the wireless station is entering a power save mode (the apparatus is asleep));

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Grau for the same reasons stated in claim 7.

8. Claims 23 and 24 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter and Grau.

As to claim 23, the combination of Winter and Grau teach the networking apparatus having a sleep mode according to claim 19, wherein the storage unit stores a login data, before entering the sleep mode, the control unit generates, according to the login data and a feature flag, a sleep login packet having the login data, and the feature flag indicates that a running state of the networking apparatus is sleep (Winter [0053] [0053] At block 406, method 400 includes recognizing, within the received frame or packet, an identification of a receiving application, a receiving virtual machine or server, a target IHS, a target application, and/or a target virtual machine or server. For example, IHS 200 may determine which application or virtual server is to be awoken by the received packet by attempting to match the recognized identification(s) with IDs stored in local memory (e.g., memory 303) (Grau [0009] transmit messages comprises a sleep flag (Grau [0021] The sleep flag may indicate the mode of the wireless device after a message exchange sequence and [0105] Flash memory 1420 may be used to store data from sensor(s));

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter with Grau for the same reasons stated in claim 7.

As to claim 24, the combination of Winter and Grau teach the networking apparatus having a sleep mode according to claim 23, wherein the feature flag is located at a header of the sleep login

packet (Grau [0014] The sleep flag may be in a header of the at least one of the plurality of transmit messages)

It would have been obvious before the effective filing date of the claimed invention to combine the teachings of Winter and Wu with Grau for the same reasons stated in claim 7.

9. Claim 25 is/are rejected under 35 U.S.C. 103 as being unpatentable over Winter, Grau and Takao et al. (Pub. No.: 2014/0072277), herein Takao.

As to claim 25, the combination of Winter and Grau teach the networking apparatus having a sleep mode according to claim 23,

Winter and Grau do not teach
wherein in the sleep mode, the network module periodically sends the sleep login packet to the connection server.

However Takao does teach
the network module periodically sends the sleep login packet to the connection server (Takao [0078] the login state of the electronic device is transmitted to the server periodically)

It would have been obvious before the effective filing date to combine the teaching of Winter and Grau with Takao, because Takao [0078] teaches us this way the server can distinguish between users connected and not connected to the network.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AYANAH S GEORGE whose telephone number is (571)272-8880. The examiner can normally be reached on 7:00 AM - 5:00 PM.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 572-272-3940. 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.

AYANAH S. GEORGE
Primary Examiner
Art Unit 2467

/AYANAH S GEORGE/
Primary Examiner, Art Unit 2467

<i>Notice of References Cited</i>	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng	
	Examiner AYANAH S GEORGE	Art Unit 2467	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-20150074432-A1	03-2015	Winter; Robert	G06F1/3209	713/300
*	B	US-20150172423-A1	06-2015	Wu; Yongjian	H04L69/08	370/310
*	C	US-20080034197-A1	02-2008	Engel; Christian	H04L63/0428	713/150
*	D	US-20160112955-A1	04-2016	Grau; Stephen H.	H04W52/0235	370/311
*	E	US-20140072277-A1	03-2014	TAKAO; Yuji	G06Q10/109	386/239
	F					
	G					
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	J					
	K					
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FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

<i>Search Notes</i> 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

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

Search Notes		
Search Notes	Date	Examiner
Inventor search in EAST - (see search history print out)	12/27/2018	AG
Searched in EAST (US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM TDB) - (see search history print out)	01/02/2019	AG

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

/AYANAH S GEORGE/ Primary Examiner, Art Unit 2467	
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<i>Index of Claims</i> 	Application/Control No. 15/685,661	Applicant(s)/Patent Under Reexamination Chen, Yong-Sheng
	Examiner AYANAH S GEORGE	Art Unit 2467

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	01/03/2019								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
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	21	✓								
	22	✓								
	23	✓								
	24	✓								
	25	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	15	((("THROUGHTTEK") near3 ("TECHNOLOGY") near3 ("SHENZHEN") near3 ("CO") near3 ("LTD")) OR ((("THROUGHTTEK") near3 ("CO") near3 ("LTD")))).AS,AANM.	USPAT	OR	OFF	2018/12/27 12:47
S2	10	((("CHEN") near3 ("Yong-Sheng"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2018/12/27 12:47
S3	1	(S1 or S2) and (remote near2 wakeup) same (connection) same (ID or identifier or identity) near5 (device or terminal)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 12:50
S4	2	(remote near2 wakeup) same (connection) near2 server	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S5	567	(remote near2 wakeup)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S6	6	(remote near2 wakeup) same (wakeup near2 packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S7	133	(remote near2 wakeup) same (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:05
S8	1	(remote near2 wakeup) same (packet) with (device or terminal) near4 (ID or identity or identifier)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/27 13:06
S9	27	(remote near2 wakeup) with (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2018/12/27 13:06

			DERWENT; IBM_TDB			
S10	82	(wakeup) with (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:09
S11	54	(wakeup) near3 (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:11
S12	163	(wakeup or wake or wake-up) near3 (packet) with (ID or identifier or identification)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/29 12:12
S13	1088	unencrypt\$4 same (encryption) near2 (calculation or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 11:51
S14	83	unencrypt\$4 near4 (packet) same (encryption) near2 (calculation or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 11:54
S15	2	unencrypt\$4 near4 (packet) same (encryption) near2 (calculation)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S16	669	unencrypt\$4 near4 (packet) same (encryption)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S17	80	unencrypt\$4 near4 (packet) with (encryption) near3 (calculation or algorithm or method)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2018/12/30 12:04
S18	19	sleep near2 login	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:40
S19	2572	sleep near2 status	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 09:42

			DERWENT; IBM_TDB			
S20	5	sleep near2 status near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:42
S21	2135	sleep near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:42
S22	1391	(sleep or doze or (low near2 power)) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 09:44
S23	153	(sleep or doze or (low near2 power)) near3 (status or mode or state) near5 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:01
S24	39	(sleep or doze or (low near2 power)) near3 (status or mode or state) near2 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:03
S25	39	(sleep or doze or (low near2 power)) near3 (status or mode or state or flag or bit) near2 (packet) same (record\$3 or writ\$3 or sav\$3) near3 (sleep or doze or (low near2 power)) near3 (status or mode or state)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:03
S26	12	(sleep or doze or (low near2 power)) near3 (flag or bit) near2 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:04
S27	2	(record\$3 or writ\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:10
S28	3	(record\$3 or writ\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state or status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:10
S29	139	(record\$3 or writ\$3 or sav\$3) near4 (sleep or doze or (low near2 power)) near3 (flag or bit or state or status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 10:10

			DERWENT; IBM_TDB			
S30	34	(sleep or doze or (low near2 power)) near3 (flag or bit) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:13
S31	4979	(sleep or doze or (low near2 power)) near3 (flag or bit)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:15
S32	253	(sleep or doze) near3 (flag or bit) same (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:15
S33	141	(sleep or doze) near3 (flag or bit) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:18
S34	3	(record or save) with (sleep or doze) near3 (flag or bit) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 10:18
S35	3	(record or save) with (sleep or doze) near3 (status) with (packet or header or field)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:45
S36	5521	(record or save) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:46
S37	74	(record or save) with (sleep or doze) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:46
S38	101	(record\$3 or stor\$3) with (sleep or doze) near3 (status or mode) near5 (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 11:47
S39	8522	(record\$3 or stor\$3) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 12:00

			DERWENT; IBM_TDB			
S40	7334	(stor\$3) with (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:00
S41	185	(stor\$3) with (sleep or doze) near3 (status or mode) with (packet)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:00
S42	329	(stor\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:05
S43	1962	(transmi\$5 or receiv\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:24
S44	24	(transmi\$5 or receiv\$3) near3 (device or UE or terminal) near4 (sleep or doze) near3 (status or mode) same (stor\$3) near3 (status or mode)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:24
S45	922	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze or (low near2 power))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:28
S46	522	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:29
S47	5	(stor\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze) with packet	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:29
S48	75	(record\$4) near3 (device or UE or terminal) near4 (state or staus or mode) near3 (sleep or doze)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 12:34
S49	17	(periodically) near5 (transmi\$5 or send\$3) near5 (login) with (server)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	OR	OFF	2019/01/02 16:41

EAST Search History

			DERWENT; IBM_TDB			
S50	84	(comparison near2 packet) with (pre-stored or stored) near2 data	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2019/01/02 16:51

EAST Search History (Interference)

< This search history is empty >

1 / 3 / 2019 8:27:18 AM

C:\Users\ageorge\Documents\EAST\Workspaces\15685661.wsp

Bibliographic Data

Application No: 15/685,661

Foreign Priority claimed: ☒ Yes ☐ No

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

Verified and Acknowledged: /AYANAH S GEORGE/

Examiner's Signature

Initials

Title:

REMOTE WAKEUP METHOD, CONNECTION SERVER, AND
NETWORKING APPARATUS HAVING SLEEP MODE

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/24/2017	370	2467	5750/0472PUS1
RULE			

APPLICANTS

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ThroughTek Co., Ltd., Taipei, TAIWAN

INVENTORS

Yong-Sheng Chen Taipei, TAIWAN

CONTINUING DATA

FOREIGN APPLICATIONS

TAIWAN 105127737 08/29/2016

IF REQUIRED, FOREIGN LICENSE GRANTED**

09/19/2017

** SMALL ENTITY **

STATE OR COUNTRY

TAIWAN

ADDRESS

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UNITED STATES

FILING FEE RECEIVED

\$930



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/685,661	08/24/2017	Yong-Sheng Chen	5750/0472PUS1

CONFIRMATION NO. 6489

60601

Muncy, Geissler, Olds & Lowe, P.C.

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PUBLICATION NOTICE



OC000000097752484

Title:REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE

Publication No.US-2018-0063789-A1

Publication Date:03/01/2018

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

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/685,661	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	25	minus 20 = * 5	x 40 =	200			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
			TOTAL	930		TOTAL	
* If the difference in column 1 is less than zero, enter "0" in column 2.							
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus **	=	x =		x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =		x =
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE			TOTAL ADD'L FEE
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus **	=	x =		x =
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x =		x =
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE			TOTAL ADD'L FEE
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
15/685,661	08/24/2017	2414	930	5750/0472PUS1	25	3

CONFIRMATION NO. 6489

FILING RECEIPT



0000000094196013

60601

Muncy, Geissler, Olds & Lowe, P.C.
4000 Legato Road
Suite 310
FAIRFAX, VA 22033

Date Mailed: 09/19/2017

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)

Yong-Sheng Chen, Taipei, TAIWAN;

Applicant(s)

ThroughTek Technology (ShenZhen) Co., Ltd., Shenzhen, CHINA;
ThroughTek Co., Ltd., Taipei, TAIWAN;

Power of Attorney: The patent practitioners associated with Customer Number 60601

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

TAIWAN 105127737 08/29/2016

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: 09/19/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/685,661**

Projected Publication Date: 03/01/2018

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS
HAVING SLEEP MODE

Preliminary Class

370

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

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

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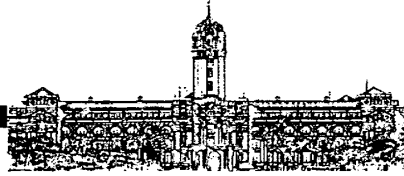
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茲證明所附文件，係本局存檔中原申請案的副本，正確無訛，
其申請資料如下：

This is to certify that annexed is a true copy from the records of this office of
the application as originally filed which is identified hereunder：

申請 日：西元 2016 年 08 月 29 日
Application Date Aug. 29, 2016

申請 案 號：105127737
Application No.

申請 人：物聯智慧科技（深圳）有限公司、物聯智慧股份有限
Applicant(s) 公司

發明 人：陳永昇
Inventor(s)

局 長
Director General

洪淑敏

西元 2016 年 09 月 07 日
Sep. 7, 2016





【發明摘要】

【中文發明名稱】 遠端喚醒方法、連線伺服器及具有休眠模式的連網裝置

【英文發明名稱】 Remote wake-up method, link server and network device with a sleep mode

【中文】

一種遠端喚醒方法，其包括：接收來自一第一裝置的一喚醒要求封包、根據喚醒要求封包取得一喚醒資訊、根據喚醒要求封包與喚醒資訊生成一裝置喚醒封包、根據喚醒要求封包取得對應一第二裝置的一連線資訊、以及基於連線資訊向第二裝置發送裝置喚醒封包。其中，喚醒要求封包包括第二裝置的設備識別碼（UID），並且裝置喚醒封包包括第二裝置的設備識別碼與喚醒資訊。

【英文】

A remote wake-up method includes receiving a wake-up request packet from a first device, acquiring a wake-up message according to the wake-up request packet, generating a device wake-up packet according to the wake-up request packet and the wake-up message, acquiring a connection information corresponding to a second device according to the wake-up request packet, and sending the device wake-up packet to the second device based on the connection information. The wake-up

request packet includes unique identification (UID) of the second device, and the device wake-up packet includes the UID of the second device and wake-up information.

【指定代表圖】 第 5 圖

【代表圖之符號簡單說明】

- S500 第一裝置生成並發送喚醒要求封包至連線伺服器
- S510 連線伺服器接收到來自第一裝置的喚醒要求封包
- S520 連線伺服器根據喚醒要求封包取得對應第二裝置的喚醒資訊
- S530 連線伺服器根據喚醒要求封包與喚醒資訊生成一裝置喚醒封包
- S540 連線伺服器根據喚醒要求封包取得對應第二裝置的連線資訊
- S550 連線伺服器基於取得的連線資訊向第二裝置發送裝置喚醒封包

【特徵化學式】 無

【發明說明書】

【中文發明名稱】 遠端喚醒方法、連線伺服器及具有休眠模式的連網裝置

【英文發明名稱】 Remote wake-up method, link server and network device with a sleep mode

【技術領域】

【0001】 本發明是關於網路通訊系統，特別是關於一種遠端喚醒方法、連線伺服器及具有休眠模式的連網裝置。

【先前技術】

【0002】 隨著科技的進步，物聯網（Internet of Things；IOT）已被廣泛應用於家庭智能設施、移動終端設備及工業系統環境等。在物聯網架構下，每個人周遭的各種裝置都可以連接至網路，並且使用者可以透過網路對於這些裝置進行相關控制與存取等。為了能長時間提供服務，物聯網架構中的連網裝置要同時具有省電與連網的能力。其中，連網裝置在閒置時會進入休眠以節省電力。於進入休眠之際，必須要有一方法能夠遠端喚醒連網裝置，以繼續提供裝置服務。然而，要透過網際網路或是路由器喚醒連網裝置並不容易。

【0003】 然而，現有喚醒技術須具備大量網路知識，以瞭解主機板、網路卡、防火牆等設定，方能實現網路喚醒之功能。再者，現有喚醒技術多利用路由器廣播方式來喚醒裝置，並無法直接喚醒遠端的連網裝置。

【發明內容】

【0004】 在一實施例中，一種遠端喚醒方法，其包括：接收來自一第

第 1 頁，共 23 頁(發明說明書)

一裝置的一喚醒要求封包、根據喚醒要求封包取得一喚醒資訊、根據喚醒要求封包與喚醒資訊生成一裝置喚醒封包、根據喚醒要求封包取得對應一第二裝置的一連線資訊、以及基於連線資訊向第二裝置發送裝置喚醒封包。其中，喚醒要求封包包括第二裝置的設備識別碼（UID），並且裝置喚醒封包包括第二裝置的設備識別碼與喚醒資訊。

【0005】 在一實施例中，一種連線伺服器，其包括：一網路模組、一儲存單元以及一控制單元。控制單元連接網路模組與儲存單元，並且儲存單元儲存有對應一第二裝置的一連線資訊與一喚醒資訊。控制單元通過網路模組接收來自一第一裝置的一喚醒要求封包、根據喚醒要求封包取得喚醒資訊與連線資訊、根據喚醒要求封包與喚醒資訊生成一裝置喚醒封包，並利用網路模組基於連線資訊向第二裝置發送裝置喚醒封包。其中，喚醒要求封包包括第二裝置的設備識別碼（UID），並且裝置喚醒封包包括第二裝置的設備識別碼與喚醒資訊。

【0006】 在一實施例中，一種具有休眠模式的連網裝置，其包括：一網路模組、一儲存單元以及一控制單元。控制單元連接網路模組與儲存單元，並且儲存單元儲存有一設備識別碼（UID）以及一喚醒資訊。於進入休眠模式之前，控制單元根據設備識別碼與喚醒資訊生成一預存特徵資料，並儲存預存特徵資料在儲存單元中。預存特徵資料包含設備識別碼的全部資料或部分資料與喚醒資訊。其中，在休眠模式下，網路模組仍保持運作並且於接收到一裝置喚醒封包時根據預存特徵資料與裝置喚醒封包進行比對，以進行喚醒連網裝置。

【0007】 綜上，根據本發明之遠端喚醒方法、連線伺服器及具有休眠

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模式的連網裝置，可使連網裝置（即，第二裝置）進入超低耗電狀態（休眠狀態），並且能提供第一裝置使用第二裝置的設備識別碼透過連線伺服器對遠端的第二裝置直接發起喚醒要求（裝置喚醒封包），以致於無需任何設定（例如：主機板、網路卡、防火牆等裝置設定）亦無須透過網路廣播，即可喚醒遠端的第二裝置並且減少本地網路（LAN）下的網路封包量。

【圖式簡單說明】

【0008】

第1A及1B圖是根據本發明一實施例之網路通訊系統的示意圖。

第2圖是根據本發明另一實施例之網路通訊系統的示意圖。

第3圖是一實施例之連網裝置的示意圖。

第4圖是一實施例之連線伺服器的示意圖。

第5圖是一實施例之遠端喚醒方法的第一部分之流程圖。

第6圖是一實施例之喚醒要求封包的概要示意圖。

第7圖是一實施例之裝置喚醒封包的概要示意圖。

第8圖是一實施例之遠端喚醒方法的第二部分之流程圖。

第9圖是一實施例之遠端喚醒方法的第三部分之流程圖。

第10圖是一實施例之比對封包的概要示意圖。

第11圖是另一實施例之第二裝置的運作狀態的辨識方法的流程圖。

第12圖是一實施例之休眠登錄封包的概要示意圖。

第13圖是一實施例之特徵旗標於休眠登錄封包中的位置的示意圖。

第14圖是另一實施例之遠端喚醒方法之部分流程圖。

第15圖是又一實施例之遠端喚醒方法之部分流程圖。

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【實施方式】

【0009】 第1A及1B圖是根據本發明一實施例之網路通訊系統的示意圖。第2圖是根據本發明另一實施例之網路通訊系統的示意圖。參照第1A、1B及2圖，網路通訊系統10包括二連網裝置（為了清楚說明，以下分別稱之為第一裝置110與第二裝置130）以及一連線伺服器150。連網裝置（第一裝置110與第二裝置130）可為任何能連結網路之電子裝置，例如：個人電腦、智慧型手機（smart phone）、導航機（PND）、筆記型電腦（notebook）、平版電腦（Tablet or Pad）、視訊攝影機、網路攝影機（IP cam）或智慧型家電等。

【0010】 在一些實施例中，假設第一裝置110為主動提出連線要求之委託裝置，而第二裝置130為被動接受連線要求之遠端裝置。參照第1A及2圖，當第一裝置110要與第二裝置130進行點對點連線時，第一裝置110經由網路發送一連線要求封包給連線伺服器150，以要求與第二裝置130進行點對點連線。其中，連線要求封包包括連線目標（第二裝置130）的設備識別碼（Unique Identification，UID）及指出封包來源的網路位置（即，第一裝置110的連線資訊）。連線伺服器150接收到連線要求封包後，連線伺服器150根據第二裝置130的設備識別碼從其儲存單元中讀出第二裝置130的連線資訊並將第二裝置130的連線資訊回傳給第一裝置110。並且，連線伺服器150基於第二裝置130的連線資訊向第二裝置130傳送第一裝置110的連線資訊，以通知第二裝置130與第一裝置110進行點對點連線。然後，第二裝置130與第一裝置110即能分別根據第一裝置110的連線資訊與第二裝置130的連線資訊而在彼此之間形成一點對點連線，

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如第1B及2圖所示。於此雖然是以第一裝置110與第二裝置130之間的通訊連線為點對點連線為例，但本發明不限於此，第一裝置110與第二裝置130之間的通訊連線亦可是經由連線伺服器150或另一連線伺服器150的中繼連線。

【0011】 其中，各連線資訊包括連網裝置所在的網路位址（IP Address）。在一些實施例中，各連線資訊可更包括連接埠（Port）及/或位址轉換器（NAT）的類型。

【0012】 在一些實施例中，第一裝置110與第二裝置130可位在相同網路，亦可位在不同網路。舉例來說，參照1A及1B圖，第二裝置130位於由一位址轉換器120所形成的一本地網路20中，而第一裝置110與連線伺服器150位於一網際網路30中。於此，第二裝置130位在位址轉換器120的後方（相對於網際網路30），並且第二裝置130經由位址轉換器120連接網際網路30。但本發明不限於此。在另一例子中，第一裝置110可與第二裝置130位於同一本地網路。舉例來說，參照2圖，第一裝置110、第二裝置130與連線伺服器150位於同一本地網路20中，並且彼此間透過一個或多個網路切換器（switch）或集線器（Hub）140通訊連接。在又另一例子中，第一裝置110則可是位於由另一位址轉換器所形成的另一本地網路中（圖式未示），即第一裝置110與第二裝置130分別位於不同的二本地網路中。

【0013】 第3圖是一實施例之連網裝置的示意圖。

【0014】 在一些實施例中，參照第3圖，第二裝置130包括一控制單元131、一網路模組133以及一儲存單元135。控制單元131耦接網路模組

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133與儲存單元135，且網路模組133耦接儲存單元135。在一些實施例中，控制單元131、網路模組133與儲存單元135可由一網路晶片實現。此外，第二裝置130可更包括提供裝置主要功能的功能模組（圖式未示）。舉例來說，當第二裝置130為網路攝影機時，第二裝置130可更包括具有攝影功能的功能模組（即，攝影模組）。在另一例子中，當第二裝置130為門禁系統時，第二裝置130可更包括具有門禁管控功能的功能模組。

【0015】於本發明中，第二裝置130可為一低功耗裝置。換言之，除了正常運作模式外，第二裝置130還具有一省電模式（即休眠模式）。在省電模式下，第二裝置130會進入休眠狀態，以節省功耗。然而，當第二裝置130的運作狀態為休眠狀態時（即，在休眠模式下），第二裝置130的網路模組133仍保持運作，即網路模組133不休眠。

【0016】在正常運作模式下，第二裝置130與連線伺服器150在正常連線下，控制單元131會通過網路模組133定時發送正常登錄封包給連線伺服器150，以提供第二裝置130所在網路位置的連線資訊。並且，在正常連線下，控制單元131還會通過網路模組133向連線伺服器150發起各式服務請求，並且連線伺服器150對應回應第二裝置130各式服務請求。

【0017】第4圖是一實施例之連線伺服器的示意圖。

【0018】在一些實施例中，參照第4圖，連線伺服器150包括一控制單元151、一網路模組153以及一儲存單元155。控制單元151連線網路模組153與儲存單元155。

【0019】在一些實施例中，當第一裝置110要與進入休眠狀態的第二裝置130進行連線時，第一裝置110可先透過連線伺服器150喚醒第二裝置

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130。

【0020】 第5圖是一實施例之遠端喚醒方法的第一部分之流程圖。第6圖是喚醒要求封包的一實施例的概要示意圖。

【0021】 參照第1至5圖，為喚醒第二裝置130，第一裝置110生成一喚醒要求封包並經由網路（網際網路30、或本地網路20及網際網路30）將喚醒要求封包發送給連線伺服器150（步驟S500）。其中，喚醒要求封包WRP包括一一般資訊HD與第二裝置130的設備識別碼ID，如第6圖所示。在一些實施例中，一般資訊HD與第二裝置130的設備識別碼ID可位於喚醒要求封包WRP的表頭中。在一些實施例中，喚醒要求封包WRP可更包括封包內容。

【0022】 控制單元151通過網路模組153接收到來自第一裝置110的喚醒要求封包WRP（步驟S510）後，控制單元151根據喚醒要求封包WRP中的設備識別碼ID從儲存單元155中取得對應第二裝置130的喚醒資訊（步驟S520）。並且，控制單元151根據喚醒要求封包WRP與喚醒資訊生成一裝置喚醒封包（步驟S530）。

【0023】 第7圖是裝置喚醒封包的一實施例的概要示意圖。

【0024】 在一些實施例中，控制單元151將喚醒要求封包WRP（一般資訊HD與設備識別碼ID）與喚醒資訊WM組合成一未加密封包，並進行此未加密封包的一加密演算而生成裝置喚醒封包EWP，如第7圖所示。其中，加密運算可以是採用加密技術進行未加密封包的加密處理。加密技術可例如：（但不限於此）訊息摘要演算法（Message-Digest Algorithm；MD5）、安全雜湊演算法（Secure Hash Algorithm；SHA）、RSA

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(Rivest-Shamir-Adleman) 加密演算法或凱薩加密法 (Caesar Cipher) 等。

【0025】 在一些實施例中，在控制單元151所形成的未加密封包中，設備識別碼ID與喚醒資訊WM的資料大小的總和可大於或等於加密演算的一個加密單位。舉例來說，當加密演算的加密單位為16 bytes (位元組) 時，設備識別碼ID與喚醒資訊WM的總和則是大於或等於16 bytes。在一些實施例中，喚醒資訊WM的資料大小可小於或等於一個加密單位。舉例來說，當加密演算的加密單位為16 bytes (位元組) 時，喚醒資訊WM則是小於或等於16 bytes。

【0026】 此外，控制單元151亦可根據喚醒要求封包WRP中的設備識別碼ID從儲存單元155中取得對應第二裝置130的連線資訊(步驟S540)。換言之，連線伺服器150的儲存單元155中儲存有對應第二裝置130的連線資訊與喚醒資訊WM。

【0027】 在一些實施例中，儲存單元155記錄有第二裝置130的設備識別碼ID、連線資訊AD、喚醒資訊WM以及各資訊之間的對應關係，如下表一所示。控制單元151則從儲存單元155中取得對應設備識別碼ID的喚醒資訊WM與連線資訊AD。

【0028】 表一

序號	設備識別碼	連線資訊	喚醒資訊
1	ID	AD	WM
2	設備識別碼2	連線資訊2	喚醒資訊2
⋮	⋮		

【0029】 在一些實施例中，第二裝置130的設備識別碼ID與對應第二裝置130的連線資訊AD等資訊可以是第二裝置130與連線伺服器150通訊連線時提供給連線伺服器150，進而記錄於其儲存單元155中。

【0030】 接著，控制單元151通過網路模組153基於取得的連線資訊AD向第二裝置130發送裝置喚醒封包EWP（步驟S550），即將裝置喚醒封包EWP經由網路傳送給位於連線資訊AD中之網路位址的第二裝置130。

【0031】 第8圖是一實施例之遠端喚醒方法的第二部分之流程圖。

【0032】 搭配參照第8圖，由於第二裝置130在休眠狀態下其網路模組133仍持續運作，因此第二裝置130的網路模組133仍可接收來自連線伺服器150的裝置喚醒封包EWP（步驟S560）。

【0033】 當網路模組133接收到裝置喚醒封包EWP（步驟S560）時，網路模組133根據一既定資料位置從裝置喚醒封包EWP取得一喚醒特徵資料（步驟S570）並從儲存單元135讀出休眠前預先儲存的預存特徵資料（步驟S580）。其中，喚醒特徵資料的資料大小小於裝置喚醒封包EWP的資料大小。於此，喚醒特徵資料即為裝置喚醒封包EWP的一段資料。

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【0034】 在一些實施例中，喚醒特徵資料的資料大小可為前述之加密演算的至少一個加密單位。換言之，既定資料位置為裝置喚醒封包EWP特定位置的至少一個加密單位。舉例來說，當加密演算的加密單位為16 bytes時，喚醒特徵資料則為16 bytes的倍數。在一些實施例中，喚醒特徵資料的資料可為裝置喚醒封包EWP中最後至少一個加密單位的資料。換言之，既定資料位置為最後至少一個加密單位。舉例來說，當加密演算的加密單位為16 bytes時，喚醒特徵資料可為裝置喚醒封包EWP中最後16 bytes或32 bytes。特別地，取得的喚醒特徵資料包括裝置喚醒封包EWP中具有一致性的資料（例如：設備識別碼ID與喚醒資訊WM等），惟不包括動態變化的資料（例如：一般資訊HD）。其中，具有一致性的資料是指就發給同一連網裝置的多個封包而言不會隨著不同環境參數變化而有所不同的資料。動態變化的資料是指就發給同一連網裝置的多個封包而言會因環境參數變化而有所不同的資料，例如：一般資訊HD中的版本、服務請求代號與發送時間等。

【0035】 在一些實施例中，喚醒特徵資料可包括加密後的設備識別碼ID與加密後的喚醒資訊WM。換言之，設備識別碼ID與喚醒資訊WM的資料大小的總和為加密單位的倍數，且此倍數為正整數。在另一些實施例中，喚醒特徵資料可包括加密後的部分設備識別碼ID與加密後的喚醒資訊WM。換言之，此部分設備識別碼ID與喚醒資訊WM的資料大小的總和為加密單位的倍數，且此倍數為正整數。

【0036】 接著，網路模組133比對喚醒特徵資料與預存特徵資料（步驟S590），以判斷二者是否相同（步驟S592）。當喚醒特徵資料與預存

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特徵資料一致時，網路模組133喚醒整個第二裝置130（步驟S600），以致使第二裝置130能接受第一裝置110通訊連結要求（完成點對點連線的形成或中繼連線的形成）。當喚醒特徵資料與預存特徵資料不一致時，網路模組133則忽略（丟棄）喚醒裝置喚醒封包EWP，即不喚醒整個第二裝置130（步驟S602）。

【0037】 在一些實施例中，在休眠模式下，網路模組133能直接讀取控制單元131預存於儲存單元135中的預存特徵資料，以供網路模組133進行比對而喚醒。

【0038】 在另一些實施例中，儲存單元135可包括複數個儲存元件（以下分別稱之為主儲存單元以及微儲存單元）。控制單元131形成預存特徵資料後，會將預存特徵資料儲存於主儲存單元中。並且，在進入休眠前，網路模組133會將喚醒所需的資料（如，預存特徵資料）從主儲存單元載入至微儲存單元，以供網路模組133進行比對而喚醒。並且，在休眠模式下，網路模組133與微儲存單元均仍保持運作（供電）。其中，微儲存單元可內建於網路模組133中。

【0039】 第9圖是一實施例之遠端喚醒方法的第三部分之流程圖。

【0040】 在一些實施例中，參照第9圖，於進入休眠模式之前，控制單元131從儲存單元135讀出第二裝置130的設備識別碼ID與喚醒資訊WM（步驟S710），並且根據設備識別碼ID與喚醒資訊WM生成一比對封包（步驟S720）。其中，於第二裝置130（儲存單元135）中的喚醒資訊WM相同於連線伺服器150（儲存單元155）中的喚醒資訊WM。

【0041】 第10圖是一實施例之比對封包的概要示意圖。

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【0042】 在一些實施例中，控制單元131將一般資訊HD'、設備識別碼ID與喚醒資訊WM組合成一未加密封包，並進行此未加密封包的加密演算而生成比對封包CP，如第10圖所示。於此，第二裝置130與連線伺服器150是採用相同的加密技術進行加密演算。其中，加密運算可以是採用加密技術進行未加密封包的加密處理。加密技術可例如：（但不限於此）訊息摘要演算法（Message-Digest Algorithm；MD5）、安全雜湊演算法（Secure Hash Algorithm；SHA）、RSA（Rivest-Shamir-Adleman）加密演算法或凱薩加密法（Caesar Cipher）等。在一些實施例中，一般資訊HD'與設備識別碼ID可位於比對封包CP的表頭中，而喚醒資訊WM則為比對封包CP的封包內容。

【0043】 在一些實施例中，在控制單元131所形成的未加密封包中，設備識別碼ID與喚醒資訊WM的資料大小的總和可大於或等於加密演算的一個加密單位。舉例來說，當加密演算的加密單位為16 bytes（位元組）時，設備識別碼ID與喚醒資訊WM的總和則是大於或等於16 bytes。在一些實施例中，喚醒資訊WM的資料大小可小於或等於一個加密單位。舉例來說，當加密演算的加密單位為16 bytes（位元組）時，喚醒資訊WM則是小於或等於16 bytes。

【0044】 然後，控制單元131根據既定資料位置從比對封包CP取得一預存特徵資料（步驟S730），並儲存此預存特徵資料在儲存單元135中（步驟S740）。其中，此預存特徵資料的資料大小小於比對封包CP的資料大小。

【0045】 在一些實施例中，預存特徵資料的資料大小可為前述之加密

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演算的至少一個加密單位。換言之，既定資料位置為比對封包CP特定位置的至少一個加密單位。舉例來說，當加密演算的加密單位為16 bytes時，預存特徵資料則為16 bytes的倍數。於此，喚醒特徵資料的資料大小與預存特徵資料的資料大小為相同加密演算的相同數量的加密單位。

【0046】 在一些實施例中，預存特徵資料的資料可為比對封包CP中最後至少一個加密單位的資料。換言之，既定資料位置為最後至少一個加密單位。舉例來說，當加密演算的加密單位為16 bytes時，預存特徵資料可為比對封包CP中最後16 bytes或32 bytes。特別地，取得的預存特徵資料包括比對封包CP中具有一致性的資料（例如：設備識別碼ID與喚醒資訊WM等），惟不包括動態變化的資料（例如：一般資訊HD'）。其中，具有一致性的資料是指就發給同一連網裝置的多個封包而言不會隨著不同環境參數變化而有所不同的資料。動態變化的資料是指就發給同一連網裝置的多個封包而言會因環境參數變化而有所不同的資料，例如：一般資訊中的版本、服務請求代號與發送時間等。

【0047】 在一些實施例中，預存特徵資料可包括加密後的設備識別碼ID與加密後的喚醒資訊WM。換言之，設備識別碼ID與喚醒資訊WM的資料大小的總和為加密單位的倍數，且此倍數為正整數。在另一些實施例中，預存特徵資料可包括加密後的部分設備識別碼ID與加密後的喚醒資訊WM。換言之，此部分設備識別碼ID與喚醒資訊WM的資料大小的總和為加密單位的倍數，且此倍數為正整數。

【0048】 在另一實施例中，控制單元131可單純串接設備識別碼ID（部分或全部）與喚醒資訊WM，然後將串接後的資料（未加密封包）進

行加密演算而生成預存特徵資料（即，直接將生成之比對封包做為預存特徵資料）。

【0049】 在一些實施例中，對應第二裝置130的喚醒資訊WM可以是由第二裝置130生成並儲存在儲存單元135中。並且，由第二裝置130將生成的喚醒資訊WM提供給連線伺服器150並記錄於連線伺服器150的儲存單元155中。因此，連線伺服器150與第二裝置130均具有相同內容的喚醒資訊WM。在另一些實施例中，對應第二裝置130的喚醒資訊WM可以是由連線伺服器150生成並記錄於連線伺服器150的儲存單元155中。並且，於第二裝置130與連線伺服器150通訊連線時，連線伺服器150將生成的喚醒資訊WM提供給第二裝置130，進而同樣記錄於第二裝置130的儲存單元135中。因此，連線伺服器150與第二裝置130均具有相同內容的喚醒資訊WM。在一些實施例中，喚醒資訊WM可為一授權金鑰。

【0050】 在一些實施例中，連線伺服器150可基於有無接收到來自第二裝置130的正常登錄封包來判定第二裝置130的運作狀態（正常連線或離線）並記錄第二裝置130的運作狀態。

【0051】 在一些實施例中，第二裝置130第一次以正常登錄封包連線並登錄連線伺服器150時，連線伺服器150的控制單元151判定第二裝置130的運作狀態為正常連線並記錄第二裝置130的運作狀態為正常連線在儲存單元155中。於第二裝置130登錄後，連線伺服器150的控制單元151根據一既定時間偵測來自第二裝置130的正常登錄封包。當超過既定時間未接收到正常登錄封包時，連線伺服器150的控制單元151即會判定第二裝置130的運作狀態為離線並記錄第二裝置130的運作狀態為離線在儲存

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單元155中。

【0052】 在一些實施例中，儲存單元135儲存有一登錄資料。此登錄資料是用以提供第二裝置130登錄連線伺服器150。

【0053】 第11圖是另一實施例之第二裝置的運作狀態的辨識方法的流程圖。第12圖是一實施例之休眠登錄封包的概要示意圖。第13圖是一實施例之特徵旗標於休眠登錄封包中的位置的示意圖。

【0054】 參照第11至13圖，於進入休眠模式之前，控制單元131從儲存單元135讀出登錄資料LD（步驟S910），並且根據登錄資料LD及特徵旗標SF生成一休眠登錄封包SLP（步驟S920）。控制單元131將生成的休眠登錄封包SLP儲存在儲存單元135中（步驟S930），然後第二裝置130進入休眠模式（步驟S940）。並且，在休眠模式下，網路模組133可定時對連線伺服器150發送休眠登錄封包SLP（步驟S940）。換言之，在休眠模式下，網路模組133能直接讀取控制單元131預存於儲存單元135中的休眠登錄封包SLP。

【0055】 在一些實施例中，儲存單元135可包括複數個儲存元件（以下分別稱之為主儲存單元以及微儲存單元）。控制單元131形成休眠登錄封包SLP後，會將休眠登錄封包SLP儲存於主儲存單元中。並且，在進入休眠前，網路模組133再將休眠登錄封包SLP從主儲存單元載入至微儲存單元，以供網路模組133於休眠模式下繼續間隔發送休眠登錄封包SLP給連線伺服器150。

【0056】 在一些實施例中，特徵旗標SF可位於休眠登錄封包SLP的表頭中。

【0057】 在步驟S940的一些實施例中，網路模組133可以固定時間間隔對連線伺服器150發送休眠登錄封包SLP。在步驟S940的另一些實施例中，若第二裝置130長時間未喚醒時，網路模組133可以由固定時間間隔改為由漸增時間間隔對連線伺服器150發送休眠登錄封包SLP，藉以進一步節省更多電力。舉例來說，當第二裝置130剛進入休眠模式時，網路模組133每隔25秒對連線伺服器150發送休眠登錄封包SLP。當第二裝置130長時間未喚醒（例如：進入休眠模式達1小時）時，網路模組133可由25秒逐次拉長發送的時間間隔。而當第二裝置130被喚醒時，網路模組133則將發送的時間間隔回復為預設值25秒。在一些實施例中，網路模組133利用演算法計算下次發送的時間間隔，以致使發送的時間隨著休眠的時間而逐次拉長。

【0058】 連線伺服器150的控制單元151通過網路模組153接收來自第二裝置130的休眠登錄封包SLP（步驟S950）。於接收到休眠登錄封包SLP後，連線伺服器150的控制單元151根據休眠登錄封包SLP中的特徵旗標SF判定第二裝置130的運作狀態為休眠並在儲存單元153中記錄第二裝置130的運作狀態為休眠（步驟S960）。

【0059】 在一些實施例中，休眠登錄封包SLP與正常登錄封包之間的實質差別僅在於是否具有特徵旗標SF。舉例來說，當連線伺服器150接收到來自第二裝置130的登錄封包中具有特徵旗標SF（即為休眠登錄封包SLP）時，連線伺服器150的控制單元151則判定第二裝置130的運作狀態為休眠。反之，當連線伺服器150接收到來自第二裝置130的登錄封包中不具有特徵旗標SF（即為正常登錄封包）時，連線伺服器150的控制單元

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151則判定第二裝置130的運作狀態為正常連線。再者，當連線伺服器150超過既定時間未接收到來自第二裝置130的任何登錄封包時，連線伺服器150的控制單元151則判定第二裝置130的運作狀態為離線。

【0060】 在一些實施例中，特徵旗標SF可位在休眠登錄封包SLP的標頭HD''中，如第12及13圖所示。

【0061】 在一些實施例中，登錄資料LD可包括帳號與密碼。其中，帳號可為第二裝置130的設備識別碼ID。

【0062】 第14圖是另一實施例之遠端喚醒方法之部分流程圖。

【0063】 在一些實施例中，參照第14圖，當第一裝置110要與第二裝置130進行通訊連線時，第一裝置110經由網路發送用以要求與第二裝置130進行通訊連線的連線要求封包給連線伺服器150（步驟S450），以向連線伺服器150詢問第二裝置130的連線資訊與第二裝置130的運作狀態。連線伺服器150的控制單元151經由網路模組153接收到來自第一裝置110的連線要求封包，並且根據連線要求封包中的第二裝置130的設備識別碼ID查詢（確認）儲存單元155中記錄的第二裝置130的運作狀態（步驟S460）。

【0064】 當確認第二裝置130的運作狀態為正常連線（步驟S462）時，連線伺服器150的控制單元151從儲存單元155中讀出第二裝置130的連線資訊（步驟S470）並透過網路模組153將第二裝置130的連線資訊回傳給第一裝置110（步驟S472），以致使第一裝置110根據第二裝置130的連線資訊與第二裝置130進行通訊連線（步驟S474）。

【0065】 當確認第二裝置130的運作狀態為休眠（步驟S464）時，連

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線伺服器150的控制單元151透過網路模組153向第一裝置110回覆第二裝置130的運作狀態為休眠（步驟S480），以致使第一裝置110發出喚醒要求封包（步驟S500）。

【0066】 當確認第二裝置130的運作狀態為離線（步驟S466）時，連線伺服器150的控制單元151透過網路模組153向第一裝置110回覆第二裝置130的運作狀態為離線（步驟S490），以通知第一裝置110一段時間後再重新要求連線。

【0067】 於此雖然是以第一裝置110與第二裝置130之間的通訊連線為點對點連線為例，但本發明不限於此，第一裝置110與第二裝置130之間的通訊連線亦可是經由連線伺服器150或另一連線伺服器的中繼連線。

【0068】 在一些實施例中，連線伺服器150可僅具有辨識第二裝置130的運作狀態為正常連線或未連線的能力。此時，當連線伺服器150向第一裝置110回覆第二裝置130的運作狀態為未連線（步驟S490）時，第一裝置110可發送喚醒要求封包至連線伺服器150（即，執行步驟S500與其後續步驟）（圖式未示），以進行第二裝置130的喚醒程序。

【0069】 第15圖是又一實施例之遠端喚醒方法之部分流程圖。

【0070】 在一些實施例中，參照第15圖，當第一裝置110要與第二裝置130進行點對點連線（非首次連線）時，第一裝置110可先以先前取得之第二裝置130的連線資訊嘗試對第二裝置130進行通訊連接（嘗試形成二者之間的點對點連線）（步驟S410）。當通訊連接不成功時（如未收到第二裝置之回應），第一裝置110才向連線伺服器150發出喚醒要求封包（步驟S450）。當通訊連接成功時，第一裝置110與第二裝置130之間

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的點對點連線形成（步驟S420）。於此雖然是以第一裝置110與第二裝置130之間的通訊連線為點對點連線為例，但本發明不限於此，第一裝置110與第二裝置130之間的通訊連線亦可是經由連線伺服器150或另一連線伺服器的中繼連線。

【0071】 在另一些實施例中，當連線伺服器150向第一裝置110回覆第二裝置130的運作狀態為未連線時，第一裝置110可以固定時間間隔持續向連線伺服器150發出喚醒要求封包（即，反覆執行步驟S500與其後續步驟）並且持續嘗試對第二裝置130進行通訊連接，直至通訊連接成功（圖式未示）。

【0072】 在一些實施例中，第一裝置110可以無視第二裝置130的運作狀態，並於每次嘗試通訊連接第二裝置130，同時執行發出喚醒要求封包（即，執行步驟S500與其後續步驟）（圖式未示）。若第二裝置130的運作狀態為正常連線，連線伺服器150則不理會（忽略）喚醒要求封包WRP（不起任何作用）。

【0073】 需注意的是，雖然前述實施例是依序描述各步驟，但此順序並非本發明之限制，熟習相關技藝者應可瞭解在合理情況下部分步驟的執行順序可同時進行或先後對調。例如：同時取得對應第二裝置的喚醒資訊與連線資訊，即同時進行步驟S520及S540。

【0074】 在一些實施例中，在網路通訊系統10中，各組件能藉由其控制單元執行其儲存單元中所儲存的韌體或軟體演算法而實現上述之對應步驟。換言之，儲存單元用以儲存相關之軟體/韌體程式、資料、數據及其組合等。

【0075】 在一些實施例中，各儲存單元可由一個或多個儲存元件所實現。於此，儲存元件可以是例如記憶體或暫存器等，但在此並不對其限制。記憶體可例如唯讀記憶體（Read-Only Memory；ROM）、隨機存取記憶體（Random Access Memory；RAM）、非永久性記憶體、永久性記憶體、靜態記憶體、動態記憶體、快閃記憶體和/或任何存儲數位資訊的設備。

【0076】 綜上，根據本發明之遠端喚醒方法、連線伺服器及具有休眠模式的連網裝置，可使連網裝置（即，第二裝置）進入超低耗電狀態（休眠狀態），並且能提供第一裝置110使用第二裝置130的設備識別碼ID透過連線伺服器150對遠端的第二裝置直接發起喚醒要求（裝置喚醒封包WRP），以致於無需任何設定（例如：主機板、網路卡、防火牆等裝置設定）亦無須透過網路廣播，即可喚醒遠端的第二裝置並且減少本地網路（LAN）下的網路封包量。

【0077】 雖然本發明以前述之實施例揭露如上，然其並非用以限定本發明，任何熟習相像技術者，在不脫離本發明之精神和範圍內，當可作些許之更動與潤飾，因此本發明之專利保護範圍須視本說明書所附之申請專利範圍所界定者為準。

【符號說明】

【0078】

10	網路通訊系統	110	第一裝置
120	位址轉換器	130	第二裝置
131	控制單元	133	網路模組
135	儲存單元	140	網路切換器或集線器
150	連線伺服器	151	控制單元
153	網路模組	155	儲存單元
20	本地網路	30	網際網路
WRP	喚醒要求封包	HD	一般資訊
ID	設備識別碼	EWP	裝置喚醒封包
WM	喚醒資訊	CP	比對封包
HD'	一般資訊	SLP	休眠登錄封包
HD''	一般資訊	LD	登錄資料
SF	特徵旗標		
S410	第一裝置以先前取得之第二裝置的連線資訊嘗試對第二裝置進行通訊連接		
S420	第一裝置與第二裝置之間的點對點連線形成		
S450	第一裝置發送連線要求封包給連線伺服器		
S460	連線伺服器根據連線要求封包確認第二裝置的運作狀態		
S462	正常連線		
S464	休眠		

- S466 離線
- S470 連線伺服器從儲存單元中讀出第二裝置的連線資訊
- S472 連線伺服器將第二裝置的連線資訊回傳給第一裝置
- S474 第一裝置根據第二裝置的連線資訊與第二裝置進行點對點連線
- S480 連線伺服器向第一裝置回覆第二裝置的運作狀態為休眠
- S490 連線伺服器向第一裝置回覆第二裝置的運作狀態為離線
- S500 第一裝置生成並發送喚醒要求封包至連線伺服器
- S510 連線伺服器接收到來自第一裝置的喚醒要求封包
- S520 連線伺服器根據喚醒要求封包取得對應第二裝置的喚醒資訊
- S530 連線伺服器根據喚醒要求封包與喚醒資訊生成一裝置喚醒封包
- S540 連線伺服器根據喚醒要求封包取得對應第二裝置的連線資訊
- S550 連線伺服器基於取得的連線資訊向第二裝置發送裝置喚醒封包
- S560 第二裝置的網路模組接收來自連線伺服器的裝置喚醒封包
- S570 第二裝置的網路模組根據一既定資料位置從裝置喚醒封包取得一喚醒特徵資料
- S580 第二裝置的網路模組從儲存單元讀出一預存特徵資料
- S590 第二裝置的網路模組比對喚醒特徵資料與預存特徵資料
- S592 是否一致?
- S600 第二裝置的網路模組喚醒整個第二裝置
- S602 第二裝置的網路模組不喚醒整個第二裝置
- S710 第二裝置的控制單元從儲存單元讀出設備識別碼與喚醒資訊
- S720 第二裝置的控制單元根據設備識別碼與喚醒資訊生成一比對封包

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- S730 第二裝置的控制單元根據既定資料位置從比對封包取得一預存特徵資料
- S740 第二裝置的控制單元儲取得預存特徵資料在儲存單元中
- S910 第二裝置的控制單元從儲存單元讀出登錄資料
- S920 第二裝置的控制單元根據登錄資料與特徵旗標生成一休眠登錄封包
- S930 第二裝置的控制單元將休眠登錄封包儲存在儲存單元中
- S940 第二裝置進入休眠狀態，並且在休眠模式下網路模組定時對連線伺服器發送休眠登錄封包
- S950 連線伺服器接收來自第二裝置的休眠登錄封包
- S960 連線伺服器根據休眠登錄封包中的特徵旗標判定第二裝置的運作狀態為休眠並在儲存單元中記錄第二裝置的運作狀態為休眠

【發明申請專利範圍】

【第1項】 一種遠端喚醒方法，包括：

接收來自一第一裝置的一喚醒要求封包，其中該喚醒要求封包包括一第二裝置的一設備識別碼；

根據該喚醒要求封包取得一喚醒資訊；

根據該喚醒要求封包與該喚醒資訊生成一裝置喚醒封包，其中該裝置喚醒封包包括該第二裝置的該設備識別碼與該喚醒資訊；

根據該喚醒要求封包取得對應該第二裝置的一連線資訊；以及

基於該連線資訊向該第二裝置發送該裝置喚醒封包。

【第2項】 如請求項1所述之遠端喚醒方法，其中該裝置喚醒封包的生成步驟包括：

將該喚醒要求封包與該喚醒資訊組合成一未加密封包；以及

進行該未加密封包的一加密演算而生成該裝置喚醒封包。

【第3項】 如請求項2所述之遠端喚醒方法，其中該加密演算的一個加密單位包含該設備識別碼的全部資料或部分資料與該喚醒資訊。

【第4項】 如請求項2所述之遠端喚醒方法，其中該設備識別碼與該喚醒資訊的資料大小的總和為該加密演算的加密單位的倍數，且該倍數為正整數。

【第5項】 如請求項2所述之遠端喚醒方法，更包括：

由該第二裝置接收該裝置喚醒封包；

由該第二裝置從該裝置喚醒封包取得一喚醒特徵資料，且該喚醒特徵資料包含該設備識別碼的全部資料或部分資料與該喚醒資訊；

第1頁，共5頁(發明申請專利範圍)

比對該喚醒特徵資料與一預存特徵資料，其中該預存特徵資料為該第二裝置休眠前預先儲存在該第二裝置中；以及

當該喚醒特徵資料與該預存特徵資料一致時，喚醒整個該第二裝置。

【第6項】如請求項5所述之遠端喚醒方法，其中該喚醒特徵資料的資料大小與該預存特徵資料的資料大小均為該加密演算的至少一個加密單位。

【第7項】如請求項1所述之遠端喚醒方法，更包括：

接收來自該第二裝置的一休眠登錄封包；以及

根據該休眠登錄封包在該儲存單元中記錄該第二裝置的一運作狀態為休眠。

【第8項】如請求項7所述之遠端喚醒方法，其中該休眠登錄封包具有一特徵旗標，並且該特徵旗標表示該第二裝置的該運作狀態為該休眠。

【第9項】如請求項1所述之遠端喚醒方法，更包括：

接收來自該第一裝置的一連線要求封包，其中該連線要求封包用於要求與該第二裝置進行通訊連線；

根據該連線要求封包確認該第二裝置的一運作狀態；以及

當該第二裝置的該運作狀態為休眠時，向該第一裝置回覆該第二裝置為該休眠。

【第10項】如請求項1所述之遠端喚醒方法，其中該喚醒資訊及該連線資訊的取得步驟包括：根據該設備識別碼從一儲存單元中讀取對應該設備識別碼的該喚醒資訊及該連線資訊。

【第11項】一種連線伺服器，包括：

一網路模組；

第2頁，共5頁(發明申請專利範圍)

一儲存單元，儲存對應一第二裝置的一連線資訊與一喚醒資訊；以及
一控制單元，連接該網路模組與該儲存單元，通過該網路模組接收來自一第一裝置的一喚醒要求封包、根據該喚醒要求封包取得該喚醒資訊與該連線資訊、根據該喚醒要求封包與該喚醒資訊生成一裝置喚醒封包，並根據該連線資訊通過該網路模組向該第二裝置發送該裝置喚醒封包，其中該喚醒要求封包包括該第二裝置的一設備識別碼，以及該裝置喚醒封包包括該第二裝置的該設備識別碼與該喚醒資訊。

【第12項】如請求項11所述之連線伺服器，其中該控制單元將該喚醒要求封包與該喚醒資訊組合成一未加密封包並進行該未加密封包的一加密演算而生成該裝置喚醒封包。

【第13項】如請求項12所述之連線伺服器，其中該加密演算的一個加密單位包含該設備識別碼的全部資料或部分資料與該喚醒資訊。

【第14項】如請求項12所述之連線伺服器，其中該設備識別碼與該喚醒資訊的資料大小的總和為該加密演算的加密單位的倍數，且該倍數為正整數。

【第15項】如請求項11所述之連線伺服器，其中該儲存單元更儲存該第二裝置的一運作狀態，以及該控制單元通過該網路模組接收來自該第二裝置的一休眠登錄封包，並根據該休眠登錄封包更新該儲存單元中該第二裝置的該運作狀態為休眠。

【第16項】如請求項15所述之連線伺服器，其中該休眠登錄封包具有一特徵旗標，並且該特徵旗標表示該第二裝置的該運作狀態為該休眠。

●

【第17項】如請求項11所述之連線伺服器，其中當該控制單元通過該網路模組接收來自該第一裝置之用以要求與該第二裝置進行通訊連線的一連線要求封包時，該控制單元根據該連線要求封包確認該第二裝置的一運作狀態並於確認該第二裝置的該運作狀態為休眠時向該第一裝置回覆該第二裝置為該休眠。

【第18項】如請求項11所述之連線伺服器，其中該儲存單元記錄有該設備識別碼以及該設備識別碼、該連線資訊與該喚醒資訊的對應關係。

【第19項】一種具有休眠模式的連網裝置，包括：

一網路模組；

一儲存單元，儲存一設備識別碼以及一喚醒資訊；以及

一控制單元，連接該網路模組與該儲存單元，於進入休眠模式之前，根據該設備識別碼與該喚醒資訊生成一預存特徵資料，並儲存該預存特徵資料在該儲存單元中，其中該預存特徵資料包含該設備識別碼的全部資料或部分資料與該喚醒資訊；

其中，在該休眠模式下，該網路模組仍保持運作並且於接收到一裝置喚醒封包時根據該預存特徵資料與該裝置喚醒封包進行比對，以喚醒該連網裝置。

【第20項】如請求項19所述之具有休眠模式的連網裝置，其中該控制單元根據該設備識別碼與該喚醒資訊生成一比對封包並且從該比對封包取得該預存特徵資料。

【第21項】如請求項20所述之具有休眠模式的連網裝置，其中在該休眠模式下，當該網路模組接收到來自一連線伺服器的該裝置喚醒封包時，該

第4頁，共5頁(發明申請專利範圍)

網路模組根據一既定資料位置從該裝置喚醒封包擷取一喚醒特徵資料並且比對該喚醒特徵資料與該預存特徵資料，其中當該喚醒特徵資料與該預存特徵資料一致時，該網路模組喚醒整個連網裝置。

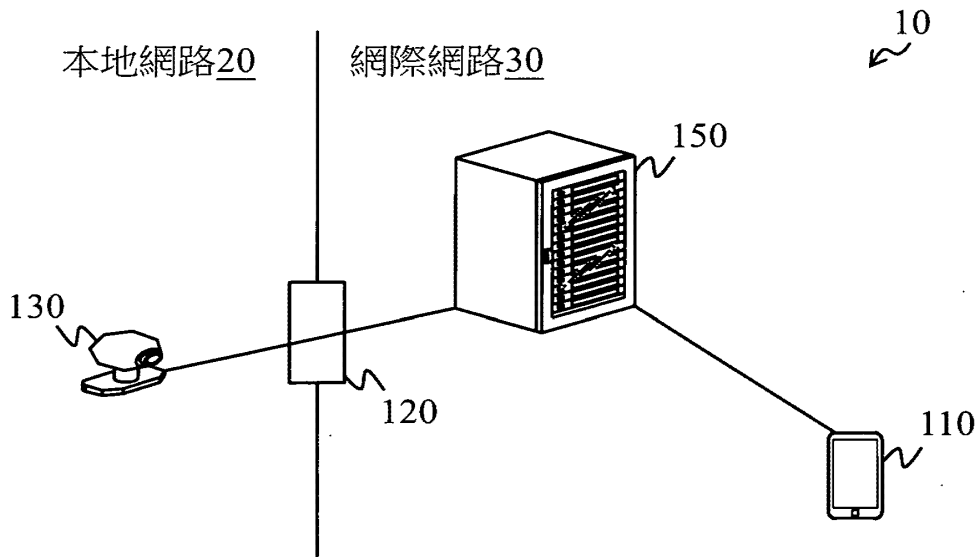
【第22項】如請求項19所述之具有休眠模式的連網裝置，其中該設備識別碼的全部資料或部分資料與該喚醒資訊的資料大小的總和為該裝置喚醒封包的加密演算的加密單位的倍數，且該倍數為正整數。

【第23項】如請求項19所述之具有休眠模式的連網裝置，其中該儲存單元儲存一登錄資料，該控制單元於進入休眠模式之前根據該登錄資料及一特徵旗標生成具有該登錄資料與該特徵旗標的一休眠登錄封包，以及該特徵旗標表示該連網裝置的運作狀態為休眠。

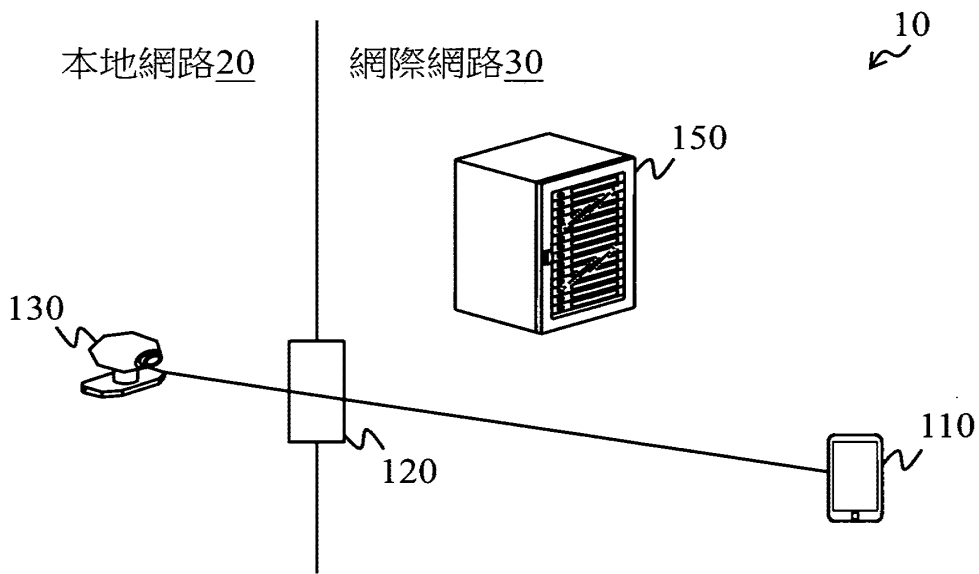
【第24項】如請求項23所述之具有休眠模式的連網裝置，其中該特徵旗標位於該休眠登錄封包的表頭。

【第25項】如請求項23所述之具有休眠模式的連網裝置，其中在該休眠模式下，該網路模組對該連線伺服器週期性發送該休眠登錄封包。

【發明圖式】

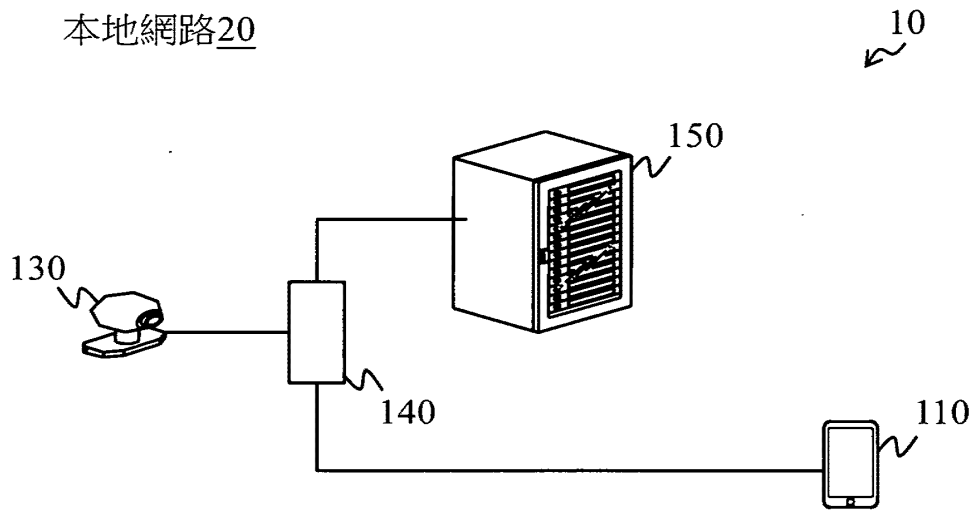


第1A圖

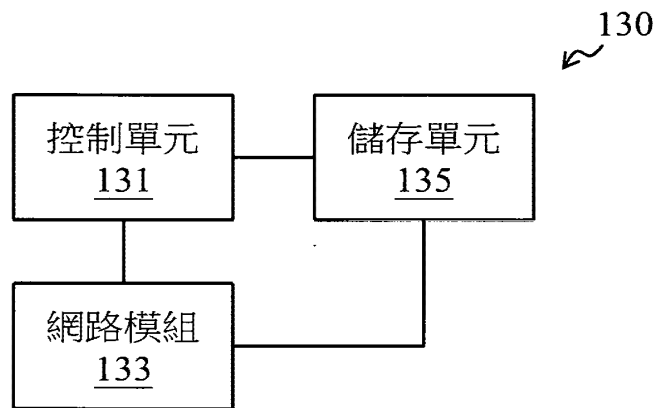


第1B圖

本地網路20



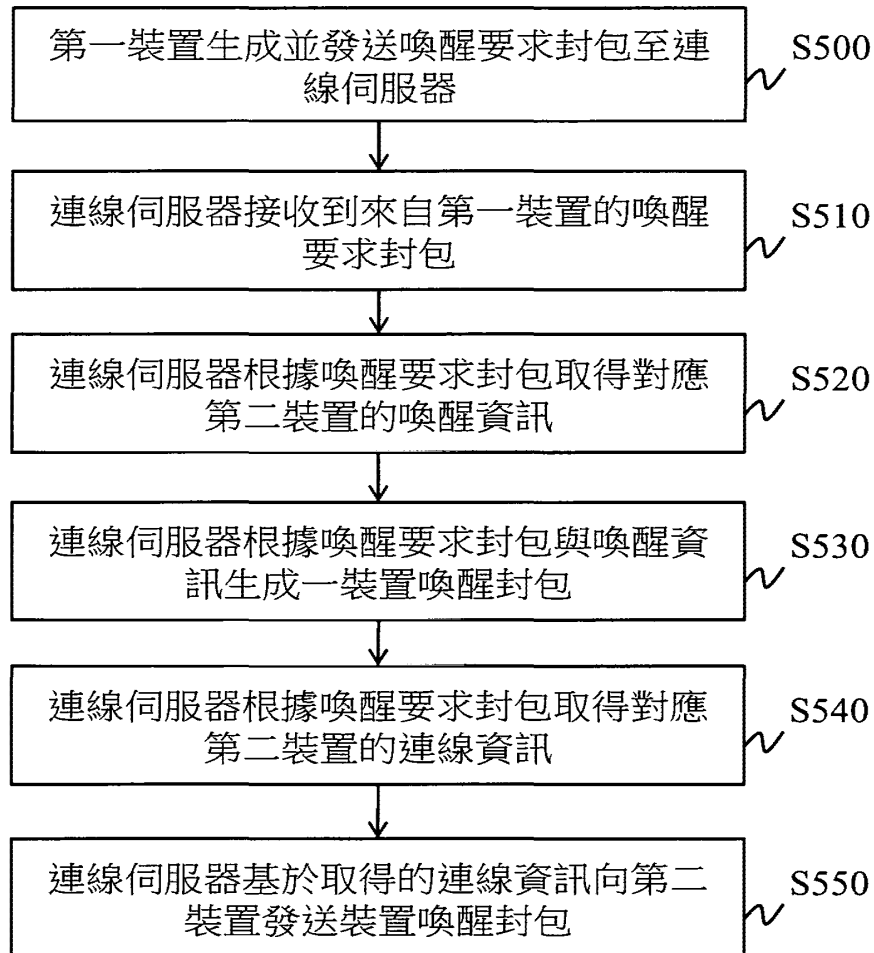
第2圖



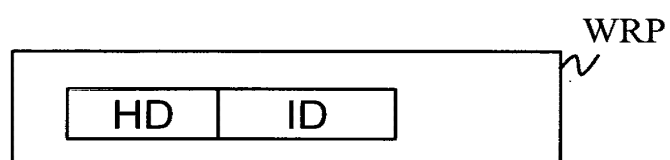
第3圖



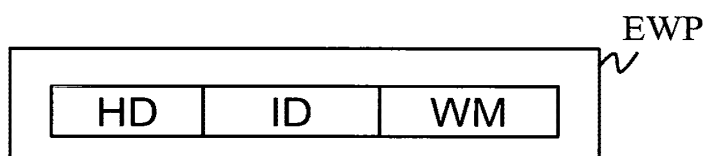
第4圖



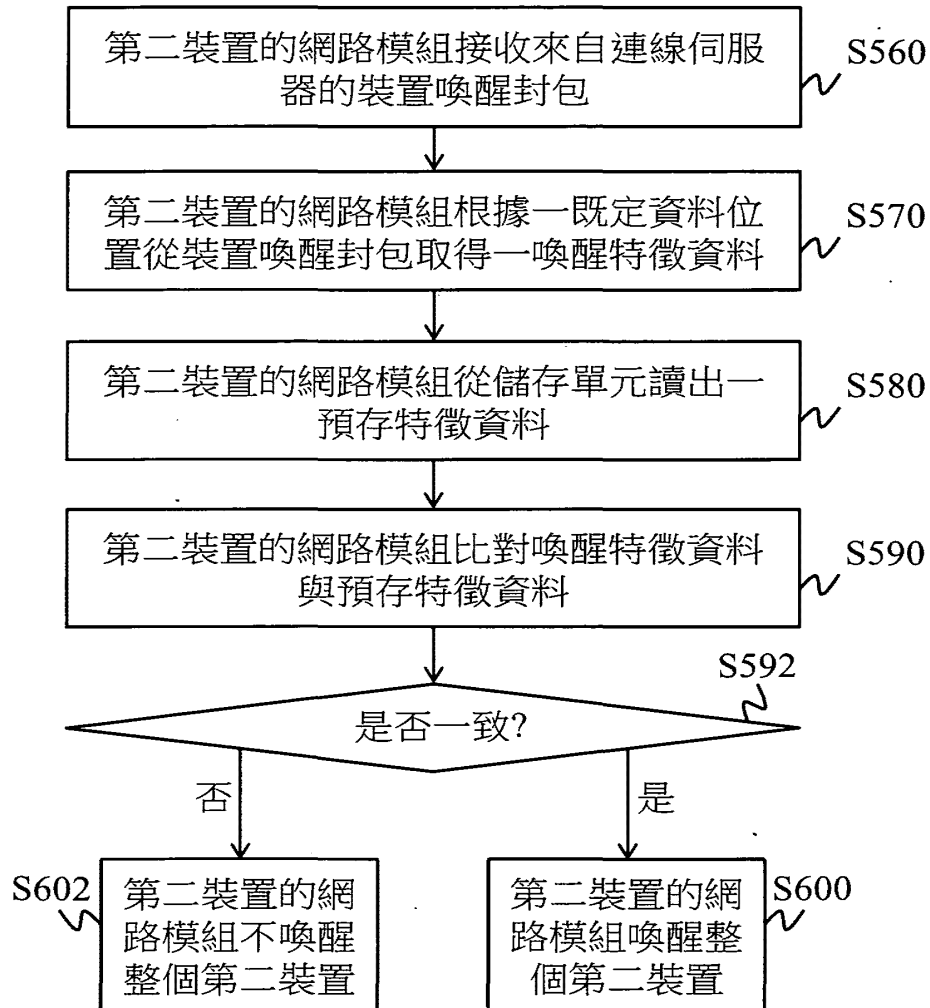
第5圖



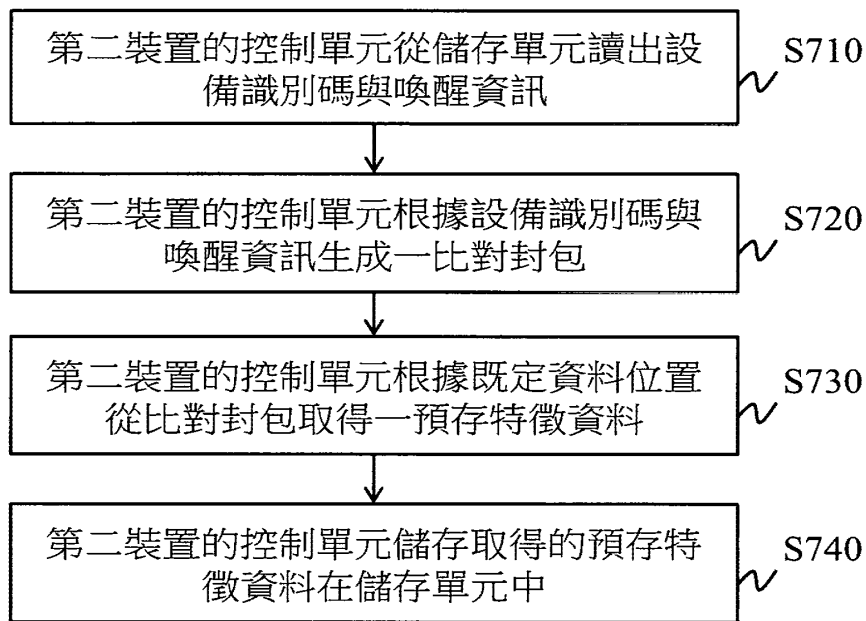
第6圖



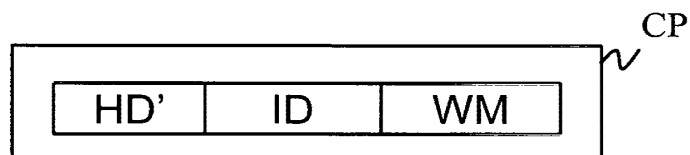
第7圖



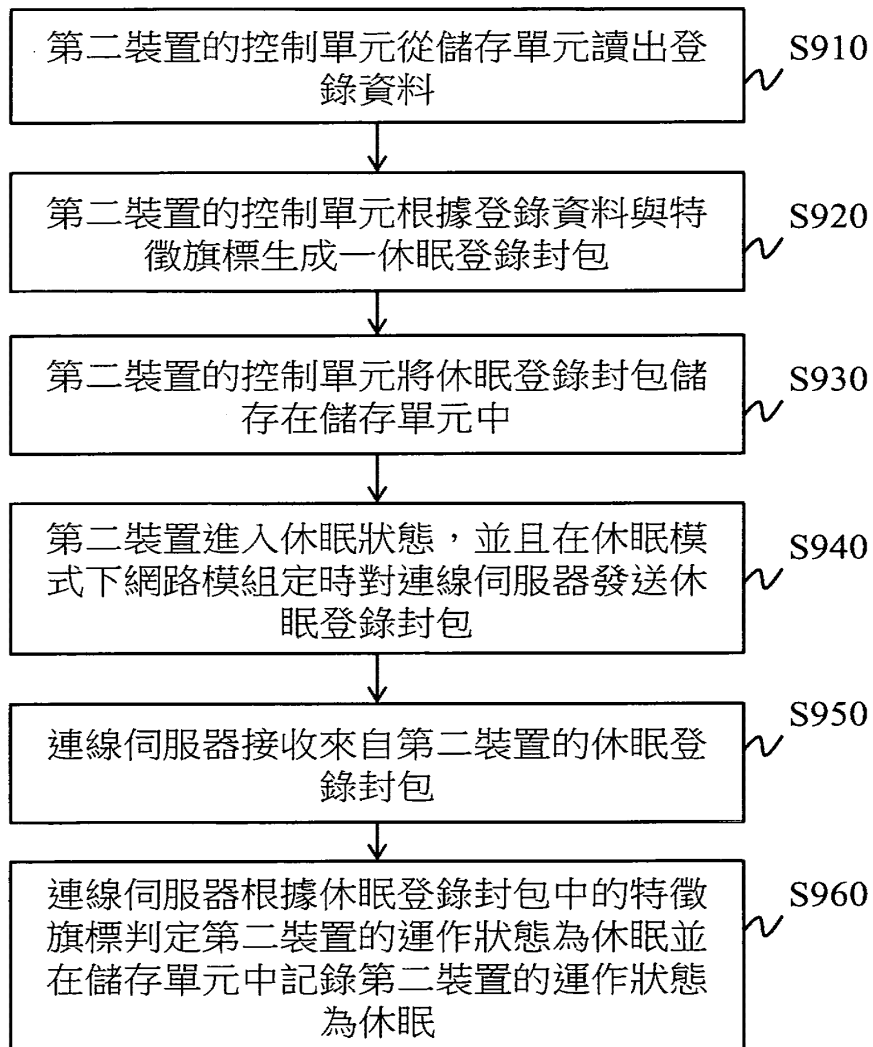
第8圖



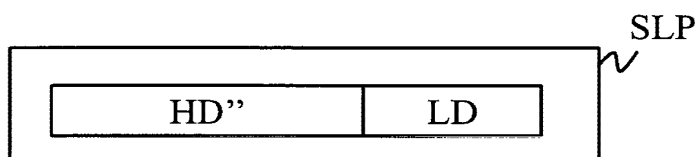
第9圖



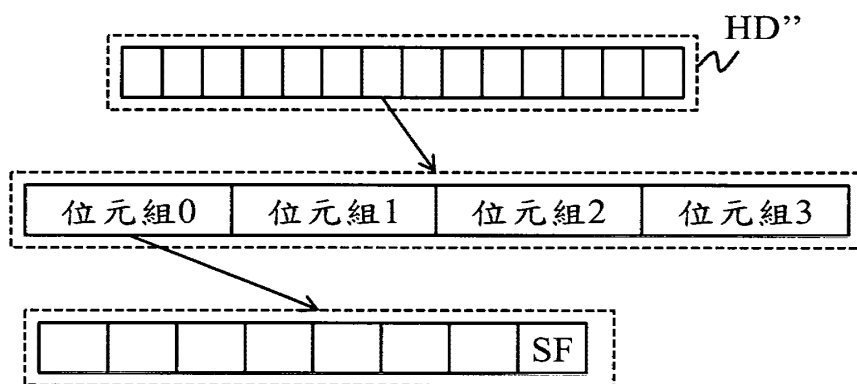
第10圖



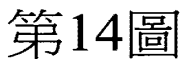
第11圖

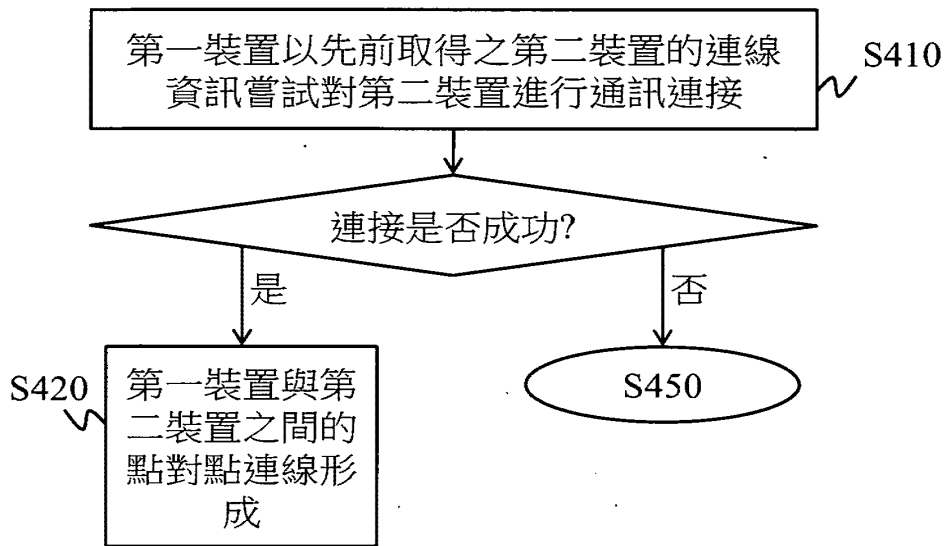


第12圖



第13圖





第15圖



17

PTO/SB/21 (10-08)

Approved for use through 11/30/2008. OMB 0651-0031

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

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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	15/685,661
	Filing Date	Aug 24, 2017
	First Named Inventor	CHEN, Yong-Sheng
	Art Unit	
	Examiner Name	
Total Number of Pages in This Submission	Attorney Docket Number	5750/0472PUS1

ENCLOSURES (Check all that apply)		
☐ Fee Transmittal Form ☐ Fee Attached ☐ Amendment / Reply ☐ After Final ☐ Affidavits/declaration(s) ☐ Extension of Time Request ☐ Express Abandonment Request ☐ Information Disclosure Statement ☒ Certified Copy of Priority Document(s) ☐ Reply to Missing Parts/Incomplete Application ☐ Reply to Missing Parts under 37 CFR 1.52 or 1.53	☐ Drawing(s) ☐ Licensing-related Papers ☐ Petition ☐ Petition to Convert to a Provisional Application ☐ Power of Attorney, Revocation Change of Correspondence Address ☐ Terminal Disclaimer ☐ Request for Refund ☐ CD, Number of CD(s) _____ ☐ Landscape Table on CD	☐ After Allowance communication to (TC) ☐ Appeal Communication to Board of Appeals and Interferences ☐ Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) ☐ Proprietary Information ☐ Status Letter ☐ Other Enclosure(s) (please identify below):
Remarks A certified copy of Taiwan 105127737 filed on 29 Aug 2016 is attached hereto. A claim for priority to this application is made under 35 U.S.C. § 119.		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT			
Firm Name	Muncy, Geissler, Olds & Lowe, P.C.		
Signature			
Printed name	Joe McKinney Muncy ROBERT F. GNUSE		
Date	August 25, 2017	Registration #27295	Reg. No. 32334

CERTIFICATE OF TRANSMISSION/MAILING			
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.			
Signature	ROBERT F. GNUSE		
Typed or printed name	Joe McKinney Muncy	Registration #27295	Date August 25, 2017

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UTILITY PATENT APPLICATION TRANSMITTAL <i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>	Attorney Docket No.	5750/0472PUS1
	First Named Inventor	CHEN, Yong-Sheng
	Title	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKI
	Express Mail Label No.	

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450 ADDRESS TO:
☒ Fee Transmittal Form (PTO/SB/17 or equivalent) ☒ Applicant asserts small entity status. See 37 CFR 1.27 ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent. ☒ Specification [Total Pages <u>26</u>] Both the claims and abstract must start on a new page. (See MPEP § 608.01(a) for information on the preferred arrangement) ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>10</u>] ☒ Inventor's Oath or Declaration [Total Pages <u>3</u>] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) ☒ Newly executed (original or copy) ☐ A copy from a prior application (37 CFR 1.63(d)) ☒ Application Data Sheet * See note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) CD-ROM or CD-R in duplicate, large table, or Computer Program (Appendix) ☐ Landscape Table on CD Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. – c. are required) ☐ Computer Readable Form (CRF) ☐ Specification Sequence Listing on: ☐ CD-ROM or CD-R (2 copies); or ☐ Paper ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PAPERS ☐ Assignment Papers ThroughTek Technology (cover sheet & document(s)) (ShenZhen) Co., Ltd. and Name of Assignee ThroughTek Co., Ltd. ☐ 37 CFR 3.73(c) Statement ☒ Power of Attorney (when there is an assignee) ☐ English Translation Document (if applicable) ☐ Information Disclosure Statement (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached ☐ Preliminary Amendment ☐ Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed) ☐ Nonpublication Request Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. ☐ Other: _____

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

19. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number: 60601 OR ☐ Correspondence address below

Name				Muncy, Geissler, Olds & Lowe, P.C.	
Address				4000 Legato Rd., Suite 310	
City	Fairfax	State	VA	Zip Code	22033
Country	US	Telephone	703-621-7140	Email	mailroom@mg-ip.com
Signature				Date	2017-08-24
Name (Print/Type)	Joe McKinney Muncy			Registration No. (Attorney/Agent)	32,334

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

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FEE TRANSMITTAL		Complete if known	
		Application Number	NEW
☒ Applicant asserts small entity status. See 37 CFR 1.27.		Filing Date	2017-08-24
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.		First Named Inventor	CHEN, Yong-Sheng
		Examiner Name	
		Art Unit	
TOTAL AMOUNT OF PAYMENT	(\$ 930	Practitioner Docket No.	5750/0472PUS1

METHOD OF PAYMENT (check all that apply)
☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☒ Deposit Account Deposit Account Number: 50-3828 Deposit Account Name: MG-IP

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

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**
☒ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayment of fee(s)

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

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

Application Type	FILING FEES			SEARCH FEES			EXAMINATION FEES			Fees Paid (\$)
	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	U (\$)	S (\$)	M (\$)	
Utility	280	140*	70	600	300	150	720	360	180	730
Design	180	90	45	120	60	30	460	230	115	
Plant	180	90	45	380	190	95	580	290	145	
Reissue	280	140	70	600	300	150	2,160	1,080	540	
Provisional	260	130	65	0	0	0	0	0	0	

* The \$140 small entity status filing fee for a utility application is further reduced to \$70 for a small entity status applicant who files the application via EFS-Web.

2. EXCESS CLAIM FEES

Fee Description	Undiscounted Fee (\$)	Small Entity Fee (\$)	Micro Entity Fee (\$)
Each claim over 20 (including Reissues)	80	40	20
Each independent claim over 3 (including Reissues)	420	210	105
Multiple dependent claims	780	390	195
Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
25	-20 or HP = 5	x 40	= 200
HP = highest number of total claims paid for, if greater than 20.			
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
3	-3 or HP =	x	=
HP = highest number of independent claims paid for, if greater than 3.			

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$400 (\$200 for small entity) (\$100 for micro entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

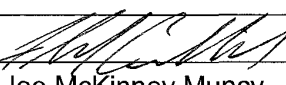
Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
36	- 100 =	/ 50 = (round up to a whole number) x	=	

4. OTHER FEE(S)

Non-English specification, \$130 fee (no small or micro entity discount)

Non-electronic filing fee under 37 CFR 1.16(t) for a utility application, \$400 fee (\$200 small or micro entity)

Other (e.g., late filing surcharge):

SUBMITTED BY		Registration No. 32,334	Telephone 703-621-7140
Signature		FLOYD E. CAMPBELL	
Name (Print/Type)	Joe McKinney Muncy	REG. NO. 60,151	Date 2017-08-24

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

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TPC - 14110191

PTO/AIA/80 (07-12)

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I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒ Practitioners associated with the Customer Number:

60601

OR

☐ Practitioner(s) named below (If more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration	Number	Name	Registration	Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒

The address associated with Customer Number:

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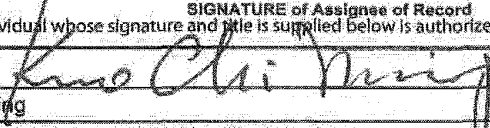
OR

☐ Firm or Individual Name	Muncy, Geissler, Olds & Lowe, PLLC		
Address	4000 Legato Rd., Suite 310		
City	Fairfax	State	VA Zip 22033
Country	US		
Telephone	703-621-7140	Email	mailroom@mg-ip.com

Assignee Name and Address:

ThroughTek Technology (ShenZhen) Co., Ltd.
Room 201, Chaohui Building, No.173 Baohua Rd., Longhua Street, Longhua New District,
Shenzhen, China

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record		
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee		
Signature		Date Nov. 28, 2014
Name	Kuo, Chi-Ming	Telephone
Title	Chairman of ThroughTek Technology (ShenZhen) Co., Ltd.	

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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7-14021-USA

PTO/AIA/80 (07-12)

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I hereby appoint:

☒ Practitioners associated with the Customer Number:

60601

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name Registration	Number		Name Registration	Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:



The address associated with Customer Number:

60601

OR

☐ Firm or Individual Name	Muncy, Geissler, Olds & Lowe, PLLC		
Address	4000 Legato Rd., Suite 310		
City	Fairfax	State	VA Zip 22033
Country	US		
Telephone	703-621-7140	Email	mailroom@mg-ip.com

Assignee Name and Address:

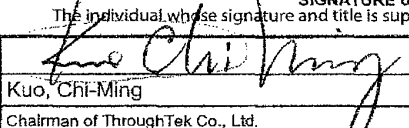
ThroughTek Co., Ltd.

7F, Bldg. B, No.209, Sec. 1, Nangang Rd., Nangang Dist., Taipei City 115, Taiwan (R.O.C.)

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature:		Date	07.10.2015
Name	Kuo, Chi-Ming	Telephone	
Title	Chairman of ThroughTek Co., Ltd.		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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COMBINED DECLARATION AND ASSIGNMENT

Title of Invention: REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE

As a below named inventor, I hereby declare that:

This declaration is directed to:

☒ The attached application; or

☐ United States application number or PCT international application number _____, filed on _____.

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.

WHEREAS, ThroughTek Technology (ShenZhen) Co., Ltd. of Room 201, Chaohui Building, No.173 Baohua Rd., Longhua Street, Longhua New District, Shenzhen, China, and

ThroughTek Co., Ltd. of 7F, Bldg. B, No.209, Sec. 1, Nangang Rd., Nangang Dist., Taipei City 115, Taiwan (R.O.C.), its heirs, successors, legal representatives and assigns (hereinafter designated as the Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefor in the United States of America and ☐ in any foreign countries.

NOW, THEREFORE, in consideration of the sum of Ten Dollars (\$10.00) to the undersigned in hand paid, the receipt of which is hereby acknowledged, and other good and valuable consideration, the undersigned has (have) sold, assigned and transferred, and by these presents does sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted

therefor in the United States of America, its territories, dependencies and possessions, and if the box above is designated, in any and all foreign countries; and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted.

The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letter Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agree(s) to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States of America patent(s) or a grant of a valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorize(s) and request(s) the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patents resulting from said application or any continuing, divisional, conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) the full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby covenant(s) that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

LEGAL NAME OF FIRST OR SOLE INVENTOR:

Chen, Yong-Sheng

Signature: Chen, Yong-Sheng Date: 08/21/2017

☐ Additional inventors are being named on separately numbered sheets attached hereto.

REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE

CROSS-REFERENCE TO RELATED APPLICATION

This non-provisional application claims priority under 35 U.S.C. § 119(a) to Patent
5 Application No. 105127737 filed in Taiwan, R.O.C. on August 29, 2016, the entire contents
of which are hereby incorporated by reference.

BACKGROUND

Technical Field

The present invention relates to a network communications system, and in particular, to a
10 remote wakeup method, a connection server, and a networking apparatus having a sleep
mode.

Related Art

With the progress of sciences and technologies, the Internet of Things (IOT) has been
widely used in family smart facilities, mobile terminal devices, industrial system
15 environments, and the like. Under the IOT architecture, various apparatuses surrounding
each person may be connected to a network, and a user can perform relevant control, access,
and the like on the apparatuses by means of the network. To provide a service for a long
term, a networking apparatus in the IOT architecture needs to have power-saving and
networking capabilities at the same time. When being idle, the networking apparatus enters
20 a sleep mode to save power. When the networking apparatus is in the sleep mode, there
must be a method capable of remotely waking up the networking apparatus, so as to continue
to provide services of the apparatus. However, it would not be easy to wake up the network
apparatus by means of the Internet or a router.

However, a great amount of knowledge about the network is necessary for the existing
25 wakeup technologies, so that settings, such as a main board, a network card, and a firewall,
can be learned, thereby facilitating implementation of a remote wakeup function. Further,
most existing wakeup technologies wake up an apparatus in a router broadcasting manner and

cannot directly wake up a remote networking apparatus.

SUMMARY

In an embodiment, a remote wakeup method includes: receiving a wakeup request packet from a first apparatus, obtaining a wakeup information according to the wakeup request packet, generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, obtaining a connection information corresponding to a second apparatus according to the wakeup request packet, and sending the apparatus wakeup packet to the second apparatus based on the connection information. The wakeup request packet includes a device identifier (UID) of the second apparatus, and the apparatus wakeup packet includes the device identifier of the second apparatus and wakeup information.

In an embodiment, a connection server includes a network module, a storage unit, and a control unit. The control unit connects to the network module and storage unit, and the storage unit stores a connection information and a wakeup information that correspond to a second apparatus. The control unit receives a wakeup request packet from a first apparatus through the network module, obtains the wakeup information and the connection information according to the wakeup request packet, generates an apparatus wakeup packet according to the wakeup request packet and the wakeup information, and sends the apparatus wakeup packet to the second apparatus through the network module based on the connection information. The wakeup request packet includes a device identifier (UID) of the second apparatus, and the apparatus wakeup packet includes the device identifier of the second apparatus and wakeup information.

In an embodiment, a network apparatus having a sleep mode includes a network module, a storage unit, and a control unit. The control unit connects to the network module and storage unit, and the storage unit stores a device identifier (UID) and a wakeup information. Before entering the sleep mode, the control unit generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit. The pre-stored feature data includes entire data or partial data of the device identifier and the wakeup information. In the sleep mode, the network module still keeps running and when receiving an apparatus wakeup packet, performs comparison according to

the pre-stored feature data and the apparatus wakeup packet, so as to wake up the networking apparatus.

In conclusion, according to the remote wakeup method, connection server, and networking apparatus having a sleep mode of the present invention, the networking apparatus
5 (namely, the second apparatus) may be enabled to enter an ultra-low power consumption state (the sleep state), and a first apparatus can be provided to use a device identifier of the second apparatus to directly initiate a wakeup request (an apparatus wakeup packet) to the remote second apparatus by means of the connection server, so that it is unnecessary to perform any setting (for example, settings on apparatuses such as a main board, a network card, and a
10 firewall) or use network broadcasting to wake up the remote second apparatus without reducing a number of network packets in a local area network (LAN).

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given herein below for illustration only, and thus are not limitative of the present invention,
15 and wherein:

FIG. 1A and FIG. 1B are schematic diagrams of a network communications system according to an embodiment of the present invention;

FIG. 2 is a schematic diagram of a network communications system according to another embodiment of the present invention;

20 FIG. 3 is a schematic diagram of a networking apparatus according to an embodiment;

FIG. 4 is a schematic diagram of a connection server according to an embodiment;

FIG. 5 is a flowchart of a first part of a remote wakeup method according to an embodiment;

FIG. 6 is a schematic diagram illustrating an overview of a wakeup request packet
25 according to an embodiment;

FIG. 7 is a schematic diagram illustrating an overview of an apparatus wakeup packet according to an embodiment;

FIG. 8 is a flowchart of a second part of a remote wakeup method according to an embodiment;

FIG. 9 is a flowchart of a third part of a remote wakeup method according to an embodiment;

5 FIG. 10 is a schematic diagram illustrating an overview of a comparison packet according to an embodiment;

FIG. 11 is a flowchart of a method for identifying a running state of a second apparatus according to another embodiment;

10 FIG. 12 is a schematic diagram illustrating an overview of a sleep login packet according to an embodiment;

FIG. 13 is a schematic diagram of a position of a feature flag in a sleep login packet according to an embodiment;

FIG. 14 is a partial flowchart of a remote wakeup method according to another embodiment; and

15 FIG. 15 is a partial flowchart of a remote wakeup method according to still another embodiment.

DETAILED DESCRIPTION

FIG. 1A and FIG. 1B are schematic diagrams of a network communications system according to an embodiment of the present invention. FIG. 2 is a schematic diagram of a
20 network communications system according to another embodiment of the present invention. Refer to FIG. 1A, FIG. 1B, and FIG. 2, a network communications system 10 includes two networking apparatuses (for clear description, hereinafter respectively referred to as a first apparatus 110 and a second apparatus 130) and a connection server 150. The networking apparatuses (the first apparatus 110 and the second apparatus 130) may be any electronic
25 apparatuses capable of connecting to a network, for example, a personal computer, a smart phone, a navigation device (PND), a notebook computer, a tablet computer (a Tablet or a Pad), a video camera, an IP cam, or an intelligent appliance.

In some embodiments, it is assumed that the first apparatus 110 is a client apparatus that, on its initiative, proposes a connection request, and the second apparatus 130 is a remote apparatus that passively accepts the connection request. Refer to FIG. 1A and FIG. 2, when the first apparatus 110 intends to perform P2P (point-to-point or peer-to-peer) connection to the second apparatus 130, the first apparatus 110 sends a connection request packet to the connection server 150 through a network, so as to request to perform P2P connection to the second apparatus 130. The connection request packet includes a device identifier (Unique Identification, UID) of a connection target (the second apparatus 130) and a network location indicating a source of the packet (namely, connection information of the first apparatus 110). After the connection server 150 receives the connection request packet, the connection server 150 reads connection information of the second apparatus 130 from its storage unit according to the device identifier of the second apparatus 130 and feeds back the connection information of the second apparatus 130 to the first apparatus 110. In addition, the connection server 150 sends the connection information of the first apparatus 110 to the second apparatus 130 based on the connection information of the second apparatus 130, so as to notify the second apparatus 130 of performing P2P connection to the first apparatus 110. Then, the second apparatus 130 and the first apparatus 110 can form a P2P connection therebetween respectively according to the connection information of the first apparatus 110 and the connection information of the second apparatus 130, as shown in FIG. 1B and FIG. 2. Hence, although a communication connection between the first apparatus 110 and second apparatus 130 being a P2P connection is used as an example, the present invention is not limited thereto, and the communication connection between the first apparatus 110 and the second apparatus 130 may also be a relay connection through a connection server 150 or another connection server.

Each connection information includes a network address (IP Address) at which a networking apparatus is located. In some embodiments, Each connection information may further include a port number and/or a type of an address translator (NAT).

In some embodiments, the first apparatus 110 and the second apparatus 130 may be located at the same network or different networks. For example, refer to FIG. 1A and FIG.

1B, the second apparatus 130 is located in a local area network (LAN) 20 formed by an address translator 120, and the first apparatus 110 and the connection server 150 are located in an internet 30. Hence, the second apparatus 130 is located behind the address translator 120 (with respect to the internet 30), and the second apparatus 130 is connected to the internet 30 through the address translator 120. However, the present invention is not limited thereto. In another example, the first apparatus 110 and the second apparatus 130 may be located at the same LAN. For example, refer to FIG. 2, the first apparatus 110, the second apparatus 130, and the connection server 150 are located at the same LAN 20 and are communication-connected to each other through one or more network switches or hubs 140. In still another example, the first apparatus 110 may be located in another LAN (not shown in the drawing) formed by another address translator, that is, the first apparatus 110 and the second apparatus 130 are respectively located at two different LANs.

FIG. 3 is a schematic diagram of a networking apparatus according to an embodiment.

In some embodiments, refer to FIG. 3, the second apparatus 130 includes a control unit 131, a network module 133, and a storage unit 135. The control unit 131 is coupled to the network module 133 and the storage unit 135, and the network module 133 is couple to the storage unit 135. In some embodiments, the control unit 131, the network module 133, and the storage unit 135 may be implemented by a network chip. In addition, the second apparatus 130 may further include a functional module that provides a main function of the apparatus (not shown in the drawing). For example, when the second apparatus 130 is an IP cam, the second apparatus 130 may further include a functional module having a photographing function (namely, a photographing module). In another example, when the second apparatus 130 is an access control system, the second apparatus 130 may further include a functional module having an access control function.

In the present invention, the second apparatus 130 is a low power consumption apparatus. In other words, in addition to a normal running mode, the second apparatus 130 also has a power-saving mode (namely, a sleep mode). In the power-saving mode, the second apparatus 130 enters a sleep state to reduce power consumption. However, when the running state of the second apparatus 130 is the sleep state (that is, in the sleep mode), the network

module 133 of the second apparatus 130 still keeps running, that is, the network module 133 does not sleep.

In the normal running mode, the second apparatus 130 and the connection server 150 are in a normal connection state, and the control unit 131 would send a normal login packet to the connection server 150 as scheduled through the network module 133, so as to provide connection information of a network location at which the second apparatus 130 is located. In addition, in the normal connection state, the control unit 131 would also send various service requests to the connection server 150 through the network module 133, and the connection server 150 accordingly responds to the various service requests from the second apparatus 130.

FIG. 4 is a schematic diagram of a connection server according to an embodiment.

In some embodiments, refer to FIG. 4, the connection server 150 includes a control unit 151, a network module 153, and a storage unit 155. The control control unit 151 connects to the network module 153 and the storage unit 155.

In some embodiments, when the first apparatus 110 intends to perform communication connection to the second apparatus 130 in the sleep state, the first apparatus 110 may first wake up the second apparatus 130 by means of the connection server 150.

FIG. 5 is a flowchart of a first part of a remote wakeup method according to an embodiment. FIG. 6 is a schematic diagram illustrating an overview of an embodiment of a wakeup request packet.

Refer to FIG. 1 to FIG. 5, to wake up the second apparatus 130, the first apparatus 110 generates a wakeup request packet and sends the wakeup request packet to the connection server 150 through a network (the internet 30 or the LAN 20 and the internet 30) (step S500). The wakeup request packet WRP includes a general information HD and the device identifier ID of the second apparatus 130. In some embodiments, the general information HD and the device identifier ID of the second apparatus 130 may be located at a header of the wakeup request packet WRP. In some embodiments, the wakeup request packet WRP may further include a packet content.

After the control unit 151 receives the wakeup request packet WRP from the first apparatus 110 through the network module 153 (step S510), the control unit 151 obtains wakeup information corresponding to the second apparatus 130 from the storage unit 155 according to the device identifier ID in the wakeup request packet (step S520). In addition,
5 the control unit 151 generates an apparatus wakeup packet according to the wakeup request packet WRP and the wakeup information (step S530).

FIG. 7 is a schematic diagram illustrating an overview of an embodiment of an apparatus wakeup packet.

In some embodiments, the control unit 151 combines the wakeup request packet WRP
10 (the general information HD and the device identifier ID) and the wakeup information WM into an unencrypted packet and performs an encryption calculation on the unencrypted packet, so as to generate an apparatus wakeup packet EWP, as shown in FIG. 7. An encryption operation may be using an encryption technology to perform encryption processing on the unencrypted packet. The encryption technology may be, for example (but not limited to):
15 the Message-Digest Calculation (MD5), the Secure Hash Calculation (SHA), the Rivest-Shamir-Adleman (RSA) encryption calculation, or the Caesar Cipher calculation.

In some embodiments, in the unencrypted packet formed on the control unit 151, a sum of data sizes of the device identifier ID and the wakeup information WM may be greater than or equal to one encryption unit of the encryption calculation. For example, when the
20 encryption unit of the encryption calculation is 16 bytes, the sum of the device identifier ID and the wakeup information WM is greater than or equal to 16 bytes. In some embodiments, a data size of the wakeup information WM may be smaller than or equal to one encryption unit. For example, when the encryption unit of the encryption calculation is 16 bytes, the wakeup information WM is greater than or equal to 16 bytes.

25 In addition, the control unit 151 may also obtain connection information corresponding to the second apparatus 130 from the storage unit 155 according to the device identifier ID in the wakeup request packet WRP (step S540). In other words, the storage unit 155 of the connection server 150 stores the connection information and the wakeup information WM that correspond to the second apparatus 130.

In some embodiments, the storage unit 155 records the device identifier ID, the connection information AD, and the wakeup information WM of the second apparatus 130 and correspondences between the information, as shown in Table 1 below. The control unit 151 obtains wakeup information WM and connection information AD that correspond to the device identifier ID from the storage unit 155.

Table 1

Serial No.	Device Identifier	Connection Information	Wakeup Information
1	ID	AD	WM
2	Device identifier 2	Connection information 2	Wakeup information 2
⋮	⋮		

In some embodiments, the device identifier ID of the second apparatus 130 and the information, such as the connection information AD, that corresponds to the second apparatus 130 may be provided to the connection server 150 when the second apparatus 130 performs communication connection to the connection server 150, so that the information is recorded in the storage unit 155.

Then, the control unit 151 sends the apparatus wakeup packet EWP to the second apparatus 130 through the network module 153 based on the obtained connection information AD (step S550), that is, sends the apparatus wakeup packet EWP through a network to the second apparatus 130 located at a network address in the connection information AD.

FIG. 8 is a flowchart of a second part of a remote wakeup method according to an embodiment.

With reference to FIG. 8, because when the second apparatus 130 in the sleep state, the network module 133 thereof still keeps running, the network module 133 of the second apparatus 130 can still receive the apparatus wakeup packet EWP from the connection server 150 (step S560).

When the network module 133 receives the apparatus wakeup packet EWP (step S560),

the network module 133 obtains a wakeup feature data from the apparatus wakeup packet EWP according to a given data position (step S570) and reads pre-stored feature data that is pre-stored before the sleep from the storage unit 135 (step S580). A data size of the wakeup feature data is smaller than a data size of the apparatus wakeup packet EWP. Hence, the
5 wakeup feature data is a segment of data of the apparatus wakeup packet EWP.

In some embodiments, a data size of the wakeup feature data may be at least one encryption unit of the foregoing encryption calculation. In other words, the given data position is at least one encryption unit at a specific position of the apparatus wakeup packet EWP. For example, when the encryption unit of the encryption calculation is 16 bytes, the
10 wakeup feature data is a multiple of 16 bytes. In some embodiments, data of the wakeup feature data may be data of last at least one encryption unit in the apparatus wakeup packet EWP. In other words, the given data position is the last at least one encryption unit. For example, when the encryption unit of the encryption calculation is 16 bytes, the wakeup feature data is last 16 bytes or 32 bytes in the apparatus wakeup packet EWP. Particularly,
15 the obtained wakeup feature data includes data with consistency (for example, the device identifier ID and wakeup information WM) in the apparatus wakeup packet EWP, but does not include dynamically changing data (for example, the general information HD). The data with consistency refers to data that would not change with the change of different environmental parameters with regard to multiple packets sent to the same networking
20 apparatus. The dynamically changing data refers to data that changes with the change of environmental parameters with regard to multiple packets sent to the same networking apparatus, for example, a version, a service request code, and a sending time in the general information HD.

In some embodiments, the wakeup feature data may include an encrypted device
25 identifier ID and encrypted wakeup information WM. In other words, a sum of data sizes of the device identifier ID and the wakeup information WM is a multiple of the encryption unit, and the multiple is a positive integer. In some embodiments, the wakeup feature data may include an encrypted partial device identifier ID and encrypted wakeup information WM. In other words, a sum of data sizes of the partial device identifier ID and the wakeup information

WM is a multiple of the encryption unit, and the multiple is a positive integer.

Subsequently, the network module 133 compares the wakeup feature data with the pre-stored feature data (step S590), so as to determine whether the two are the same (step S592). When the wakeup feature data is consistent with the pre-stored feature data, the network module 133 wakes up the entire second apparatus 130 (step S600), so as to enable the second apparatus 130 to accept a communication link demand of the first apparatus 110 (completing formation of a P2P connection or formation of a relay connection). When the wakeup feature data is inconsistent with the pre-stored feature data, the network module 133 ignores (discards) the apparatus wakeup packet EWP, that is, does not wake up the entire second apparatus 130 (step S602).

In some embodiments, in the sleep mode, the network module 133 can directly read the pre-stored feature data that is pre-stored by the control unit 131 into the storage unit 135, so as to provide it for the network module 133 to perform comparison and wakeup.

In some other embodiments, the storage unit 135 may include a plurality of storage components (hereinafter respectively referred to as a primary storage unit and a micro storage unit). After forming the pre-stored feature data, the control unit 131 would store the pre-stored feature data into the primary storage unit. In addition, before entering the sleep, the network module 133 would load data needed for wakeup (for example, the pre-stored feature data) from the primary storage unit to the micro storage unit, so as to provide it for the network module 133 to perform comparison and wakeup. In addition, in the sleep mode, the network module 133 and the micro storage unit both still keep running (power supply). The micro storage unit may be built in the network module 133.

FIG. 9 is a flowchart of a third part of a remote wakeup method according to an embodiment.

In some embodiments, refer to FIG. 9, before entering the sleep mode, the control unit 131 reads a device identifier ID and wakeup information WM of the second apparatus 130 from storage unit 135 (step S710) and generates a comparison packet according to the device identifier ID and the wakeup information WM. The wakeup information WM in the second apparatus 130 (the storage unit 135) is the same as the wakeup information WM in the

connection server 150 (the storage unit 155).

FIG. 10 is a schematic diagram illustrating an overview of a comparison packet according to an embodiment.

In some embodiments, the control unit 131 combines general information HD', the device identifier ID, and the wakeup information WM into an unencrypted packet and performs an encryption calculation on the unencrypted packet, so as to generate a comparison packet CP, as shown in FIG. 10. Hence, the second apparatus 130 and the connection server 150 perform encryption calculation by using the same encryption technology. An encryption operation may be using an encryption technology to perform encryption processing on the unencrypted packet. The encryption technology may be, for example (but not limited to): the Message-Digest Calculation (MD5), the Secure Hash Calculation (SHA), the Rivest-Shamir-Adleman (RSA) encryption calculation, or the Caesar Cipher calculation. In some embodiments, the general information HD' and the device identifier ID may be located in a header of the comparison packet CP, and the wakeup information WM is a packet content of the comparison packet CP.

In some embodiments, in the unencrypted packet formed on the control unit 131, a sum of data sizes of the device identifier ID and the wakeup information WM may be greater than or equal to one encryption unit of the encryption calculation. For example, when the encryption unit of the encryption calculation is 16 bytes, the sum of the device identifier ID and the wakeup information WM is greater than or equal to 16 bytes. In some embodiments, a data size of the wakeup information WM may be smaller than or equal to one encryption unit. For example, when the encryption unit of the encryption calculation is 16 bytes, the wakeup information WM is greater than or equal to 16 bytes.

Then, the control unit 131 obtains a pre-stored feature data from a comparison packet CP according to a given data position (step S730) and stores the pre-stored feature data in the storage unit 135 (step S740). A data size of the pre-stored feature data is smaller than a data size of the comparison packet CP.

In some embodiments, a data size of the pre-stored feature data may be at least one encryption unit of the foregoing encryption calculation. In other words, the given data

position is at least one encryption unit at a specific position of the comparison packet CP. For example, when the encryption unit of the encryption calculation is 16 bytes, the pre-stored feature data is a multiple of 16 bytes. Hence, the data size of the wakeup feature data and the data size of the pre-stored feature are the same number of encryption units in the same encryption calculation.

In some embodiments, data of the pre-stored feature data may be data of last at least one encryption unit in the comparison packet CP. In other words, the given data position is the last at least one encryption unit. For example, when the encryption unit of the encryption calculation is 16 bytes, the pre-stored feature data is last 16 bytes or 32 bytes in the comparison packet CP. Particularly, the obtained pre-stored feature data includes data with consistency (for example, the device identifier ID and wakeup information WM) in the comparison packet CP, but does not include dynamically changing data (for example, the general information HD'). The data with consistency refers to data that would not change with the change of different environmental parameters with regard to multiple packets sent to the same networking apparatus. The dynamically changing data refers to data that changes with the change of environmental parameters with regard to multiple packets sent to the same networking apparatus, for example, a version, a service request code, and a sending time in the general information.

In some embodiments, the pre-stored feature data may include an encrypted device identifier ID and encrypted wakeup information WM. In other words, a sum of data sizes of the device identifier ID and the wakeup information WM is a multiple of the encryption unit, and the multiple is a positive integer. In some embodiments, the pre-stored feature data may include an encrypted partial device identifier ID and encrypted wakeup information WM. In other words, a sum of data sizes of the partial device identifier ID and the wakeup information WM is a multiple of the encryption unit, and the multiple is a positive integer.

In another embodiment, the control unit 131 may purely string the device identifier ID (partially or entirely) and the wakeup information WM and then performs encryption calculation on the strung data (unencrypted data) to generate pre-stored feature data (that is, directly producing the generated comparison packet into a pre-stored feature data).

In some embodiments, the wakeup information WM corresponding to the second apparatus 130 may be generated and stored into the storage unit 135 by the second apparatus 130. In addition, the second apparatus 130 provides the generated wakeup information WM to the connection server 150 and records it in the storage unit 155 of the connection server 150. Therefore, the connection server 150 and the second apparatus 130 both have the wakeup information WM with the same content. In some other embodiments, the wakeup information WM corresponding to the second apparatus 130 may be generated by the connection server 150 and recorded in the storage unit 155 of the connection server 150. In addition, when the second apparatus 130 is in communication connection to the connection server 150, the connection server 150 provides the generated wakeup information WM to the second apparatus 130 and further also records it in the storage unit 135 of the second apparatus 130. Therefore, the connection server 150 and the second apparatus 130 both have the wakeup information WM with the same content. In some embodiments, the wakeup information WM may be an authorization key.

In some embodiments, the connection server 150 may determine a running state (normally connection (online) or offline) of the second apparatus 130 based on whether a normal login packet from the second apparatus 130 is received and records the running state of the second apparatus 130.

In some embodiments, when the second apparatus 130 first gets connection by using the normal login packet and logs into the connection server 150, the control unit 151 of the connection server 150 determines that the running state of the second apparatus 130 is normally connection and records the running state of the second apparatus 130 as normally connection in the storage unit 154. After the login of the second apparatus 130, the control unit 151 of the connection server 150 detects the normal login packet from the second apparatus 130 according to a given time. If the normal login packet is not received when the given time expires, the control unit 151 of the connection server 150 determines that the running state of the second apparatus 130 is offline and records the running state of the second apparatus 130 as offline in the storage unit 155.

In some embodiments, the storage unit 135 stores a login data. The login data is

provided for the second apparatus 130 to log into the connection server 150.

FIG. 11 is a flowchart of a method for identifying a running state of a second apparatus according to another embodiment. FIG. 12 is a schematic diagram illustrating an overview of a sleep login packet according to an embodiment. FIG. 13 is a schematic diagram of a position of a feature flag in a sleep login packet according to an embodiment.

Refer to FIG. 11 to FIG. 13, before entering the sleep mode, the control unit 131 reads login data LD from the storage unit 135 (step S910) and generates sleep login packet SLP according to the login data LD and a feature flag SF (step S920). The control unit 131 stores the generated sleep login packet SLP into the storage unit 135 (step S930), and then, the second apparatus 130 enters the sleep mode (step S940). Moreover, in the sleep mode, the network module 133 sends the sleep login packet SLP to the connection server 150 as scheduled (step S940). In other words, in the sleep mode, the network module 133 can directly read the sleep login packet SLP that is pre-stored by the control unit 131 in the storage unit 135.

In some embodiments, the storage unit 135 may include a plurality of storage components (hereinafter respectively referred to as a primary storage unit and a micro storage unit). After forming the sleep login packet SLP, the control unit 131 would store the sleep login packet SLP into the primary storage unit. In addition, before entering the sleep, the network module 133 would load the sleep login packet SLP from the primary storage unit to the micro storage unit, so as to provide it for the network module 133 to continue sending the sleep login packet SLP to the connection server at intervals in the sleep mode.

In some embodiments, the feature flag SF may be located in a header of the sleep login packet SLP.

In some embodiments of step S940, the network module 133 may send the sleep login packet SLP to the connection server 150 at a fixed time interval. In some other embodiments of step S940, if second apparatus 130 is not woken up for a long time, the network module 133 may change from sending the sleep login packet SLP to the connection server 150 at a fixed time interval to sending the sleep login packet SLP to the connection server 150 at a gradually increasing time interval. Moreover, when the second apparatus 130 just enters the

sleep mode, the network module 133 sends the sleep login packet SLP to the connection server 150 every 25 seconds. If the second apparatus 130 is not woken up for a long time (for example: entering the sleep mode for one hour), the network module 133 may gradually prolong a time interval of transmission from 25 seconds. However, when the second
5 apparatus 130 is woken up, the network module 133 recovers the time interval of transmission as a default value 25 seconds. In some embodiments, the network module 133 calculates a time interval of the next transmission by using an calculation, so that the time of transmission is gradually prolonged with the time of the sleep.

The control unit 151 of the connection server 150 receives the sleep login packet SLP
10 from the second apparatus 130 through the network module 153 (step S950). After receiving the sleep login packet SLP, the control unit 151 of the connection server 15 determines that the running state of the second apparatus 130 is sleep according to the feature flag SF in the sleep login packet SLP and records the running state of the second apparatus 130 as sleep in the storage unit 153 (step S960).

In some embodiments, an essential difference between the sleep login packet SLP and the normal login packet is merely whether the feature flag SF is possessed. For example, if a login packet received by the connection server 150 from the second apparatus 130 has a feature flag SF (that is, the sleep login packet SLP), the control unit 151 of the connection server 150 determines that the running state of the second apparatus 130 is sleep. Otherwise,
15 if a login packet received by the connection server 150 from the second apparatus 130 does not have a feature flag SF (that is, the normal login packet), the control unit 151 of the connection server 150 determines that the running state of the second apparatus 130 is normally connection. Further, if the connection server 150 does not receive any login packet from the second apparatus 130 when a given time expires, the control unit 151 of the
20 connection server 150 determines that the running state of the second apparatus 130 is offline.
25

In some embodiments, the feature flag SF may be located in a header HD" of the sleep login packet SLP, as shown in FIG. 12 and FIG. 13.

In some embodiments, the login data LD may include an account and a password. The account may be the device identifier ID of the second apparatus 130.

FIG. 14 is a partial flowchart of a remote wakeup method according to another embodiment.

In some embodiments, refer to FIG. 14, when the first apparatus 110 intends to perform communication connection to the second apparatus 130, the first apparatus 110 sends a connection request packet used to request for performing communication connection to the second apparatus 130 to the connection server 150 through a network (step S450), so as to inquire the connection server 150 for the connection information of the second apparatus 130 and the running state of the second apparatus 130. The control unit 151 of the connection server 150 receives the connection request packet from the first apparatus 110 through the network module 153 and searches for (determines) the running state of the second apparatus 130 recorded in the storage unit 155 according to the device identifier ID of the second apparatus 130 in the connection request packet (step S460).

When determining that the running state of the second apparatus 130 is normally connection (step S462), the control unit 151 of the connection server 150 reads connection information of the second apparatus 130 from the storage unit 155 (step S470) and feeds back the connection information of the second apparatus 130 to the first apparatus 110 through the network module 153 (step S472), so as to enable the first apparatus 110 to perform communication connection to the second apparatus 130 according to the connection information of the second apparatus 130 (step S474).

When determining that the running state of the second apparatus 130 is sleep (step S464), the control unit 151 of the connection server 150 replies through the network module 153 to the first apparatus 110 that the running state of the second apparatus 130 is sleep (step S480), so as to enable the first apparatus 110 to send a wakeup request packet (step S500).

When determining that the running state of the second apparatus 130 is offline (step S466), the control unit 151 of the connection server 150 replies through the network module 153 to the first apparatus 110 that the running state of the second apparatus 130 is offline (step S490), so as to enable the first apparatus 110 to request for a communication connection again after a period of time.

Hence, although a communication connection between the first apparatus 110 and second

apparatus 130 being a P2P connection is used as an example, the present invention is not limited thereto, and the communication connection between the first apparatus 110 and the second apparatus 130 may also be a relay connection through a connection server 150 or another connection server.

5 In some embodiments, the connection server 150 may merely have a capability of identifying that the running state of the second apparatus 130 is normally connection or offline. In this way, when the connection server 150 replies to the first apparatus 110 that the running state of the second apparatus 130 is offline (step S490), the first apparatus 110 may send a wakeup request packet to the connection server 150 (that is, performing step S500 and
10 subsequent steps thereof) (not shown in the drawing), to carry out a wakeup procedure of the second apparatus 130.

FIG. 15 is a partial flowchart of a remote wakeup method according to still another embodiment.

In some embodiments, refer to FIG. 15, when the first apparatus 110 intends to perform
15 P2P connection to the second apparatus 130 (which is not the first connection), the first apparatus 110 may try to perform communication connection to the second apparatus 130 by using the previously obtained connection information of the second apparatus 130 (trying to form a P2P connection between the two) (step S410). Only when the communication connection fails (for example, no response from the second apparatus is received), the first
20 apparatus 110 sends a wakeup request packet to the connection server 150 (step S450). When the communication connection succeeds, a P2P connection between the first apparatus 110 and the second apparatus 130 is formed (step S420). Hence, although a communication connection between the first apparatus 110 and second apparatus 130 being a P2P connection is used as an example, the present invention is not limited thereto, and the communication
25 connection between the first apparatus 110 and the second apparatus 130 may also be a relay connection through a connection server 150 or another connection server.

In some other embodiments, when the connection server 150 replies to the first apparatus 110 that the running state of the second apparatus 130 is offline, the first apparatus 110 may send a wakeup request packet to the connection server 150 at a fixed time interval (that is,

repeatedly performing step S500 and subsequent steps thereof) and continuously try to perform communication connection to the second apparatus 130 until the communication connection succeeds (not shown in the drawing).

5 In some embodiments, the first apparatus 110 may ignore the running state of the second apparatus 130, and each time the first apparatus 110 tries to perform communication connection to the second apparatus 130, the first apparatus 110 sends a wakeup request packet at the same time (that is, performing step S500 and subsequent steps thereof) (not shown in the drawing). If the running state of the second apparatus 130 is normally connection, the connection server 150 disregards (ignores) the wakeup request packet WRP (which does not
10 produce any effect).

It should be noted that although the steps are described in sequence in the preceding embodiments, this sequence is not a limitation to the present invention. Persons skilled in the art should understand that in a proper situation, execution sequences of some steps may be the same or exchanged. For example, wakeup information and connection information that
15 correspond to a second apparatus are obtained at the same time, that is, step S520 and S540 are performed at the same time.

In some embodiments, in a network communications system 10, each component may execute a firmware or software calculation stored in its storage unit by means of its control unit, so as to perform the foregoing corresponding step. In other words, the storage unit is
20 configured to store a relevant software/firmware program, information, data, or a combination thereof.

In some embodiments, each storage unit may be implemented by one or more storage components. Hence, the storage component may be, for example, a memory or a buffer, which is not limited herein. The memory may be, for example, a Read-Only Memory
25 (ROM), a Random Access Memory (RAM), a volatile memory, a non-volatile memory, a static memory, a volatile storage device, a flash memory, and/or any device that stores digital information.

In conclusion, according to the remote wakeup method, connection server, and networking apparatus having a sleep mode of the present invention, the networking apparatus

(namely, the second apparatus) may be enabled to enter an ultra-low power consumption state (the sleep state), and a first apparatus 110 can be provided to use a device identifier ID of the second apparatus 130 to directly initiate a wakeup request (an apparatus wakeup packet WRP) to the remote second apparatus by means of the connection server 150, so that it is
5 unnecessary to perform any setting (for example, settings on apparatuses such as a main board, a network card, and a firewall) or use network broadcasting to wake up the remote second apparatus without reducing a number of network packets in a local area network (LAN).

Although the present invention has been described in considerable detail with reference to certain preferred embodiments thereof, the disclosure is not for limiting the scope of the
10 invention. Persons having ordinary skill in the art may make various modifications and changes without departing from the scope and spirit of the invention. Therefore, the scope of the appended claims should not be limited to the description of the preferred embodiments described above.

CLAIMS

What is claimed is:

1. A remote wakeup method, comprising:
 - receiving a wakeup request packet from a first apparatus, wherein the wakeup request
 - 5 packet comprises a device identifier of a second apparatus;
 - obtaining a wakeup information according to the wakeup request packet;
 - generating an apparatus wakeup packet according to the wakeup request packet and the
 - wakeup information, wherein the apparatus wakeup packet comprises the device identifier of
 - the second apparatus and the wakeup information;
 - 10 obtaining a connection information corresponding to the second apparatus according to
 - the wakeup request packet; and
 - sending the apparatus wakeup packet to the second apparatus based on the connection
 - information.
2. The remote wakeup method according to claim 1, wherein the step of generating the
- 15 apparatus wakeup packet comprises:
 - combining the wakeup request packet and the wakeup information into an unencrypted
 - packet; and
 - performing an encryption calculation on the unencrypted packet to generate the
 - apparatus wakeup packet.
- 20 3. The remote wakeup method according to claim 2, wherein one encryption unit of
- the encryption calculation comprises entire data or partial data of the device identifier and the
- wakeup information.
4. The remote wakeup method according to claim 2, wherein a sum of data sizes of the
- device identifier and the wakeup information is a multiple of the encryption unit of the
- 25 encryption calculation, and the multiple is a positive integer.
5. The remote wakeup method according to claim 2, further comprising:

- receiving, by the second apparatus, the apparatus wakeup packet;
- obtaining, by the second apparatus, a wakeup feature data from the apparatus wakeup packet, and the wakeup feature packet comprises entire data or partial data of the device identifier and the wakeup information;
- 5 comparing the wakeup feature data with a pre-stored feature data, wherein the pre-stored feature data is pre-stored in the second apparatus before the second apparatus sleeps; and
- when the wakeup feature data is consistent with the pre-stored feature data, waking up the entire second apparatus.
6. The remote wakeup method according to claim 5, wherein a data size of the wakeup
10 feature data and a data size of the pre-stored feature data are both at least one encryption unit of the encryption calculation.
7. The remote wakeup method according to claim 1, further comprising:
- receiving a sleep login packet from the second apparatus; and
- recording a running state of the second apparatus as sleep in the storage unit according to
15 the sleep login packet.
8. The remote wakeup method according to claim 7, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is sleep.
9. The remote wakeup method according to claim 1, further comprising:
- 20 receiving a connection request packet from the first apparatus, wherein the connection request packet is used to request for performing communication connection to the second apparatus;
- determining a running state of the second apparatus according to the connection request packet; and
- 25 when the running state of the second apparatus is sleep, replying to the first apparatus that the second apparatus is in the sleep.

10. The remote wakeup method according to claim 1, wherein the steps of obtaining the wakeup information and the connection information comprise: reading the wakeup information and the connection information that correspond to the device identifier from a storage unit.

5 11. An connection server, comprising:

a network module;

a storage unit, which stores a connection information and a wakeup information that correspond to a second apparatus; and

10 a control unit, which connects to the network module and storage unit, receives a wakeup request packet from a first apparatus through the network module, obtains the wakeup information and the connection information according to the wakeup request packet, generates an apparatus wakeup packet according to the wakeup request packet and the wakeup information, and sends the apparatus wakeup packet to the second apparatus through the network module according to the connection information, wherein the wakeup request packet
15 comprises a device identifier of the second apparatus, and the apparatus wakeup packet comprises the device identifier and the wakeup information of the second apparatus.

12. The connection server according to claim 11, wherein the control unit combines the wakeup request packet and the wakeup information into one unencrypted packet and performs an encryption calculation on the unencrypted packet to generate an apparatus wakeup packet.

20 13. The connection server according to claim 12, wherein one encryption unit of the encryption calculation comprises entire data or partial data of the device identifier and the wakeup information.

14. The connection server according to claim 12, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the
25 encryption calculation, and the multiple is a positive integer.

15. The connection server according to claim 11, wherein the storage unit further stores a running state of the second apparatus, and the control unit receives a sleep login packet from the second apparatus through the network module and updates the running state of the second

apparatus in the storage unit as sleep according to the sleep login packet.

16. The connection server according to claim 15, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is sleep.

5 17. The connection server according to claim 11, wherein when the control unit receives a connection request packet used to request for performing communication connection to the second apparatus from the first apparatus through the network module, the control unit determines a running state of the second apparatus according to the connection request packet and when determining that the running state of the second apparatus is sleep, replies to the
10 first apparatus that the second apparatus is in the sleep.

18. The connection server according to claim 11, wherein the storage unit records the device identifier and correspondences between the device identifier and the wakeup information and between the connection information and the wakeup information.

19. A networking apparatus having a sleep mode, comprising:
15 a network module;
 a storage unit, which stores a device identifier and a wakeup information; and
 a control unit, which connects to the network module and storage unit, and before entering the sleep mode, generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit, wherein
20 the pre-stored feature data comprises entire data or partial data of the device identifier and the wakeup information, wherein:

 in the sleep mode, the network module still keeps running and when receiving an apparatus wakeup packet, performs comparison according to the pre-stored feature data and the apparatus wakeup packet, so as to wake up the networking apparatus.

25 20. The networking apparatus having a sleep mode according to claim 19, wherein the control unit generates a comparison packet and obtains the pre-stored feature data from the comparison packet according to the device identifier and the wakeup information.

21. The networking apparatus having a sleep mode according to claim 20, wherein in the sleep mode, when the network module receives the apparatus wakeup packet from an connection server, the network module captures a wakeup feature data from the apparatus wakeup packet according to a given data position and compares the wakeup feature data with the pre-stored feature data, wherein when the wakeup feature data is consistent with the pre-stored feature data, the network module wakes up the entire networking apparatus.

22. The networking apparatus having a sleep mode according to claim 19, wherein a sum of data sizes of the device identifier and the wakeup information is a multiple of the encryption unit of the encryption calculation, and the multiple is a positive integer.

23. The networking apparatus having a sleep mode according to claim 19, wherein the storage unit stores a login data, before entering the sleep mode, the control unit generates, according to the login data and a feature flag, a sleep login packet having the login data, and the feature flag indicates that a running state of the networking apparatus is sleep.

24. The networking apparatus having a sleep mode according to claim 23, wherein the feature flag is located at a header of the sleep login packet.

25. The networking apparatus having a sleep mode according to claim 23, wherein in the sleep mode, the network module periodically sends the sleep login packet to the connection server.

ABSTRACT

A remote wakeup method includes: receiving a wakeup request packet from a first apparatus, obtaining a wakeup information according to the wakeup request packet, generating an apparatus wakeup packet according to the wakeup request packet and the
5 wakeup information, obtaining a connection information corresponding to a second apparatus according to the wakeup request packet, and sending the apparatus wakeup packet to the second apparatus based on the connection information. The wakeup request packet includes a device identifier (UID) of the second apparatus, and the apparatus wakeup packet includes the device identifier of the second apparatus and wakeup information.

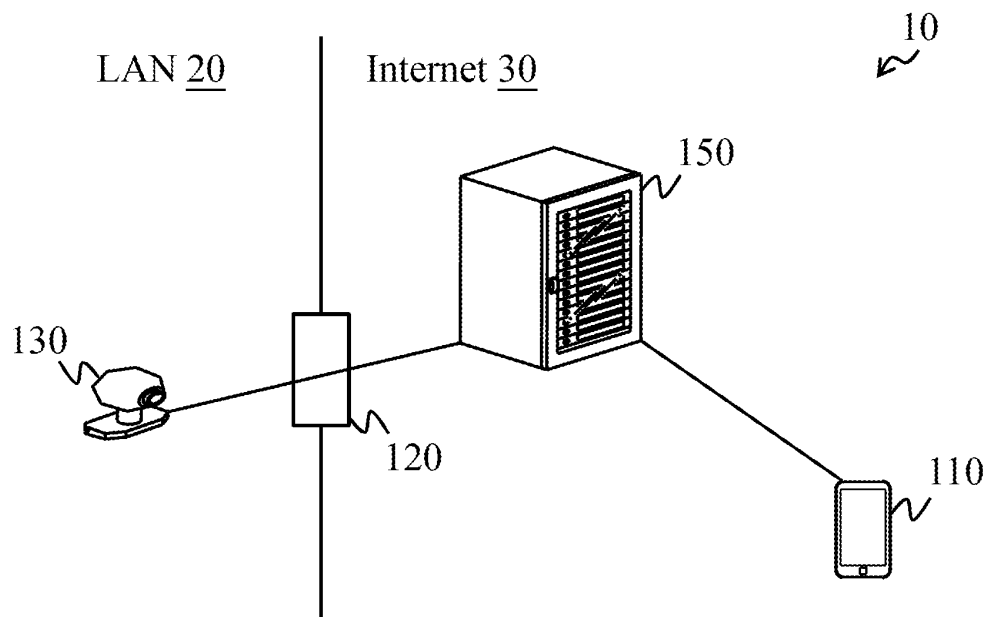


FIG. 1A

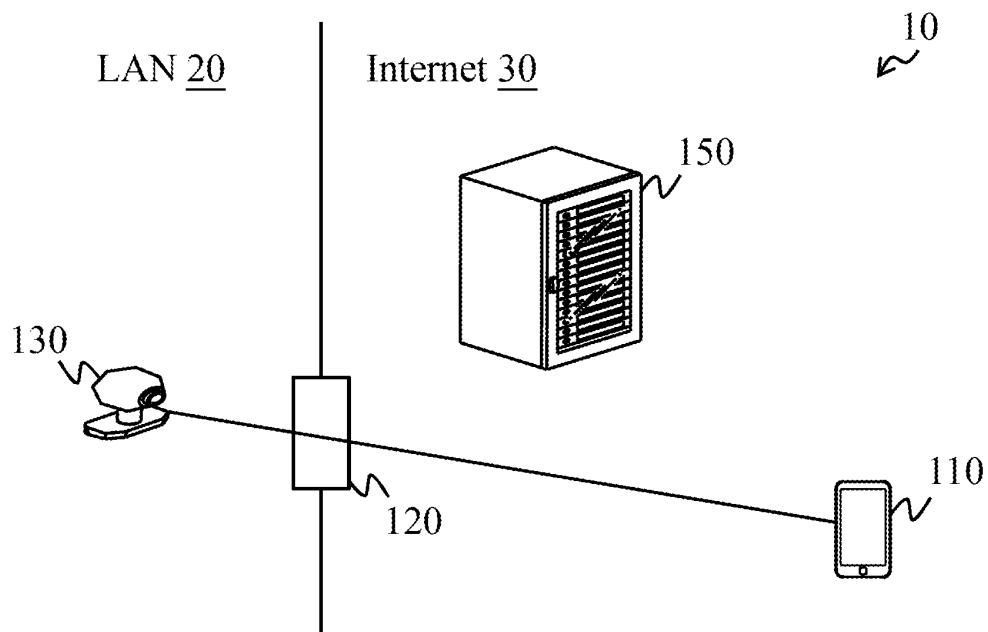


FIG. 1B

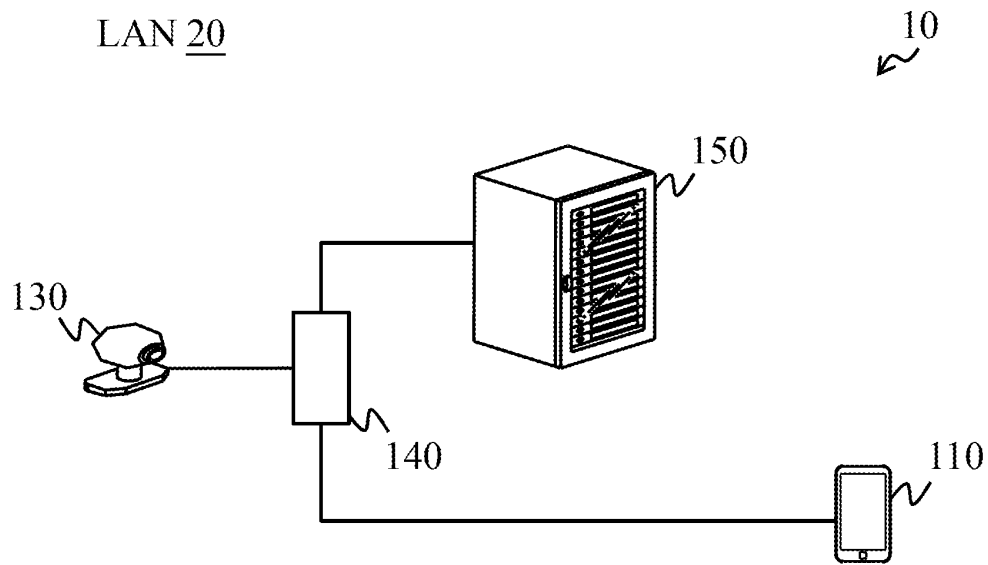


FIG. 2

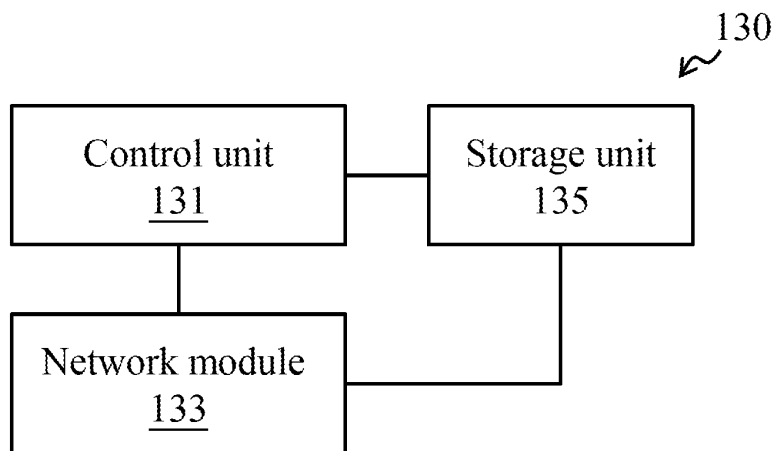


FIG. 3

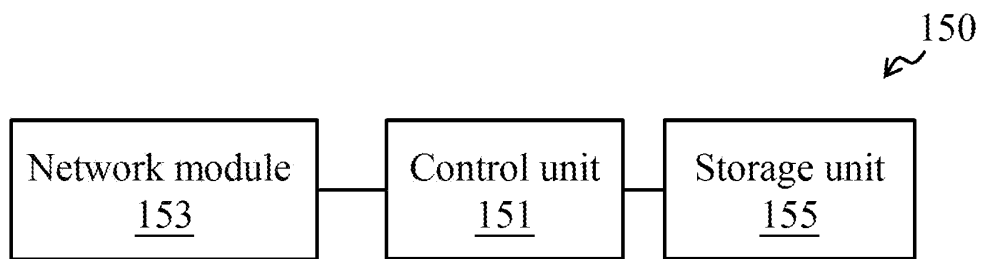


FIG. 4

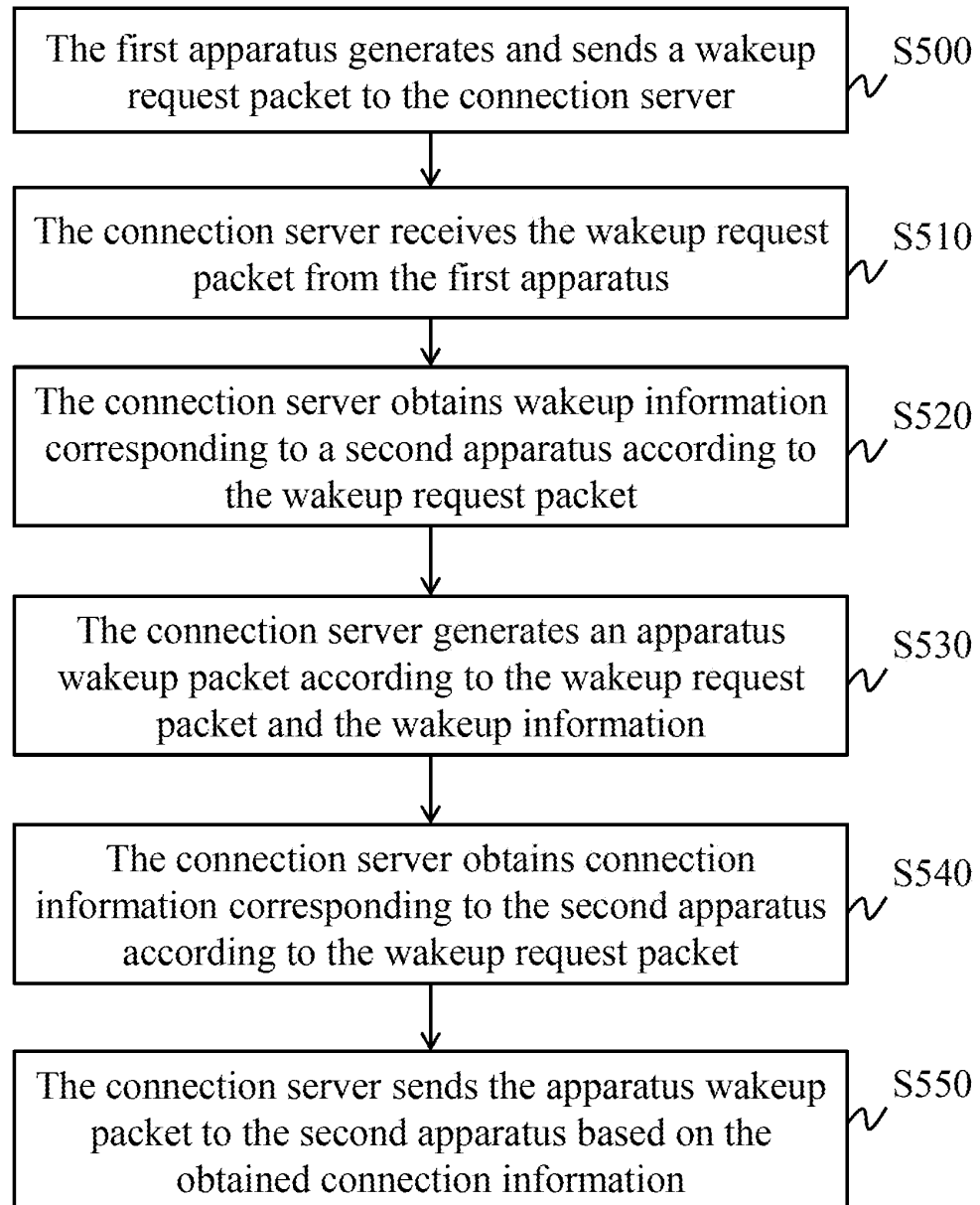


FIG. 5

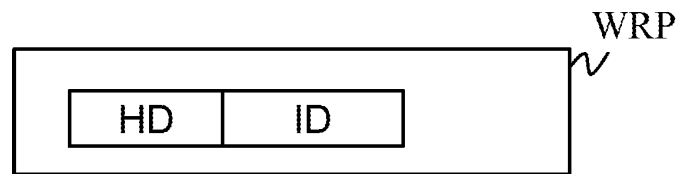


FIG. 6

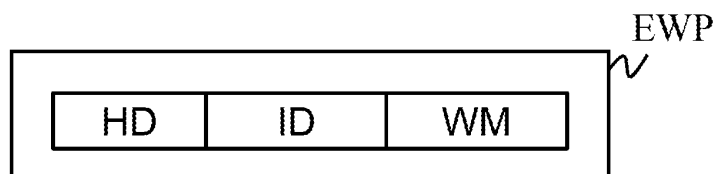


FIG. 7

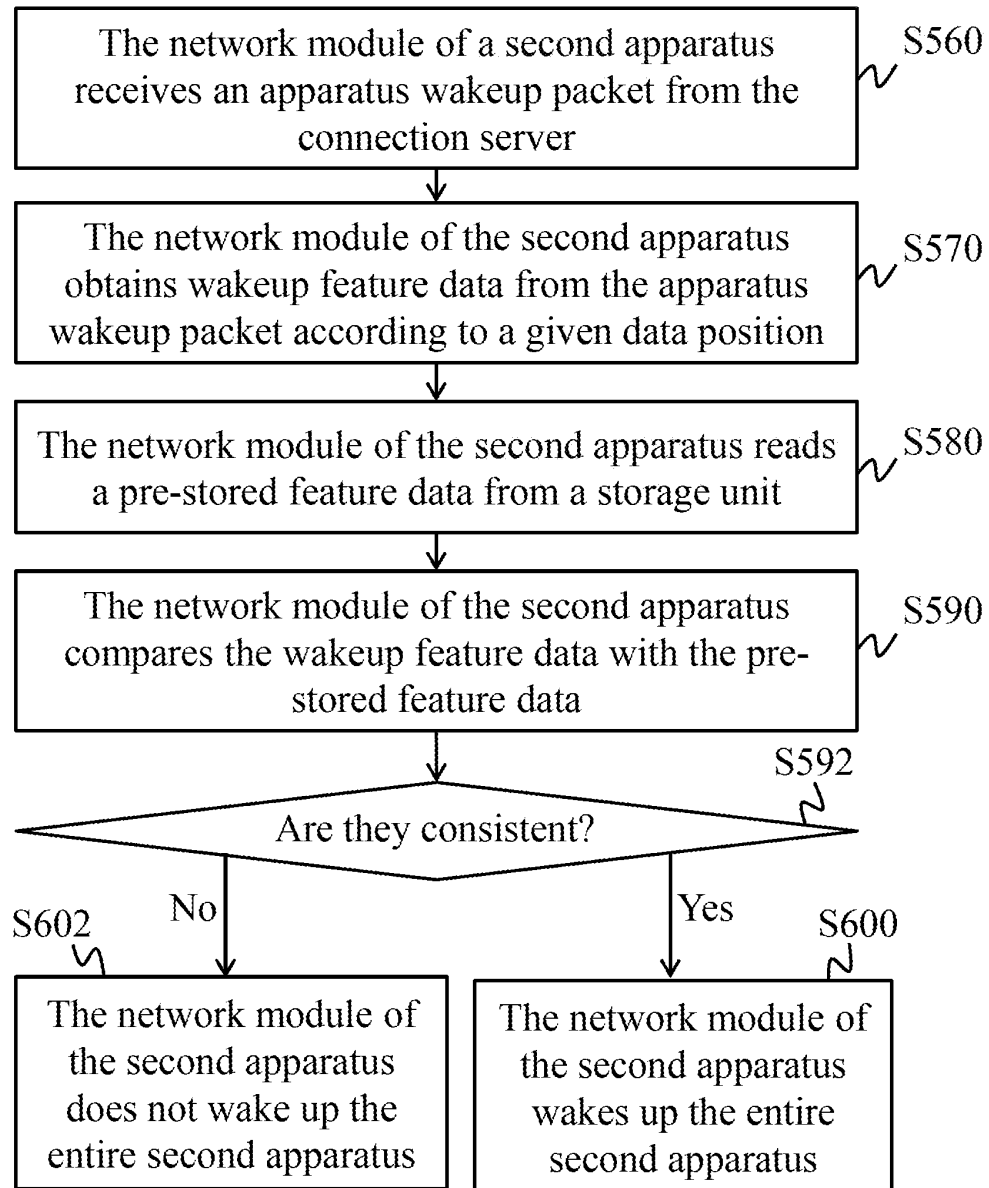


FIG. 8

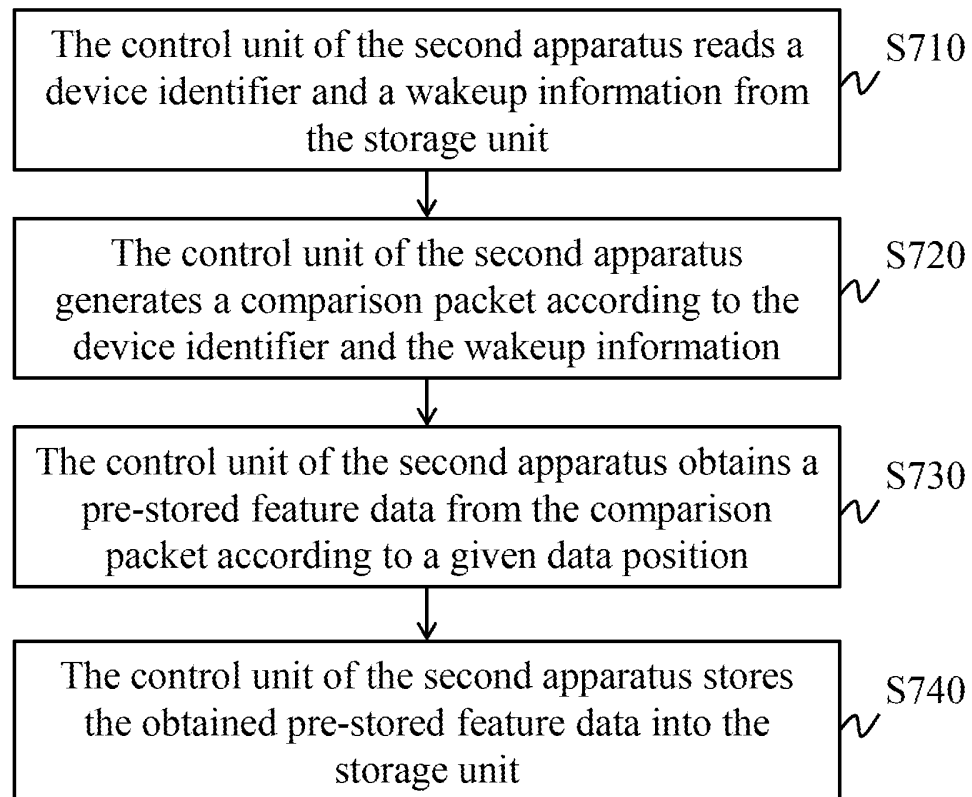


FIG. 9

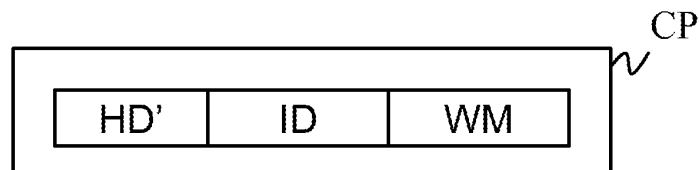


FIG. 10

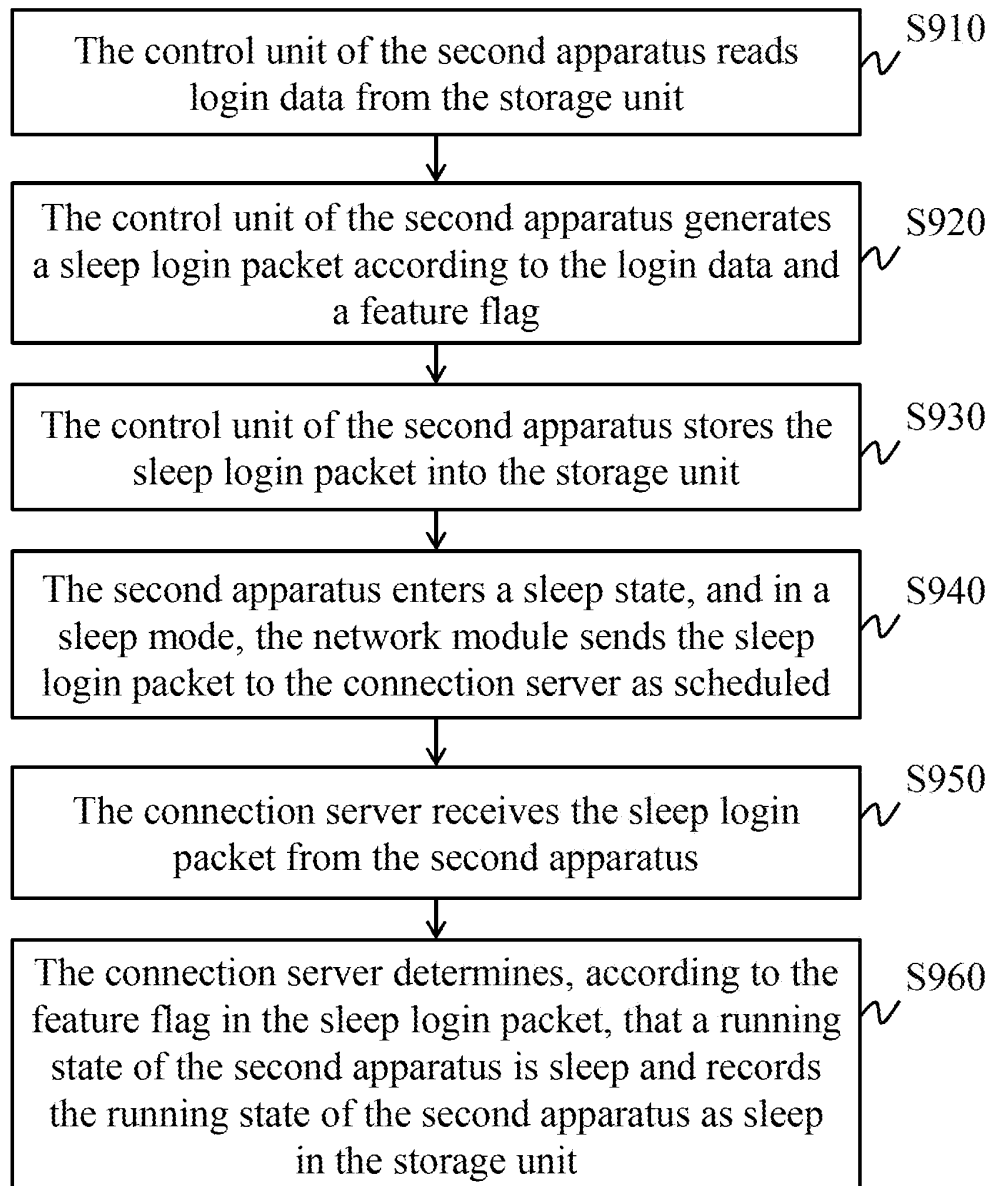


FIG. 11

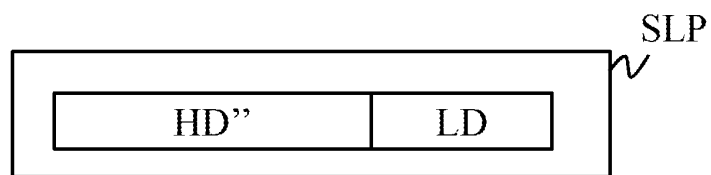


FIG. 12

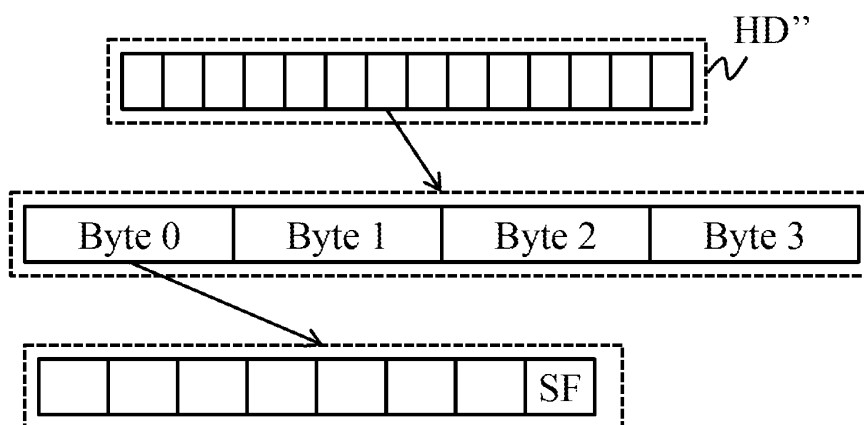


FIG. 13

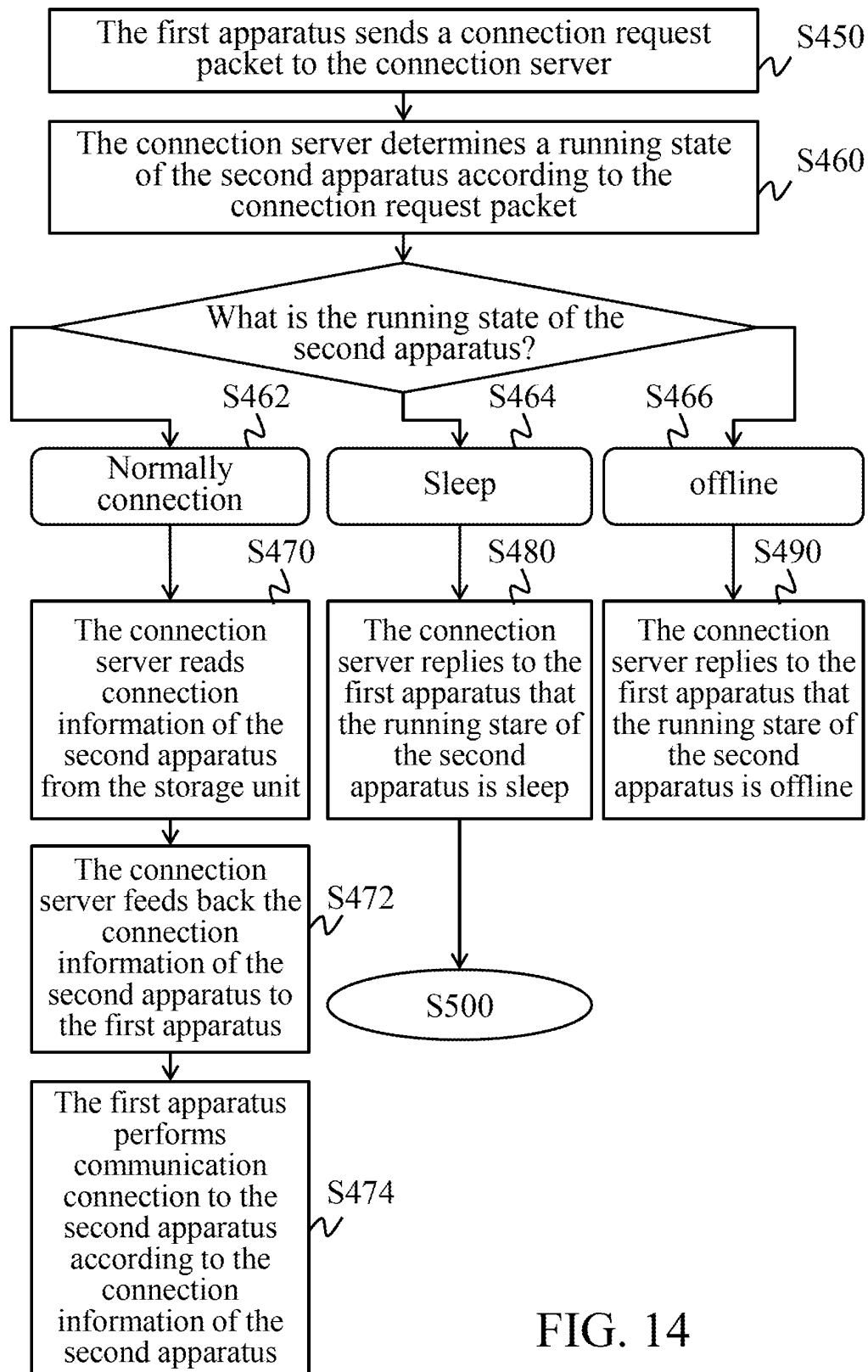


FIG. 14

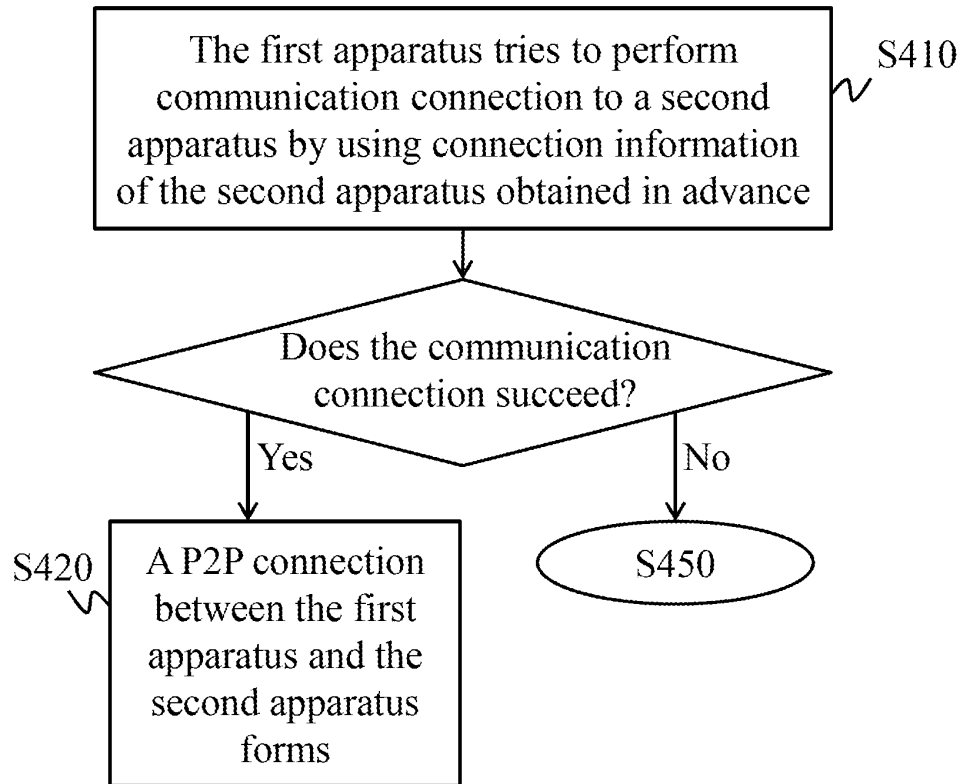


FIG. 15

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		
First Named Inventor/Applicant Name:		Yong-Sheng Chen		
Filer:		Joe McKinney Muncy/Constance Scott		
Attorney Docket Number:		5750/0472PUS1		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	70	70
UTILITY SEARCH FEE	2111	1	300	300
UTILITY EXAMINATION FEE	2311	1	360	360
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	5	40	200
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				930

Electronic Acknowledgement Receipt	
EFS ID:	30176264
Application Number:	15685661
International Application Number:	
Confirmation Number:	6489
Title of Invention:	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE
First Named Inventor/Applicant Name:	Yong-Sheng Chen
Customer Number:	60601
Filer:	Joe McKinney Muncy/Constance Scott
Filer Authorized By:	Joe McKinney Muncy
Attorney Docket Number:	5750/0472PUS1
Receipt Date:	24-AUG-2017
Filing Date:	
Time Stamp:	16:19:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$930
RAM confirmation Number	082517INTEFSW16220500
Deposit Account	503828
Authorized User	Dorothea Constance Scott
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)	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	2017-08-24-ADS.pdf	1823199	no	8
			8aed0098c722da92606d3d0f209a8240110fd163		
Warnings:					
Information:					
2		2017-08-24-AppPapersAsFiled.pdf	1455639	yes	7
			31291590b2014e28bcf82b31c355f412bd3386ce		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Transmittal of New Application		1	2	
	Power of Attorney		3	4	
	Oath or Declaration filed		5	7	
Warnings:					
Information:					
3		2017-08-24-SpecAsFiled.pdf	133326	yes	26
			4ae096f8e5dce384fe3a13b8fd2893707a27a3f1		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	20	
	Claims		21	25	
	Abstract		26	26	
Warnings:					
Information:					

4	Drawings-only black and white line drawings	2017-08-24-DrawingsAsFiled.pdf	1771920 02394a868d7484527d1b15074447e4d61598408c	no	10
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	36769 8d9e620bd6af1c52f67158b23b1678d6f48b752a	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			5220853		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5750/0472PUS1
		Application Number	
Title of Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		
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	
	Yong-Sheng		Chen		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Taipei		Country of Residence ⁱ	TW	
Mailing Address of Inventor:					
Address 1		7F, Bldg. B, No.209, Sec. 1, Nangang Rd.,			
Address 2		Nangang Dist.,			
City	Taipei		State/Province		
Postal Code	115		Country ⁱ	TW	
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	60601		
Email Address	mailroom@mg-ip.com	Add Email	Remove Email

Application Information:

Title of the Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		
Attorney Docket Number	5750/0472PUS1	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	10	Suggested Figure for Publication (if any)	

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5750/0472PUS1
		Application Number	
Title of Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		

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	60601		

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		Remove	
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5750/0472PUS1
		Application Number	
Title of Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		

Foreign Priority Information:

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

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)	Remove
105127737	TW	2016-08-29		

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

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

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

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

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5750/0472PUS1
		Application Number	
Title of Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		

Authorization or Opt-Out of Authorization to Permit Access:

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

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

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

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

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

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

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

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

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

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

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

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5750/0472PUS1
		Application Number	
Title of Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		

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	ThroughTek Technology (ShenZhen) Co., Ltd.		
Mailing Address Information For Applicant:			
Address 1	Room 201, Chaohui Building, No.173 Baohua Rd.,		
Address 2	Longhua Street, Longhua New District,		
City	Shenzhen	State/Province	
Country	CN	Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant 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	5750/0472PUS1
		Application Number	
Title of Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		

Applicant	2	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	ThroughTek Co., Ltd.	
Mailing Address Information For Applicant:		
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Country	TW	Postal Code
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.

Assignee	1	Remove
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.		
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	5750/0472PUS1
		Application Number	
Title of Invention	REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE		

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

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

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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	/Joe McKinney Muncy/		Date (YYYY-MM-DD)	2017-08-24	
First Name	Joe Mckinney	Last Name	Muncy	Registration Number	32334

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

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