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

PTO/AIA/82A (07-13)
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

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

Application Number	
Filing Date	
First Named Inventor	James A. Proctor, Jr.
Title	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
Art Unit	
Examiner Name	
Attorney Docket Number	111054-0001U7

SIGNATURE of Applicant or Patent Practitioner

Signature	/David J Thibodeau Jr Reg No 31671/	Date (Optional)	2-July-2021
Name	David J. Thibodeau, Jr.	Registration Number	31671
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	Proxicom Wireless LLC		

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

☐ *Total of _____ forms are submitted.

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

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

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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☑ Practitioners associated with the Customer Number: 86012

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(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☑ The address associated with Customer Number: 86012

OR

☐ Firm or Individual Name	VLP Law Group LLP		
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address:

Proxicom Wireless LLC
1680 N. Riverside Drive
Indialantic, FL 32903

A copy of this form, together with a statement under 37 CFR 3.73(b) (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(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, 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	James A. Proctor	Date	4/17/2017
Name	James A. Proctor	Telephone	321.252.8411
Title	Managing Director		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

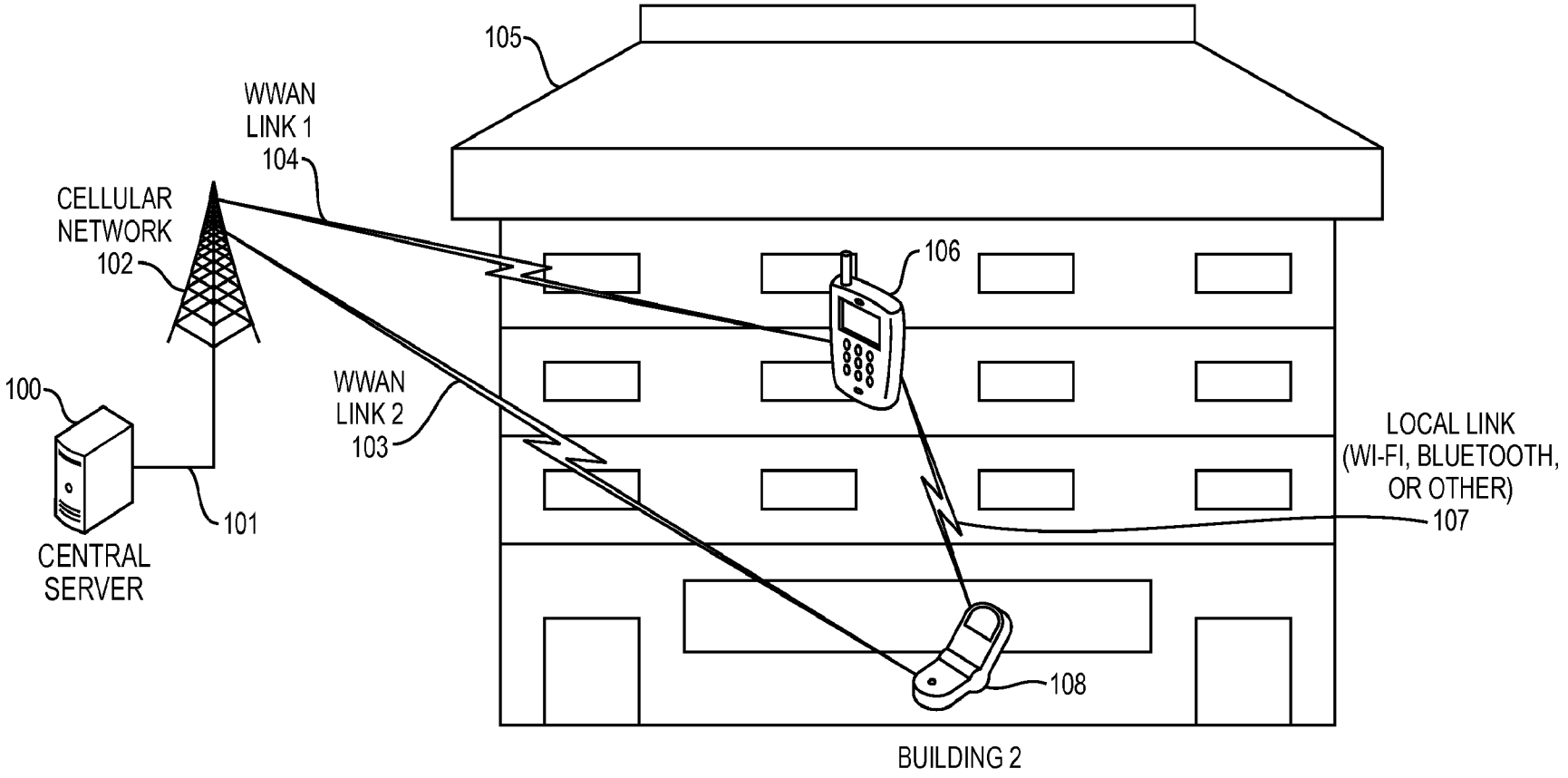


Figure 1

Petitioner Samsung Ex-1004, 0003

Figure 2

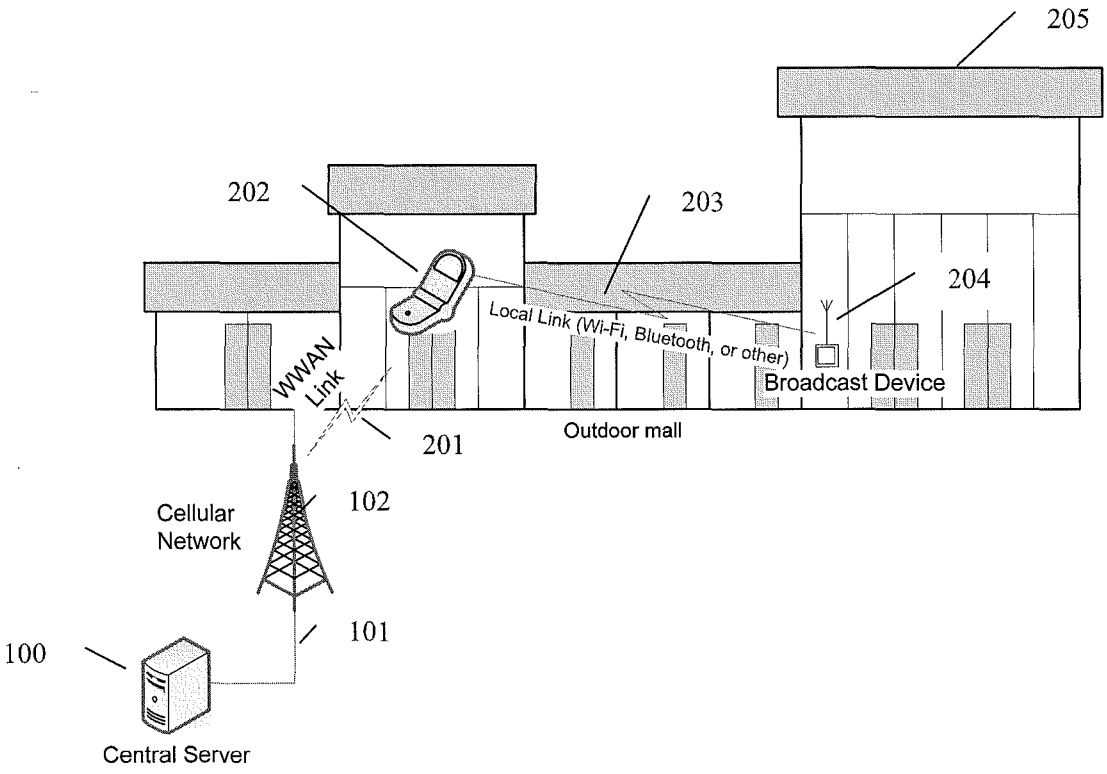
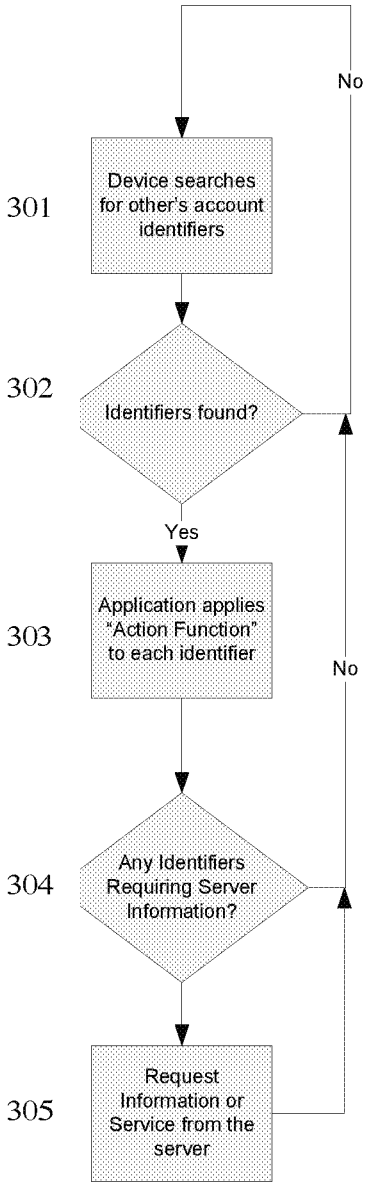

205
202
203
204
Local Link (Wi-Fi, Bluetooth, or other)
WWAN Link
Broadcast Device
201
Outdoor mall
Cellular Network
102
101
100
Central Server

Figure 3


No
301
Device searches for other's account identifiers
302
Identifiers found?
Yes
303
Application applies "Action Function" to each identifier
No
304
Any Identifiers Requiring Server Information?
305
Request Information or Service from the server

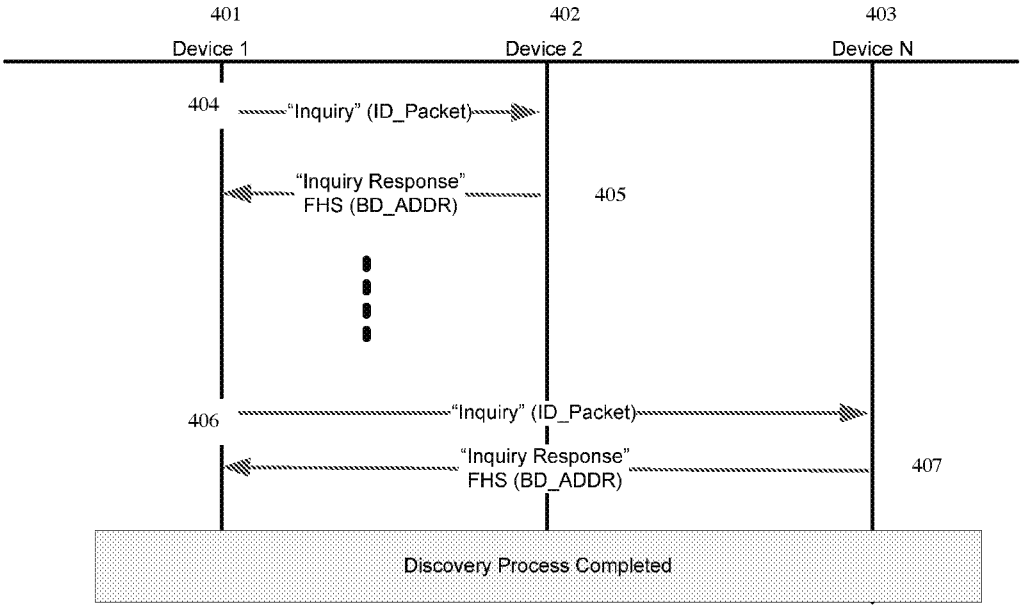


Figure 4 – 802.15.1-2002 (Bluetooth V1.2) Device Discovery

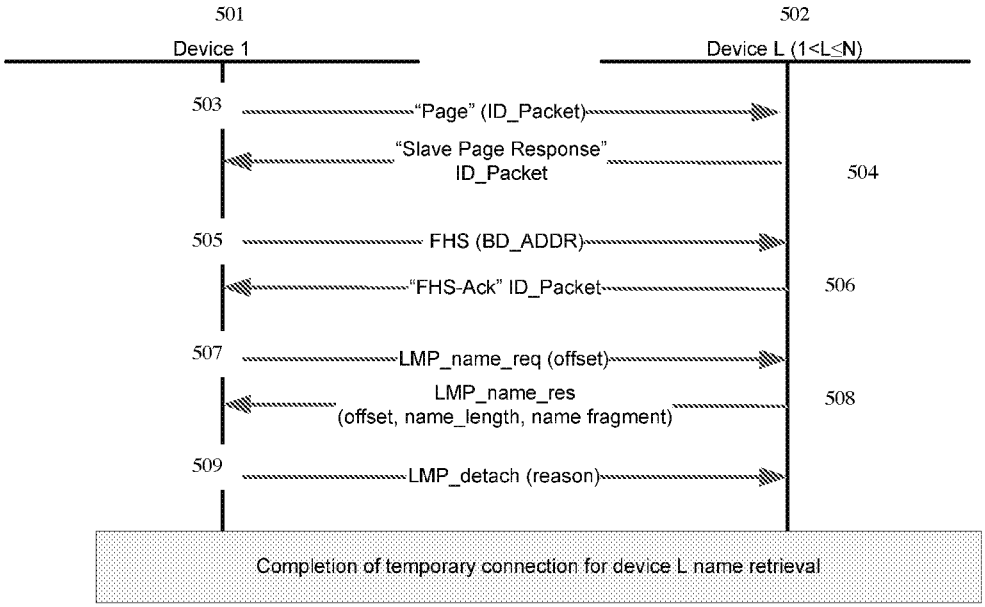


Figure 5 – 802.15.1-2002 (Bluetooth V1.2) Remote Name Request

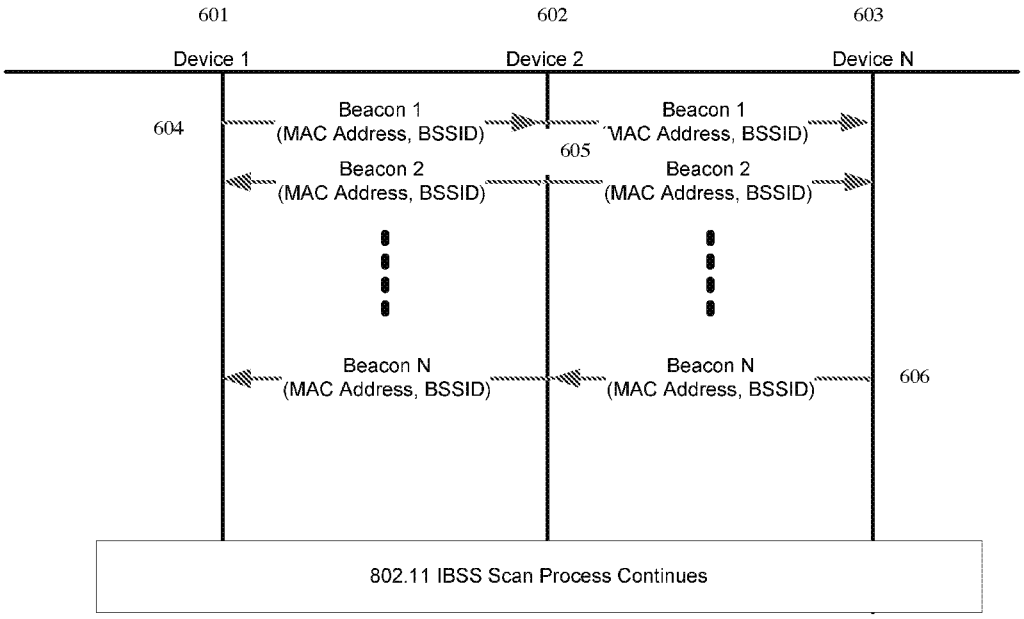


Figure 6 - 802.11 IBSS Beacon Process

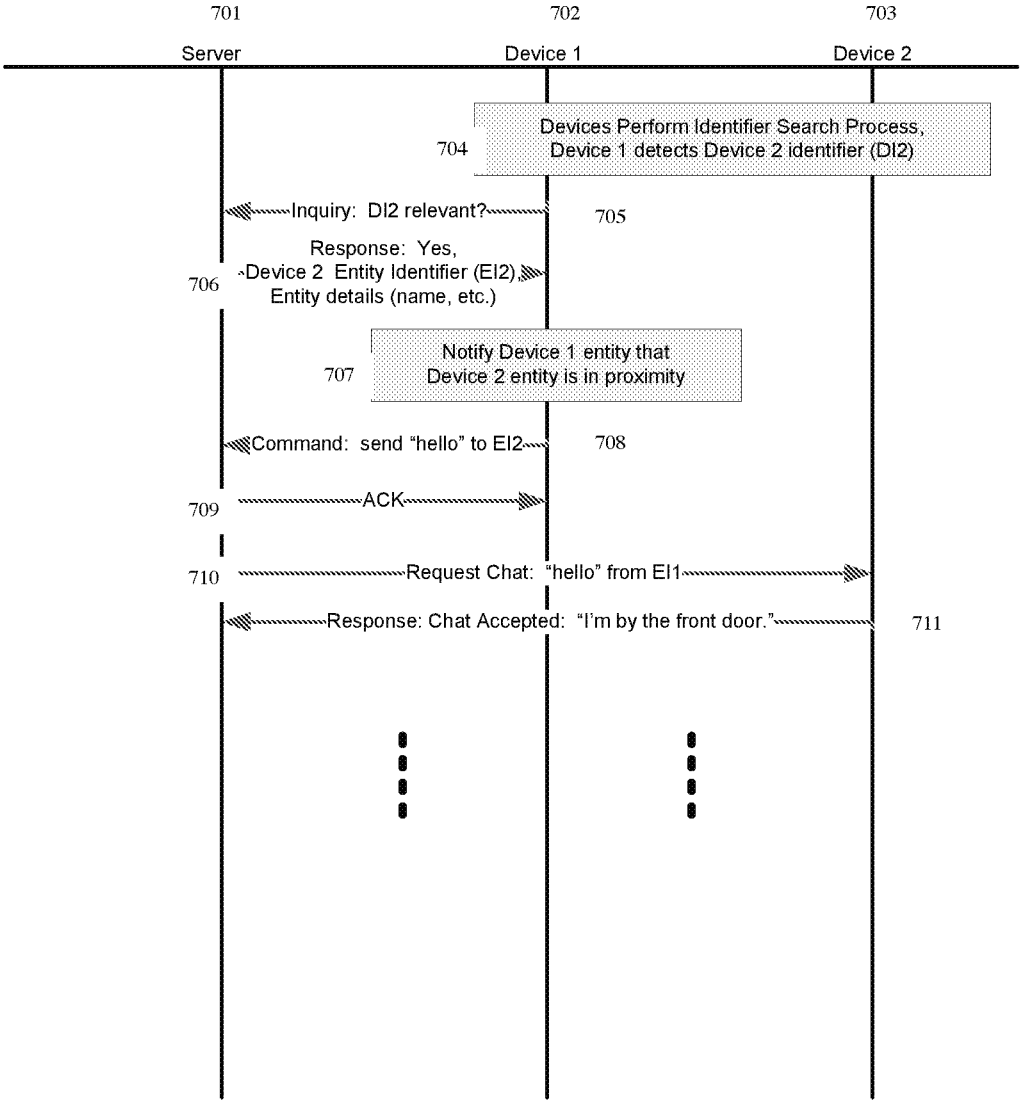


Figure 7 – Process of Detection and entering a Chat Session

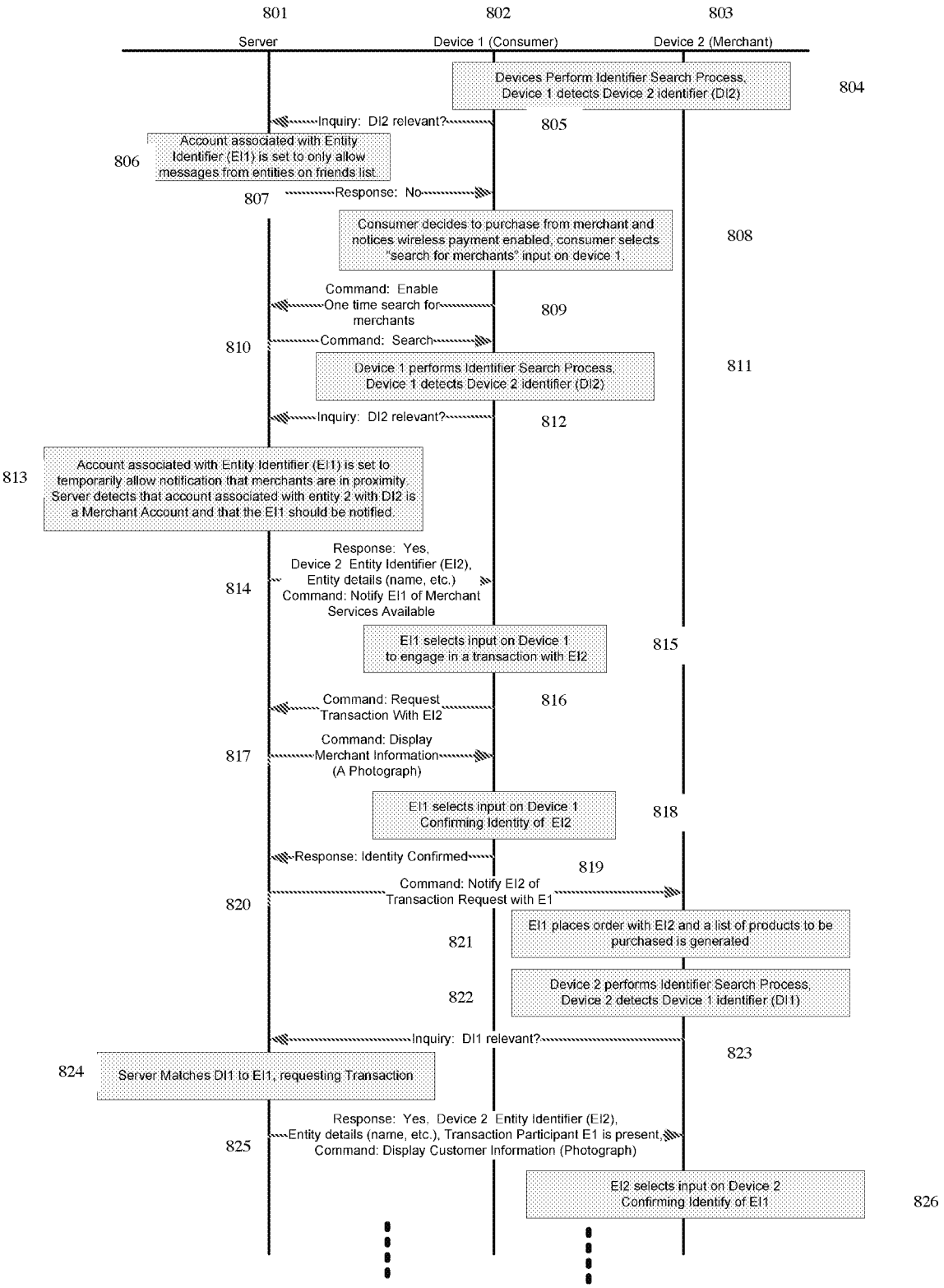
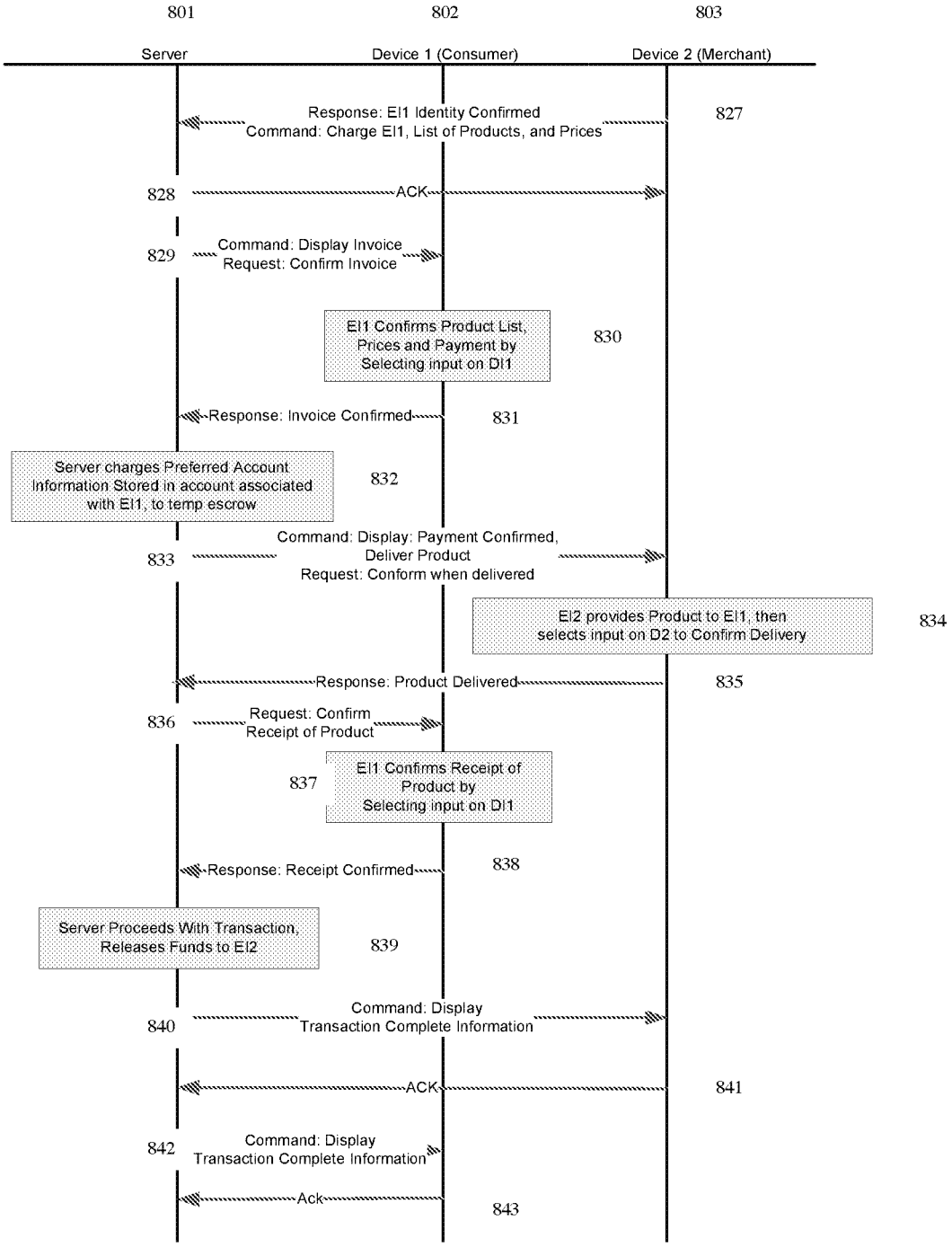


Figure 8A – E Commerce Process

Figure 8B – E Commerce Process Continued



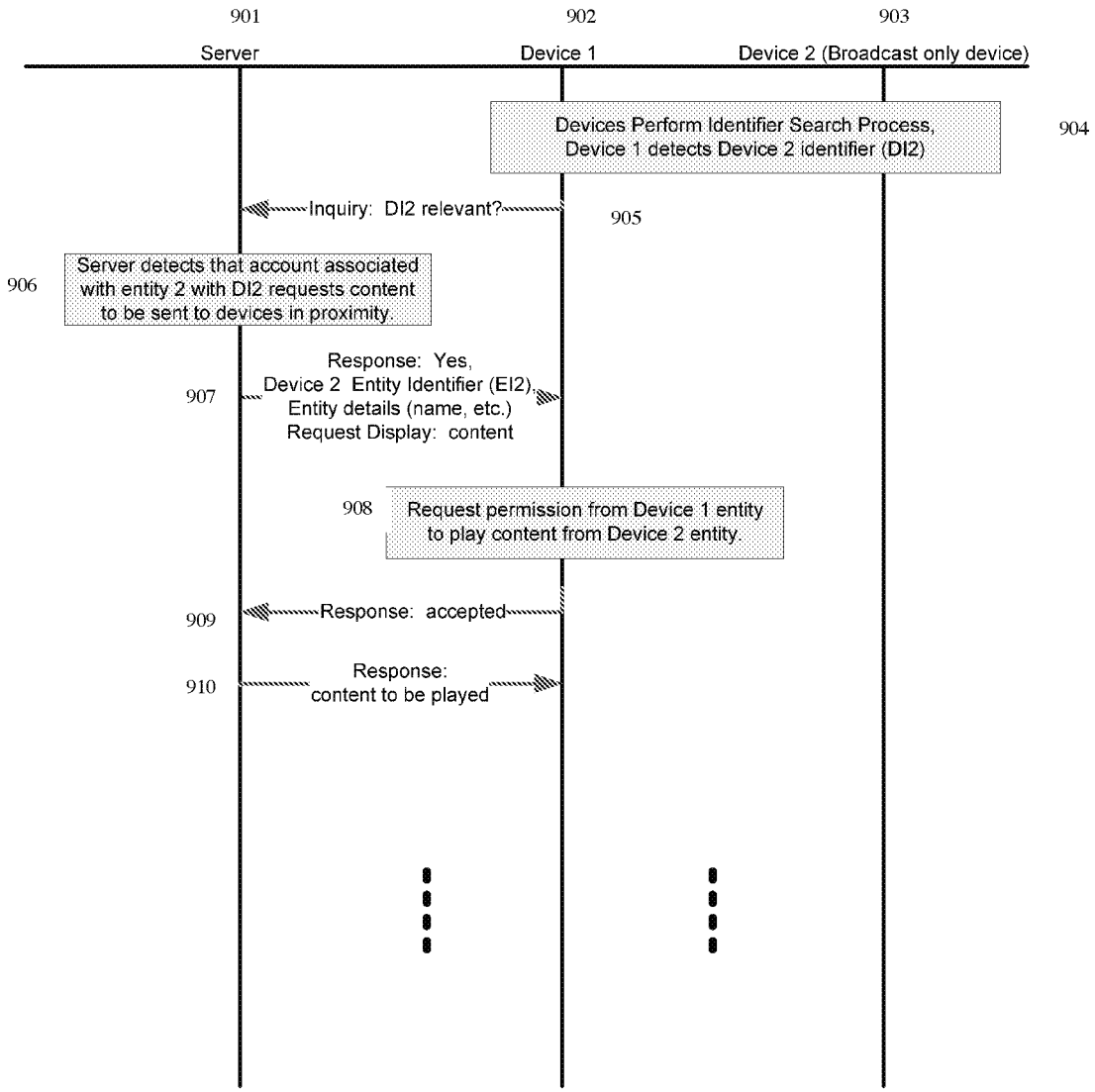


Figure 9 Broadcast and mobile device interaction

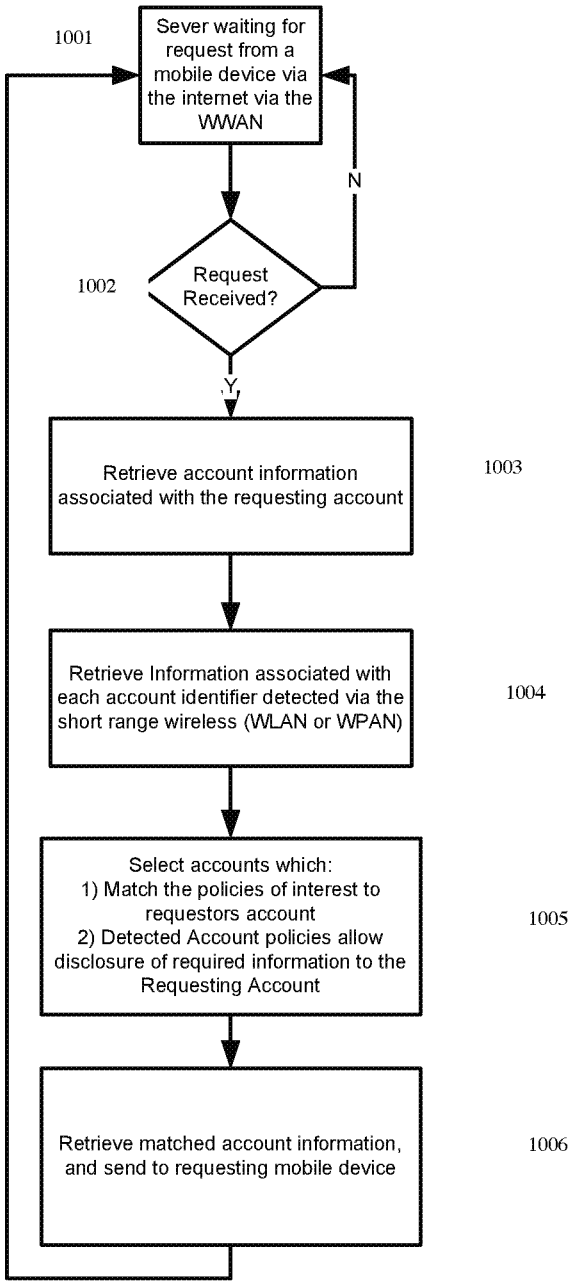


Figure 10 – Server Processing Example for Detected Device

Figure 11 – Example Individual Account Record associated with an Entity Stored in the Server

Record Index	Field	Field Information Group Disclosure Policy Assignments List
1	Account Number	[All, Explicit Approval, NONE, 1..N]
2	Identifier	
3	Identifier Type [Fixed MAC Address, Dynamic MAC Address, BSSID, Device Name]	
4	Number of Fields	
5	Field List	
6	Account User Name	NONE
7	Account Password	NONE
8	Entity Name	
9	Entity Address	
10	Entity Type [Individual, Merchant, Broadcast Entity]	
11	Billing Information	
12	Device Type	
13	Device IP Address	
14	Device SMS Phone Number	
15	Device Capabilities	
16	Entity AutoPlay Script 1	
17	Entity AutoPlay Script 2	
18	Detected AutoPlay Script 1	
19	Detected AutoPlay Script 2	
20	Entity Instant Message Address List	
21	Information Group Disclosure Policy 1 (IGDP#) [Characteristic 1 (C1), C2,.. CN, Friend List 1 (FL1), FL2, .. FLN, etc]	
22	Information Group Disclosure Policy 2	
23	Information Group Disclosure Policy 3	
24	Information Group Disclosure Policy 4	
25	Additional Personal Information Field 1 (APIF#) [Content Type/Content] (Picture, mp3, xml/AJAX, Text, Contact List, URL (MySpace, Facebook, Loopt), Login Credentials (MySpace, Facebook, Loopt, Itunes, etc.), Payment Information (Credit Card Information, PayPal Information, etc.), IM Credentials List (Username/Password))	
26	Additional Personal Information Field 2	
27	Additional Personal Information Field 3	
...		

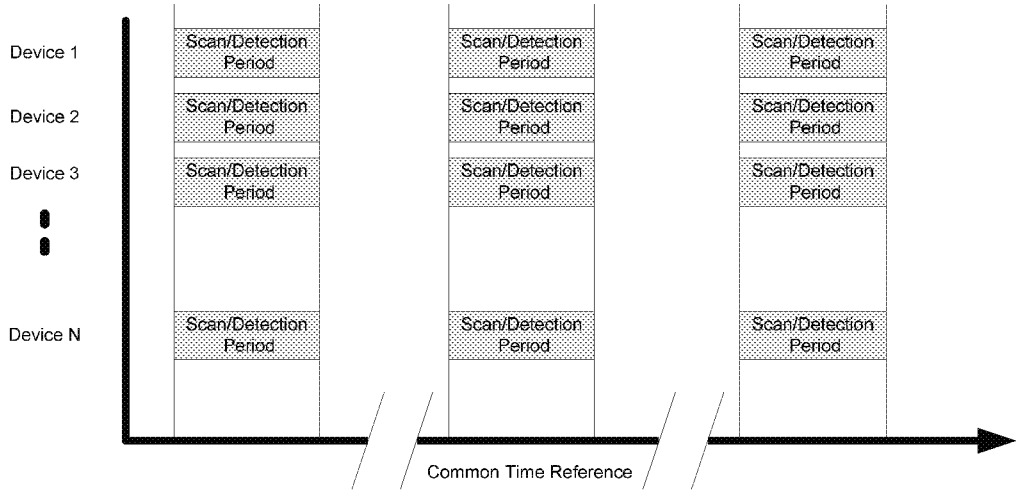


Figure 12 Use of common time reference for intermittent detection intervals

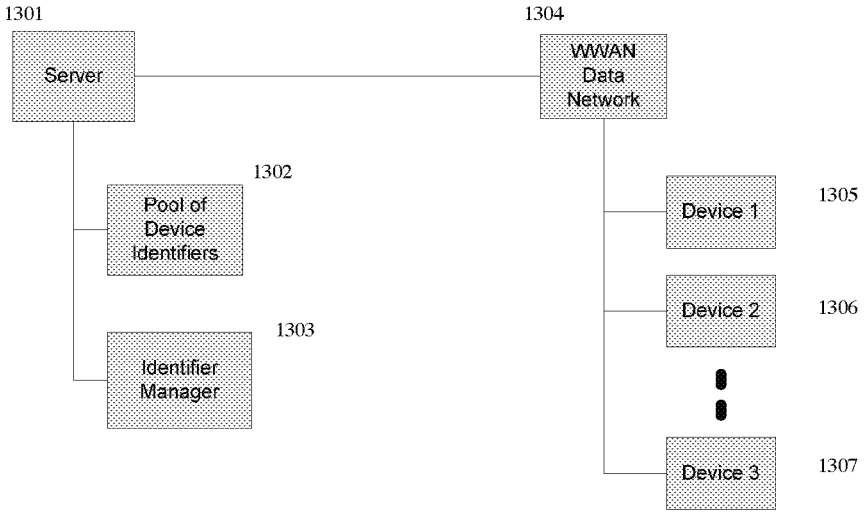


Figure 13 - Management of Device Identifiers by Identifier Manager in the Server

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

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
	James	A.	Proctor	Jr.

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

City	State/Province	Country of Residence
Indialantic	FL	US

Mailing Address of Inventor:

Address 1	1680 Riverside Drive
Address 2	
City	Indialantic
State/Province	FL
Postal Code	32903
Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	James	Arthur	Proctor	III

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

City	State/Province	Country of Residence
Indialantic	FL	US

Mailing Address of Inventor:

Address 1	735 Oak Ridge Drive
Address 2	
City	Indialantic
State/Province	FL
Postal Code	32903
Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	86012		
Email Address	PATENTS@VLPLAWGROUP.COM	Add Email	Remove Email

Application Information:

Title of the Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS		
Attorney Docket Number	111054-0001U8	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	14	**Suggested Figure for Publication (if any)**	

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	86012		

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17366826	2021-07-02

Prior Application Status	Patented		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17366826	Continuation of	16817896	2020-03-13	11074615	2021-07-27

Prior Application Status	Patented		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16817896	Continuation of	15271410	2016-09-21	11334918	2022-05-17

Prior Application Status	Abandoned		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
15271410	Continuation of	14861563	2015-09-22

Prior Application Status	Patented		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14861563	Continuation of	14472477	2014-08-29	9161164	2015-10-13

Prior Application Status	Patented		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14472477	Continuation of	13775435	2013-02-25	8849698	2014-09-30

Prior Application Status	Patented		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13775435	Continuation of	13212723	2011-08-18	8385896	2013-02-26

Prior Application Status	Patented		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13212723	Continuation of	12364828	2009-02-03	8090359	2011-01-03

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12364828	Claims benefit of provisional	61095359	2008-09-09
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12364828	Claims benefit of provisional	61095001	2008-09-08
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.			Add

Foreign Priority Information:

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

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

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.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

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	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

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	Proxicom Wireless LLC		
Mailing Address Information For Applicant:			
Address 1	1580 N. Riverside Drive		
Address 2			
City	Indialantic	**State/Province**	FL
Country	US	Postal Code	32903
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

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

Signature:

Remove

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

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

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

Signature	/David J Thibodeau Jr Reg No 31671/			Date (YYYY-MM-DD)	2022-09-12
First Name	David	Last Name	Thibodeau	Registration Number	31671

Additional Signature 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	111054-0001U8
	Application Number	
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

Petitioner Samsung Ex-1004, 0025

Doc code: PET.OP.AGE
Description: Petition to make special based on age/health

PTO/SB/130 (01-19)
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PETITION TO MAKE SPECIAL BASED ON AGE FOR ADVANCEMENT OF EXAMINATION UNDER 37 CFR 1.102(c)(1)

Application Information

Application Number		Confirmation Number		Filing Date	
Attorney Docket Number (optional)	111054-0001U8	Art Unit		Examiner	
First Named Inventor	James A. Proctor, Jr.				
Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS				

Attention: Office of Petitions

An application may be made special for advancement of examination upon filing of a petition showing that the applicant is 65 years of age, or more. No fee is required with such a petition. See 37 CFR 1.102(c)(1) and MPEP 708.02 (II).

APPLICANT HEREBY PETITIONS TO MAKE SPECIAL FOR ADVANCEMENT OF EXAMINATION IN THIS APPLICATION UNDER 37 CFR 1.102(c)(1) and MPEP 708.02 (II) ON THE BASIS OF THE APPLICANT'S AGE.

A grantable petition requires one of the following items:

(1) Statement by one named inventor in the application that he/she is 65 years of age, or more; or

(2) Certification by a registered attorney/agent having evidence such as a birth certificate, passport, driver's license, etc. showing one named inventor in the application is 65 years of age, or more.

Name of inventor who is 65 years of age, or older

Given Name	Middle Name	Family Name	Suffix
James	Arthur	Proctor	III

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 11.18. Please see 37 CFR 1.4(d) for the format of the signature.

Select (1) or (2):

☐ (1) I am an inventor in this application and I am 65 years of age, or more.

☒ (2) I am an attorney or agent registered to practice before the Patent and Trademark Office, and I certify that I am in possession of evidence, and will retain such in the application file record, showing that the inventor listed above is 65 years of age, or more.

Signature	/David J Thibodeau Jr/	Date (YYYY-MM-DD)	2022-09-12
Name	David J. Thibodeau, Jr.	Registration Number	31671

This collection of information is required by 37 CFR 1.102(c)(1). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) a petition to make special based on age for advancement of examination. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed 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 COMPLETED FORMS TO THE CHIEF INFORMATION OFFICER. **Submit completed forms electronically over EFS-Web, or mail to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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

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

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

Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

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.

WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: James Arthur Proctor, III Date (Optional) :_____

Signature: _____

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

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

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Electronic Acknowledgement Receipt

EFS ID:	46592011
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	12-SEP-2022
Filing Date:	
Time Stamp:	07:24:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	20220912_111054-0001U8_TPO_ADS.pdf	1256759 b8875db230ecb4e887192ea48a018ebb05f37888	no	9

Warnings:

Information:					
2	Specification	20220912_111054-0001U8_TPO_Specification.pdf	197607 ec49e0af6afb57a5c4472956d13def0155ea678e	no	42
Warnings:					
Information:					
3	Drawings-other than black and white line drawings	20220912_111054-0001U8_TPO_Drawings.pdf	365710 0b9acec675e67550ffa7578be04958a094091f92	no	14
Warnings:					
Information:					
4	Power of Attorney	20220912_111054-0001U8_TPO_POA.pdf	397935 2f70f243bdab4e18bc97e3e4cb67cc331c665924	no	2
Warnings:					
Information:					
5	Petition to make special based on Age/ Health	20220912_111054-0001U8_TPO_Petition_Make_Special_Age.pdf	332328 5594692bd6298c6db7bcd602ec434fa221bdcae3	no	2
Warnings:					
Information:					
6	Oath or Declaration filed	111054-0001U7_TPO_Parent_Declaration_Proctor_III_EXECUTED.pdf	228198 6f51f8db21d379b034d211007d34a35ecb544bce	no	1
Warnings:					
Information:					
7	Oath or Declaration filed	111054-0001U7_TPO_Parent_Declaration_Proctor_Jr_EXECUTED.pdf	459266 0f9a4e6798273943272 8a35f59ce8110e6ca6164	no	1
Warnings:					
Information:					
		Total Files Size (in bytes):	3237803		

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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

Title of Invention	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

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.

WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: James A. Proctor, Jr. Date (Optional) :_____

Signature: _____

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

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

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EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

BACKGROUND

[0001] This patent application relates to wireless communication, and more particularly to efficient and secure communication using wireless service identifiers, such as Bluetooth or WiFi beacon service identifiers.

[0002] Most mobile phones on the market today support at least two wireless standards; one for the cellular wireless wide area network connection (WWAN) and one for a wireless personal or local area network (WPAN, WLAN). The cellular connection or WWAN is utilized for voice and data and can adhere to many different standards such as CDMA (IS-2000), GSM, W-CDMA, 1xEV-DO, HSDPA, EDGE, GPRS, WiMax, etc. The WPAN or WLAN connection is typically for short range communications and is often used for wireless hands free devices, such as headsets, peripherals, or higher speed internet connections. The typical standards used for the sort range wireless communications include Bluetooth, Wi-Fi, and in some cases Ultra-Wide-Band (UWB).

[0003] In another approach to mobile networking some services have attempted to utilize short range wireless capabilities often available on phones such as IEEE802.11 (Wi-Fi) or Bluetooth to facilitate peer to peer communications. These are also referred to a MANETs or Mobile Ad-hoc Networks. These services typically consist of a software application operating on a mobile phone using peer to peer networks to facilitate communication between wireless devices. Examples of such existing applications include Mobile-Cheddar, Peer-2-Me, and Flobbi. Published US Patent application US 2008/0182591 A1 filed December 13, 2007 describes one such peer to peer approach.

[0004] One issue with these approaches is that all information to be exchanged must be stored locally on each of the peer devices as the communication occurs directly between the two devices and any policy for the delivery of locally stored content is difficult to enforce without the potential for fraud such as spoofing identities between the peers. Such fraud may lead to concerns of personal safety or privacy allowing the identity of an individual to be determined when it is not desired.

Petitioner Samsung Ex-1004, 0033

SUMMARY

[0005] Preferred embodiments are generally concerned with facilitating the exchange of information between two entities associated with two wireless devices. In one embodiment, this can be accomplished by a first device using a first short range wireless capability to detect an identifier transmitted from a second device, ideally using existing short range radio communication standard capabilities such as Bluetooth (IEEE802.15.1-2002) or Wi-Fi (IEEE802.11). The detected identifier, being associated with the device, is also associated with an entity. Rather than directly exchanging application data flow between the two devices using the short range wireless capability, a second wireless capability then allows for one or more of the devices to communicate with a central server via the internet, and perform an exchange of application data flow. By using a central server to draw on stored information and content associated with the entity or entities, the server can manage the subsequent exchange of information between the entities and the devices. In a preferred embodiment, this exchange may be comprised of information stored on the server associated with a detected entity, and it may be comprised of information received from the detected device via the second wireless capability and facilitated by the server.

[0006] In addition, the server can also allow for a brokering service, ideally independent of the entities, to enable the application of policy based on the identity of the two entities for the disclosure of stored information associated with the entities, the flow in information between the devices and the entities, and the enablement of procedures such as security verification between the entities.

[0007] In one embodiment, a method is provided for reducing communications between one or more servers and a wireless device, as well as providing enhanced security and privacy to wireless beacon services.

[0008] The method involves transmitting, by at least one beacon transmitter using a short range wireless radio, a first beacon transmission in a first time period. The beacon, which may be a short range wireless protocol such a Bluetooth or WiFi service beacon, comprises a first MAC address, a first unique identifier, and a beacon service identifier.

Petitioner Samsung Ex-1004, 0034

[0009] Using a second radio, the one or more servers also transmit stored information relating to an entity or object associated with the first unique identifier.

[0010] A first plurality of beacon transmissions are received by the wireless device during the first time period.

[0011] The wireless device then selects one or more unique identifiers from the first plurality of beacon transmissions, by filtering (that is, selecting) only those beacon transmissions which include the beacon service identifier.

[0012] The wireless device then takes further action, if the first unique identifier is present among the selected one or more unique identifiers, using the stored information, which includes at least the identity of the entity or object associated with the first unique identifier.

[0013] Other embodiments may transmit, by the same beacon transmitter using the short range wireless radio, a second beacon transmission in a second time period. The second beacon transmission also includes a second MAC Address, a second unique identifier, and the same beacon service identifier. In this embodiment, the wireless device also receives, using the short range wireless radio, a second plurality of beacon transmissions during the second time period, as well as second stored information relating to the entity or object associated with the second unique identifier, from the one or more servers using a second radio.

[0014] In those embodiments, a second set of one or more unique identifiers are selected from the second plurality of beacon transmissions, by filtering the second plurality of beacon transmissions which include the same beacon service identifier. Further action taken is taken related to the second stored information, if the second unique identifier is present among the selected second set of one or more unique identifiers.

[0015] In some embodiments, the further action may include preventing the sending of the first or second unique identifier by the first wireless device to the one or more servers.

[0016] In some embodiments, the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

[0017] In some embodiments, the further action may include determining that at least one beacon transmitter is a broadcast device having a predetermined location.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0018] The foregoing will be apparent from the following more particular description of example embodiments, as illustrated in the accompanying drawings in which like reference characters refer to the same parts throughout the different views. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating the embodiments.

[0019] Figure 1 is a block diagram of two mobile devices utilizing a preferred embodiment.

[0020] Figure 2 is a block diagram of a fixed broadcast device and a mobile device.

[0021] Figure 3 is a flow diagram of the operation of an application on the mobile devices.

[0022] Figure 4 is a message sequence chart showing the Bluetooth discovery process using in one embodiment.

[0023] Figure 5 is a message sequence chart showing the Bluetooth Remote Name Request Process.

[0024] Figure 6 is a message sequence chart showing the IBSS beacon process.

[0025] Figure 7 is a message sequence chart showing the interaction between the server and two devices performing a detection and entering a chat application.

[0026] Figure 8A is a message sequence chart showing an E-commerce example.

[0027] Figure 8B is a continued example message sequence chart showing an E-commerce example.

[0028] Figure 9 is a message sequence chart showing an example of a mobile device and a fixed broadcast device interaction.

[0029] Figure 10 is a flow diagram for the server processing associated with the detection process.

[0030] Figure 11 is an example individual account record stored in the server associated with an Entity.

[0031] Figure 12 illustrates a timing reference for intermittent active and dormant times.

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[0032] Figure 13 shows a diagram of functional blocks associated with management of dynamically assigned device identifiers.

DETAILED DESCRIPTION

[0033] A description of example embodiments follows.

[0034] The teachings of all patents, published applications and references cited herein are incorporated by reference in their entirety.

[0035] Figure 1 is a block diagram of two mobile devices utilizing a preferred embodiment.

[0036] Referring to Figure 1, a central server 100 is connected to devices 106 and 108 by an internet protocol (IP) based network, carried over a series of connections, at least one of which is a wireless connection. For example, the server 100 has a connection allowing IP based communications to a cellular network 102 using connection 101. The cellular network is connected to devices 106 and 108 by wide area wireless links 104 and 103 respectively, allowing for IP based communications between the devices (106 and 108) and the server 100.

[0037] Devices 106, 108 can be considered "client(s)" of the server 100. The clients 106, 108 and server 100 provide processing, storage, and input/output devices for executing wireless system protocols, interfaces, and application level programs according to several embodiments. Client devices 106, 108 can also be linked through various communications networks to other computing devices, including other client devices/processes and other server computer(s). Communications network(s) providing the connection 101 can typically be part of a remote access network, a global network (e.g., the Internet), a worldwide collection of computers, Local area or Wide area networks, and gateways that currently use respective protocols (TCP/IP, 3G Wireless, Bluetooth, etc.). Other electronic device/computer network architectures are suitable.

[0038] The internal structure of devices 106, 108 or server 100 includes one or more data processors (not shown in detail) that are well known in the art to include a system bus for data transfer among the other internal components of a computer system (e.g., processor, disk storage, memory, input/output ports, network ports, etc.). Attached to the bus are other input/output devices (e.g., keyboard, mouse, displays, printers, speakers, network interfaces, etc.). Network

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interfaces allow the computer to connect to various other devices attached to a network. Memory provides volatile storage for computer software instructions and data used to implement an embodiment (e.g., applications programs and the like). Disk storage can provide non-volatile storage for computer software instructions and data used to implement the embodiments.

[0039] One embodiment may include a computer program product including a computer readable medium (e.g., a removable storage medium such as one or more DVD-ROM's, CD-ROM's, diskettes, tapes, etc.) that provides at least a portion of the software instructions for the system. Computer program product can be installed by any suitable software installation procedure, as is well known in the art. In another embodiment, at least a portion of the software instructions may also be downloaded over a cable, communication and/or wireless connection. In other embodiments, the programs are a computer program propagated signal product 107 embodied on a propagated signal on a propagation medium (e.g., a radio wave, an infrared wave, a laser wave, a sound wave, or an electrical wave propagated over a global network such as the Internet, or other network(s)). Such carrier medium or signals provide at least a portion of the software instructions.

[0040] More particularly, a given device 106, 108 uses a short range wireless link 107 such as a Bluetooth (IEEE802.15.1) or Wi-Fi (IEEE802.11) link to detect the presence of other devices such as device 108, and uses the wide area wireless network connections 103, 104 such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16), or the like to perform communications to central server 100, and to perform the actual substantive communications between the wireless devices 106 and 108. Device 108 typically uses the short range wireless link 107 and wide area wireless link 103 in a similar manner to locate and initiate communicate with device 106. One distinction relative to prior art is that the short range wireless 107 is only used for the detection process, or to advertise a device's presence. In this embodiment, specific information called "wireless identifier" or simply "identify" (described in more detail below) is passed between devices 106 and 108 over the short range link 107. By transmitting a wireless identifier using the short range Wi-Fi, Bluetooth or other short range wireless link 107 and receiving wireless identifiers from other devices, this short range wireless link 107 will allow for a proximity detection process.

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[0041] The support for IP based networking is standard for WWAN or 3G connections such as 1xEV-DO or HSPA, and as a result, communication between one device to another using the WWAN is currently supported in many devices with no modification. The use of simple detection of one or more identifiers requires significantly less resources in a phone than performing a complete peer to peer based communication network protocol, which accommodates dynamic configuration of nodes being added and dropped continuously. It is noted that the IP address on the WWAN interface is not location dependent in the present embodiment, but is addressing approaches are location dependent when true Peer to Peer topologies are used. The present embodiment has the advantage that communication between two devices may continue after the devices have left proximity of each other, but in the same manner as they had been communicating previously. As a result, a user who detects a short range transmission of an identifier, then begins a conversation or some other interaction with that device via the wireless wide area network may continue that conversation even in the case where the two devices move out of the proximity of the each other, and are no longer within the reception range of the short range wireless communication protocol. Further, since it is contemplated that the wireless identifiers transmitted on the short range wireless link from the devices would occasionally change, for security reasons, the present embodiment has the advantage that ongoing communications between mobile devices will not be interrupted despite a change in one of the device's identifier. In the case where the identifier is a MAC address of the short range wireless network adapter for one of the devices, it is not otherwise possible to change this address and easily maintain on going communications in a true peer to peer topology.

[0042] Referring to Figure 2, central server 100 is connected to the cellular network 101, and is able to communicate information to and from wireless device 202 using a wide area wireless link such as IS-2000, WCDMA, GPRS, EDGE, LTE, Wi-Max (IEEE802.16), or the like within structure 205. Device 204 does not have a wide area wireless or cellular link, but transmits identifying information using short range wireless link 203. Device 202 is capable of receiving the indentifying information and requesting information related to that device from server 100.

[0043] An example of an application using this infrastructure follows. The device 204 will simply broadcast an identifier, with no WWAN connection but may facilitate advertising or local information. For instance, an account associated with one or more identifiers may belong to a

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museum. As a museum patron walks to an exhibit, the patron's device 202 will receive an identifier sent from museum broadcast device 204 operated by the museum. The patron device 202 passes the identifier or museum device 204 to the central server 100, which in-turn recognizes it as being associated with that exhibit within that museum and passes relevant information back to the user's device 202. A distinguishing feature of this approach relative to prior art is that the patron device 202 in this example may move out of proximity of broadcast device 204, yet continue to view the content being provided by the server 100 related to the detected broadcast device 204. Content may include text, pictures, web pages, application software such as games, informative display applications, or other content such as audio or video to be offered to the user's device as well. Other examples might include electronic coupons (such as in a grocery store), menus or special offers in a restaurant.

[0044] Figure 3 is a block diagram with further detail of this operation. A device 106, 108, or 202 after performing a search (Fig 3, step 301) for identifiers on the WPAN or WLAN, will subsequently use the WWAN link to communicate with the central server 100. If the device does not find identifiers 302 it will either continue to search, or search at a later time 301. If identifiers are found in 302, the device may employ an action function 303, which would act as a filter that determines which of the detected identifiers should be passed to the server. This function may instead be omitted and all identifiers passed to the server 100. The idealized effect of the action function would be to reduce the number of requests to the server by not re-requesting recently requested identifiers which have already been passed to the server, for some period of time. In step 304, if no identifiers require server information, searching is continued in step 301.

[0045] Assuming there are identifiers which are new to the device, the device will pass along a list of currently detected identifiers and request 305 that the server return information related to any other local device. The server will return the information related to any identifier that meets certain policy requirements. For instance, information is returned which is 1) relevant to that device, and 2) that the device is authorized to receive.

[0046] As an example of the overall process, a detected identifier may be relevant to the receiving device if the user associated with the detected identifier is listed in a "friends list" for the owner of the receiving device. If the identifiers for the individuals within the friends list have

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been passed to the device, the action function 303 may make this determination. In the preferred embodiment, the server would determine the identity and the relevance of the detected identifiers, and the action function 303 would work to reduce frequency of re-requests to the server. Figure 7 describes an example of how to use this for messaging associated with the device and server interaction during the detection and identifier inquiry process, with a more detailed explanation to follow.

[0047] To enable server 100 to associate an identifier with an entity, each device or entity (such as the museum) associated with an identifier has an account on server 100 or a related server as is common in information technology. The account is associated with the entity and the device and the current identifier.

[0048] As used herein, an "entity" may be a legal entity, such as an individual person or a business.

[0049] An "object" is intended to include a physical thing, such as a product that is being offered for sale, and may include a tangible article or intangible such as an electronic music or video file or photograph.

[0050] There is various information associated with each account. An example data record for an account is shown in Figure 11. When the account is associated with an individual or (other entity), there may be personal information such as the individual's name, contact information, information regarding allowed communication, such as chat or IM, links to their other social networking services, and the like. When the account is associated with a broadcast device 204 the account may contain content to be displayed to the detecting device 202. By utilizing the central server 100, broadcast devices may be tied to a location or product thereby providing relevant information about the location such as in the museum tour example previously discussed. In this situation, the content delivered to device 202 may be informative information about an exhibit including pictures, text, audio, or video and the like. In the case of a broadcast device being in a supermarket and near a specific product, advertisement or discounts with electronic coupons my be stored in the account and provided to device 202.

[0051] There can also be policy based permissions associated with each account and applied to any information associated with that account. The stored policy permissions can be used to

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determine what information and under which situations information may be disclosed to another device or user associated with another account. For example, the entity (person in this case) associated with device 202 may have set a policy in their account to not receive any unsolicited information from a broadcast device so as to not be disturbed. However, the person associated with 202 may see the broadcast device and a sign stating a discount is available, and provide input to their device to request any broadcast information on a one time exception basis. The messaging associated with an example mobile and broadcast device process will be described in more detail to follow associated with Figure 9.

[0052] As already mentioned above, in step 301 of Figure 3, each device performs a search function looking for identifiers sent from other devices utilizing a short range wireless capability. The following describes the process of devices detecting identifiers from other devices in more detail.

[0053] The identifiers themselves may be a hardware address such as the MAC address of the wireless device, or they may be another label such as the SSID for a IEEE802.11 device, or the device name for a Bluetooth device. Referring to Figure 4, in the case where a Bluetooth wireless personal area network device is utilized, a first device 401 transmits an inquiry (ID_Packet) message 404, and any proximal Bluetooth devices 402, 403 respond with messages identifying the MAC address, called BD_ADDR in IEEE802.15.1 of each device using a message referred to as an "Inquiry Response" FHS message 405 containing the BD_ADDR or Bluetooth device address of the detected device. In the Bluetooth standard all devices 402, 403 are required to respond in this manner assuming they are enabled to be discoverable. To enable this, an application on the mobile device ensures the Bluetooth device is set to discoverable mode. Device 1 (401) will attempt to locate Devices on different channels by scanning the channels and transmitting multiple Inquiry (ID_Packet) messages. Such an example is shown with inquiry exchange 406 and 407 to discover Device N (403).

[0054] In one embodiment the BD_ADDR or MAC address of the Bluetooth device can be used as the Identifier and no further Bluetooth interaction is required until the next scan process is performed.

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[0055] In another embodiment, the Bluetooth "Device Name" is used as the identifier. Figure 5 shows the process of a first device "Device 1" (501) determining another Bluetooth enabled device's (502) Bluetooth Device Name. Following the device discovery process completion from Figure 4, Device 1 501 sends a Page message 503 to another device (Device L 502). Message 504 is sent in response to create a temporary Asynchronous Connectionless Link (ACL) to be established between Device 1 501 and Device L 502, without an explicit connection request. Not having an explicit connection request indications the Entity associated with Device L would not have to provide explicit approval for a connection from their user input on the device, as would be the case if other services were requested from the device such as might be the case with a wireless headset or remotely connected GPS receiver to a phone. An ACL connection allows link management packets to be exchanged, and following interchanges of messages 505 and 506 to determine features of the devices, a temporary connection is established between the two devices. A name request message (507) is then sent by Device 1 to Device L, and Device L responds with at least one LMS_name_res message 508 containing the Bluetooth device name of Device L 502. If the name is longer than that allowed within the LMS_name_res message, additional messages follow to allow for the entire name to be delivered. Finally the connection is ended with message 509, LMP_detach.

[0056] The transmitted identifiers associated with any given device are only known to the central server and the device transmitting the identifiers. These identifiers may change from time to time, making a user's or a device's identity anonymous over time. The central server and any particular device must be coordinated such that the identifier and any device transmitting it, remains identifiable by the central server. This process is coordinated between the wireless device, and the central server utilizing the WWAN or cellular data link, carrying messaging between them and using an identifier manager 1303 to maintain a list of device identifiers 1302 in a central but secure location. This is shown in more detail in Figure 13.

[0057] Referring to Figure 6, an example of using on IEEE802.11 link as the short range wireless capability is discussed. Generally, Wi-Fi devices operation in a so-called infrastructure mode which utilizes a BSS or basic service set. One component of a infrastructure network based wireless LAN is the use of a central access point or AP. In a mobile network the use of a central AP is not practical, as only the AP transmits an identifier, which does not meet the requirements

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of the preferred embodiment. The second topology for Wi-Fi networks is the so-called Ad-Hoc mode of operations, referred to as an independent basic service set or IBSS. In an IBSS all devices participating or advertising their interest in participating in an ad-hoc network transmit identifiers called beacons. These beacons contain the MAC address of the transmitting network adapter, the basic service set identifier (BSSID), and ad-hoc network name or service set identity (SSID). The BSSID in a typical ad-hoc network is generated by the first station to enter the BSSID and is locally administered, typically a randomly generated 48 bit number matching the format of a MAC address. In an ad-hoc network, each device 601, 602, 603 participating or desiring to participate transmits a beacon. There are several embodiments related using the IBSS beacons and the identifiers. First the identifier may be used as the MAC address of the station device or network adapter, and one or both the BSSID and the SSID may be used to indicate these particular beacons are associated with a service. In other embodiments, one or more of the BSSID and the SSID may be used as the identifier. In any of the embodiments for delivery of the identifier in an IBSS beacon, it is possible to coordinate the change of those identifiers with the server 100. As the MAC address is always broadcast in any operation of a Bluetooth or Wi-FI link, the use of a MAC address as an identifier provides for an additional level of security for the device 601, 602, 603, when identifier is changed from time to time as devices may be detected and identities tracked using a constant MAC address. In the preferred embodiment, where the MAC address is used for the identifier, all the devices participating would likely have the same network name and SSID to aid in the identification of the device as being enabled, although not necessarily required. Examples using an 802.11 network in ad-hoc mode transmitting beacons are showed as messages 604, 605, and 606.

[0058] Chat Example between two mobile devices

[0059] Figure 7 shows an example of a message flow diagram for an embodiment where an individual is in a library for example, and a friend arrives. The individual is notified by their device receiving an identifier that their friend is present and they enter a chat session. Each person has a device (Figure 1, 106 and 108 respectively) that implements the preferred embodiments described above. The first individual associated with Device 1 (702) referred to as Entity 1 (EI1) performs a detection process as described in Figure 4, 5, and 6 previously (step 704) . The device identifier associated with Device 2 (703), DI2 is thereby detected. Device 1 (702) then transmits an inquiry

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message 705 using the WWAN (cellular data link such as GPRS, EDGE, 1xEV-DO, IS-2000, Wi-Max, LTE, or the like) to the server 701 inquiring if information related to the account and entity associated with DI2 is relevant, and available to the entity EI1 associated with Device 1 (702). The server 701 retrieves the account information related to EI1 and determines that EI2 is listed in a friends list in the account associated with EI1 and that EI1 should be notified when EI2 is detected. Next the server retrieves the account information associated with EI2 and determines that EI1 is on a list of entities which are allowed to be notified of EI2 being present and personal information such a the name of the individual, their phone number and the like. The server having determined that EI1 wants to be notified and is allowed to be notified responds in Step 706 to Device 1 (702) with a message indicating the DI2 is relevant to EI1 and including information such as Entity Identifier EI2 and associated details. A user application on Device 1 (702) notifies the user that the entity associated with Device 2 is in proximity in step 707. The user of Device 1 provides input to the device directing it to request a chat session with the entity associated with Device 2 (703), and a message 708 is sent the server 701 commanding "send 'Hello' to EI2". The server acknowledges reception of the message with a "ACK" message 709, in return. Next server 701 sends "Request Chat: 'Hello' from EI1" to Device 2 703. The user of Device 2 accepts the chat and returns a message "I'm by the front door" with message 711, sending it to the server to be relayed to device 1 (702).

[0060] E-commerce between two mobile devices

[0061] Figures 8A and 8B show a message flow diagram for an embodiment where two individuals are performing a financial transaction on the street (for example, a customer and a street vendor). Each has a device (Figure 1, 106 and 108 respectively) enabled with the preferred embodiments described above. In this example, an individual's device would see a vendor and the vendor's device (enabled with various embodiments) would notify them that the vendor was also enabled with a device supporting the identifier search and other protocols described above, as well as being capable of electronic payments. These steps are performed in the following way. In step 804 the customer's device 802 (Device 1) performs an identifier search process as previously described, and detects a device identifier 2 (DI2) sent from Device 2 (803) belonging to the merchant. Device 1 will send a message to the server 801 (also represented by 100 in Figure 1) using the WWAN (cellular data link such as GPRS, EDGE, 1xEV-DO, IS-2000, Wi-Max, LTE,

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or the like) 104 requesting information related to DI2 and its relevance to the entity related to device 1 802. The server 801 then determines the relevance of DI2 based on the account properties stored in the account associated with the consumer Device 1. In this case, the account settings only allow messages from or notifications of entities on a friends list stored in the account record (represented in Figure 10) associated with the consumer. Server 801 responds to device 802 with "no" indicating that DI2 is not relevant to the Consumer.

[0062] The customer, having an account enabled with electronic payments, and wanting an item the vendor has, would press a button or make other input to his phone (or other device) which would indicate they would like to make a purchase and pay using their device (808). In this case the input selection would be "search for merchants." The customer's device would then send a message (809) to the central server directing the server to perform a one time search for merchants, despite the current account settings. In one embodiment, the server would then direct the consumer's device 802 to initiate another search (809). Other embodiments may not include the server commanding Device 1 (802) to perform the search, but rather the search may be performed automatically, or use results from a recent search. In Step 811, Device 1 (802) performs another search and detects the identifier from Device 2 (803), DI2. Device 1 then sends a message 812 to the server again requesting information for all relevant devices detected, which will include at least DI2. In Step 813 the server, having received the request and list including DI2, looks up account information associated with DI2 and determines that the associated entity is a merchant. As the settings of the account associated Device 1 now allow for the notification of the user when a merchant is detected in proximity, DI2 is determined to be relevant to Device 1 and the Entity 1 (EI1) should be notified. The server then sends a message 814 to Device 1 (802) stating merchant services are available in proximity with a list of available merchant's information including information related to the entity (EI2). The user of device 1, Entity 1 (EI1) then provides input in step 815, (pressing a soft key on a touch screen for instance), selecting the specific merchant EI2 to engage with in a transaction. Device 1 (802) will then send a message (816) to the server requesting a transaction with EI2 associated with Device 2 (803). The server (801) will then respond in this embodiment with a message 817 to Device 1 confirming receipt of the requested transaction and providing information to allow the EI1 associated with Device 1 to independently confirm the identity of EI2 associated with Device 2 (803). In this embodiment the identifying

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information can include the name of the merchant, the merchant's logo, a picture of the vendor, or their mobile shopping cart. In other embodiments, the picture may be of a specific unattended vending machine in the location it is currently operating. It may also include other information such as the address of the merchant in cases where a fixed store location is provided. As this particular merchant in this example is a street vendor, an address may not be used. GPS information stored in the account associated with Device 2 may be used as further confirmation in some instances. However, in this example, GPS coordinates are not be available on Device 2 due to lack of capability, or Device 2 being indoors and without sufficient signal to determine a location. Further GPS information from Device 1 (802) may be used to provide further confirmation information. In this embodiment the photograph sent in message 817 shows a picture of the particular merchant and also his city issued business license in text and as a picture of where it is displayed on the cart. The consumer entity EI1 provides input to Device 1 in step 818 confirming the identity of EI2, the merchant entity associated with Device 2 (803). Device 1 then sends a message 819 to the server 801 confirming the identity of the merchant.

[0063] Server 801 then sends a message 820 to the merchant's device 803 notifying them of the request for a transaction with EI1. Device 2 (803) then indicates to the merchant that a customer with the capability and desire to pay electronically is in proximity. In step 821 the customer associated with Device 1 (802) places an order with the merchant associated with Device 2 (803) and a list of products to be purchased is generated and the merchant provides input to Device 2 (803) to proceed with a electronic transaction. In step 822 Device 2 performs a scan of identifiers and DI1 associated with device 1 (802) and the Consumer is detected. A request is sent to the server 801 with a list of identifiers which were detected to determine if any of them are relevant to the merchant. Note that while the merchant device 803, (and the merchant) have now been notified of the desire for EI1 to enter a transaction, they do not necessarily know the identifier for EI1 yet. In other embodiments, the identifier associated with EI1 and Device 1 (802) may be sent in message 819, and a confirmation that this identifier is detected during the scan process 821 may be performed at the device. In the preferred embodiment, further security may be provided by the having the server perform this function independently. The server performs this confirmation in step 824 may matching the device 1 identifier DI1 with the information stored in the account associated with Entity 1 (EI1) also referred to as the Consumer.

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[0064] The server than generates a message 825 to Device 2 (803) indicating that EI1 is relevant, and the transaction participant is present. The message in the preferred embodiment can also include a picture of the Consumer. Additionally, the message could also include other pictures of other individuals allowed to use this device for purchases. If more than one identifier was detected in step 822 and matched in step 824 to entities having requested transactions previously which are pending for that merchant, a list of information for each entity involved with a pending transaction request can be provided in message 825. The merchant then selects the correct consumer using the picture of that consumer, confirming the identity of the part to the transaction in step 826. The consumer information provided in message 825 in another embodiment may simply be the name of the customer and the merchant may either ask their name, or request identification such as a driver's license. In the preferred embodiment, where a picture is passed in message 825, it is not necessary that the individual's name be passed to the merchant for the merchant to be able to provide confirmation of the identity of the Consumer thus providing a level of anonymity to the transaction such as may be present when cash is used.

[0065] Following the confirmation by the merchant of the identity of the Consumer participating in the current transaction in step 826, Device 2 sends a message 827 to the server confirming the identity of the Consumer as Entity 1 (E1), and with information required for the transaction including the list of products to be purchased, their prices, the total price, and a request to charge E1 this total amount. Server 801 then confirms receipt of this message in step 828. The server then sends a message 829 to Device 1 requesting the Consumer to confirm the list of goods to be purchased and the total price to be paid. In step 830, the Consumer (Entity 1) reviews the list and amount to be paid and provides input to device 1 confirming the accuracy of the information and they the authorizing the server to pay. In step 832 the server charges E1 utilizing stored preferred charge card information, stored credit, or other payment methiod such as a PalPalTM user name (PayPal is a trademark of Ebay, Inc.) and password stored in the account associated with E1, and charges the consumer. In the case where a stored credit is used, the Consumer's account can be debited, and the credits not applied to the merchants account until a later step. In the case of a credit card, or PalPalTM transaction, the server provides payment to E2 (the merchant) utilizing information stored in the account associated with Device 2. The server then indicates payment is made to the merchant, and instructing the merchant to deliver the goods

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with message 833. E2 (the Merchant) then provides the goods and provides input to Device 2 that the goods have been delivered in step 834. Message 835 is generated by Device 2 (803) to the server confirming product delivery, and acknowledging the receipt of the payment confirmation message 833. The server can then send message 836 requesting the Consumer to confirm they received the goods. If a confirmation is not received in response to this request, this information may later be used to settle any dispute that might arise. In step 837 the consumer confirms receipt of the products, and message 838 is generated to the server confirming the receipt of goods by the consumer. In Step 839 the server concludes the transaction by completing any steps required to credit the Merchant with the payment amount from the Consumer, if required. The server then sends a message 840 to the Merchant indication the transaction is complete, which is acknowledges in message 841. The Consumer is notified of the completed transaction with message 842, which is acknowledged with message 843.

[0066] Finally, the transaction details may be stored by the server, or sent to a thirdly party server for tracking spending habits of that account holder, or customers of that merchant allowing the merchant to track that specific customer's behavior and cater to them in the future with various specials delivered via email, or during their next visit via their device in the form of an electronic coupon. This process can be performed with a goal to help the merchant expose the customer to other products or services the merchant believes the customer might find desirable.

[0067] The apparatus, systems and methods can be extended to facilitate other types of transactions as well. In one specific application, consider use of the invention to facilitate a transaction such as the rental of an automobile. A well known business called ZipCar TM, presently operating in several major urban areas in the United States, makes available a fleet of vehicles for shared use by their club members who pay a monthly fee plus a per use charge. Using the embodiments herein, the club member would have a wireless device that serves as the "Consumer device" (Device 1) and the ZipCar vehicle would be equipped with a wireless device serving as the "Merchant" device (Device 2). The consumer would walk up to an available ZipCar vehicle and, using their wireless device, start an initial exchange of identifiers with the desired Merchant device, for example, using the short range local wireless network. The Consumer device and/or Merchant device would send a message to an application running on the Server requesting that a person associated with an account for the Consumer be granted access to a specific vehicle

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(e.g., an "object") that is in the vicinity of and associated with the Merchant device. A set of confirmatory messages (such as to exchange access codes, to confirm the location of the vehicle, the per-use fee due, and payment for the same, etc.), are then typically also exchanged between the Consumer and the Merchant device with the assistance of the Server and the long range wireless network. Upon confirmation of the necessary transaction information, the Server sends a message to the Merchant device to unlock the vehicle requested (which may be sent over the second long range wireless network or a yet another network, such as a satellite network).

[0068] Example of a Mobile Device and a Broadcast Device.

[0069] Figure 9 shows a message flow diagram for an embodiment where an individual is in the presence of a broadcast device, such as for the museum example of Figure 2. As with Figure 2, the individual device 202 and the broadcast device 204 are present and enabled. In this example, an individual 902 is in a grocery store and their device 902 (Device 1) performs a scan for identifiers in step 904, as described previously. DI2 is detected having been transmitted from device 2 (903). Device 1 (902) sends a message to server 901 inquiring if DI2 is relevant to the entity associated with Device 1 and if the information associated with that device identifier (DI2) is available to be returned. In step 906, the server retrieves the accounts associated with both DI2 and Device 1 (EI1). The server detects that the entity associated with DI2 is an advertisement company, and that this device is a broadcast device only, and that there is an electronic coupon available for download to Device 1, and multimedia content available to be played if desired. Additionally, the account settings associated with EI1 allow for the notification of broadcast devices in proximity.

[0070] Server 901 then transmits a Response message 907 indicated the presence of the detected device and the content available. The device 902 requests input from the entity associated with the device 901 for permission to download the coupon, and the availability to play content such as video about how to prepare a recipe using the vendors product. In this case the individual associated with Device 1 accepts the content, and a message 909 is sent to the server accepting the content. Response message 910 begins the delivery of the content.

[0071] As previously mentioned, several key distinctions of this embodiment include that the user of device 902 may walk away out of range form the broadcast device 903 and continue to

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receive the content using their cellular link, or may choose to play the content at a later time having stored the detected like in a favorites list. Additionally, the content stored in the account associated with the broadcast device 2 (903) is relevant to the placement of the device and the products near it. Further, as the content is stored in the server 901 rather than in the broadcast device 903, the content may be updated, modified, or deleted at anytime. For example the server 901 knowing that the consumer has never been detected previously, may customize the electronic coupon to provide a deeper discount than a regularly detected consumer. In the case where the devices are used for electronic commerce as in Figure 8, knowledge of the user's past purchases may be used to induce the consumer to try a new product. Alternatively if the consumer is a regular purchaser a loyalty program may provide a coupon upon a particular number of repeated purchases.

[0072] Figure 10 is a processing flow chart performed by the server receiving a request from a device inquiring about the relevant and availability of information associated with detected device identifiers. In step 1001 the server is waiting for a request from a device. When a request is received in decision 1002, step 1003 is performed. In this step the account information associated with the requesting device is retrieved. In step 1004 the information associated with the accounts for each of the detected device identifiers is retrieved. In step 1005 the server performs a matching process between the policies of the requesting account and each of the policies for each account associated with each detected device identifier. In step 1006 the information related to the matched policies for the associated entities will be sent to the requesting mobile device.

[0073] Just as in the previous example of an identifier being deemed relevant to a user based on a friends list, permission for disclosing a device's presence may require being on a friends list as well. For example, when a server receives an inquiry from a device with a list of identifiers, it may only respond with information for users associated with the identifiers that are on that device's friends list, and on each of the individual's friend lists as well. These friends' lists and policies can be stored within a user account which allows for disclosure of a user's presence only to individuals on this list, such as described in Figure 11 (to be described below.)

[0074] It is contemplated that the permissions not be an "all or nothing" decision, but that different classes of information may be assigned different permissions and mechanisms. An

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example of this might be a user's presence, identity, and cart services being made available to only one set of other accounts (or users), while the presence of an anonymous individual being made available to anyone, but with other classes services available such as multi-player games being treated differently. Additionally multiple contacts may be included in the account, each given customized permissions. An example can be that any user may be notified of an anonymous user or other information based on additional policies.

[0075] As only the server contains personal information, and performs the association of an account with a particular identifier, it can inherently enforce the security of the policies as a distinct advantage relative to true peer to peer services. In this way, the central server controls the process of passing information related to an account to a particular requesting device.

[0076] Figure 11 shows an example account record to be associated with an entity and at least one device. The columns of the account record can consist of a Record Index which will be used to described the account, a Field which is a descriptive name for the contents stored in the record, and a Field Information Group Disclosure Policy Assignment List (PAL). The PAL provides rules for the disclosure of the information in the associated row in the Field column. The following list are possible PAL entries:

[0077] ALL: may be disclosed to any requesting entity

[0078] EXPLICIT APPROVAL: the Entity associated with the account must provide input approving the disclosure of the information

[0079] NONE: Do not disclose this information to any other entity

[0080] M: where M is a integer from 1 to N indicating a Information Group Disclosure Policy which may consist of a list of contacts, friends, groups, characteristics, and the like.

[0081] Most of the fields in Figure 11 are self explanatory and typical in the industry such as the account number, however a few fields are worth a clarifying discussion. The Device identifier is in record index 2, with a Identifier type in record 4. The identifier type can define what type of identifier the device associated with this account would use. Record index 10 is the Entity Type Field. This describes is the entity is a Merchant, Individual, or if the device associated with this account is a broadcast only device.

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[0082] Referring now to Figure 12 a timing map reference for scanning times and dormant times for devices is shown. In one embodiment, it is desired that the power consumption and scan timing for the devices in a cellular network be reduced. Since the server and the WWAN is involved with all mobile devices, coordination of the broadcasting periods and the searching periods for the short range radios is possible. This can be based on a common reference time such as that provided by most cellular systems, any the time of day clocks inherently within mobile devices. This allows for reduced power consumption and other resource consumption in the devices. If no coordination is achieved, then the short range receivers in each device must be scanning for transmitted identifiers much more often and for longer durations. Utilizing a common timing base, and the central server to notify the devices of a coordination approach for "active times" and "non-active times" and will allow for the devices to minimize the power consumption in the transmission of and scanning for identifiers. This approach also allows for synchronizing the update of each device's identifier (as described previously) to enhance anonymity and security, coordinated with the central server. The "non-active times" may be used as "boundaries" over which the changing identifiers may be updated. This update may be based on either direct communication with the server, or rule and algorithm based updates previously coordinated with the central server so as to minimize server messaging, but allowing the updates to remain synchronized to the server such that the device and the server are always associating the same identifier between them.

[0083] As will be recognized by an individual skilled in the area of information technology, the concept of a central server may well be implemented as a collection of servers to allow for load balancing, redundancy, and the like in a manor common to the information technology industry.

[0084] Figure 13 shows a diagram of functional blocks associated with the management of dynamically assigned device identifiers. The Server 1301 has an application agent called an Identifier Manager (1303) which has access to a pool of device identifiers (1302). The Identifier Manager monitors timing information and determines when it is time to update a particular device's identifier. This time may be a regular interval, or a random generated time period by an algorithm such as a pseudo-random sequence generator, or a combination of both. When it is time to update a device identifier, Manager 1303 retrieves a new identifier form the pool 1302. The pool of identifiers may be a list or range of identifiers, or generated algorithmically. The new

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identifier is stored in the account associated with the entity determined to require updating and a message sent to the device 1305 associated with that account commanding it to update its device identifier with the new one. This messge is sent over the WWAN Data network 1304 such as IS-2000, HSPA, GPRS, IS-95, Edge, Wi-Max, and the like. All devices 1305 to 1307 will eventually all be updated in a similar manner. This update process does not disrupt ongoing communication and interaction between devices despite the update as the communications are preformed based on the identity of the entities following the detection of the device identifiers which are no longer utilized. This unique capability allows for the updating process to be implemented and not impact the applications being utilized concurrently.

[0085] Other example applications utilizing still other embodiments follow below.

[0086] Requiring the brokering of the communication via a central server can also allow a mobile device to receive information associated with a "broadcast only" device, such as in the museum example discussed previously. This is important, as such broadcast devices can enable a vast set of new applications built upon the infrastructure developed in this application, beyond the museum application. Some of these applications may involve an electronic commerce aspect, for example.

[0087] Electronic Commerce Applications

[0088] Ecommerce between a fixed broadcast device and a mobile device

[0089] Football stadium example

[0090] An embodiment of a transaction model, enabled by the infrastructure described above can be an event such as a concert, or sporting event (particularly when it is an indoor venue where no GPS is available). A number of the broadcast only devices are placed through out the seating areas. The devices are very short range, and only transmit intermittently and as a result may be battery powered and to remain active over a very long time period. Each device can be placed in a known location, in a predicable manner.

[0091] An attendee at the event has his or her device enabled with the identifier protocol and other embodiments described above. The device detects a broadcast device, and interacts over the internet with the server via the WWAN connection (as already described above). The server

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receives an indication of the broadcast device's identifier and the identifier of the account associated with the device which detected the broadcast device. The server retrieves content associated with the service provider's account and provide that content to the application on the requesting mobile device. The content may indicate that the venue has a product delivery service. The user may then press an indication on their device that they would like to see a menu or list of items for sale from the merchant(s) in the venue. The application on the user's device would then allow them to see a menu, for instance, and select items to purchase. The user then would be asked to confirm the purchase. The server would then indicate to the merchant that a user located near a specific broadcast device has ordered something. In this case, it is expected that a delivery fee could also be charged for the enhanced service. The server would facilitate the purchasing of the goods or services from the merchant and payment from customer's account, and provide confirmation to each. Such confirmation can include an electronic receipt provided to the customer, for user upon arrival of the delivery person of the good or service. The customer can then select an indication on their device confirming receipt of the good or service via the mobile device, thereby completing the transfer of funds and the transition. Optionally, the delivery person of the good or service may have an enabled mobile device as well. In this case the identifiers may be detected by the customer's device and reported to the server to confirm that the provider's delivery person was present. Further, the delivery person's device can be able to detect the broadcast device's identifier and reported to the server confirming the delivery person was in the correct area independently. Even further proximity confirmation may be achieved by the customer's device's transmitted identifier being detected by the delivery person's device and reported to the central server further confirming the physical proximity of the parties involved in the transaction. Upon arrival of the delivery person, the customer may be notified that the delivery person is looking for them, and has arrived. These cross confirmations can allow for the central server evidence to justify payments both in completed transactions and in disputed or failed transactions. Further, the delivery person may receive a picture of the requesting customer assisting to identify the customer to whom the food is to be delivered. Once the customer is found, the delivery person can confirm the delivery of the good or service to the customer via the user input on their mobile device, and that confirmation being reported to the central server. The

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customer can have the option to report confirmation or denial of the reception of the product or service as well, as in the last example.

[0092] In another embodiment, the merchant device may be fixed, but have an internet connection (wireless or otherwise). Further, in some embodiments, the merchant may be an automated device such as a vending machine. In such a model, a customer may use their enabled cell phone to purchase an item such as a beverage from the machine without the need to insert currency into the machine. This can be accomplished by the customer's cell phone detecting the vending machine transmission of the identifier or visa-versa. Following the detection of either the customer's identifier by the vending machine, or the customer detecting the vending machine identifier, the respective device notifies the server, which in turn provides notification (assuming the account settings allow for notification) to the potential customer via their device. Assuming the customer selects to purchase an item from the vending machine using their account associated with their device, the customer may be presented a menu as in the example above. The customer may further be presented information to ensure the identity of the vending machine, such as a description of the machine, a machine identification number, or a (most likely) a picture of the machine where it is located. The customer can then confirm this is the machine they are interfacing with, and select to pay via their account. The customer may in one model select the item to dispense by input to their phone, or they may simply select to provide payment to the machine allowing them to make the selection manually as is the typical mode of operation today. The vending machine can then interact with the server via its own internet connection, and participate in the transaction in a manner similar to the mode described above allowing for step by step confirmation as previously described.

[0093] Electronic opinion polling, tied to a known location.

[0094] In a much simpler example, such a capability might be used to tie a survey to a known location in such a way as to provide an e-coupon to the survey taker on their device in return for completion of the survey. Alternatively, this type of interaction can enable a very large crowd to interact with a Jumbo-Tron like display to provide input to polls or to participate in group activities. Users at different locations in a audience may form teams and interact with other teams for group activities.

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[0095] Other Preferred Embodiments

[0096] Applications running on a device may also interact with the server to perform various functions, for example retrieving information associated with an entity or device, by utilizing a detected identifier. Such information may include stored content associated with the entity's account record such as music, pictures, links to social networking sites, instant messaging addresses, advertising content, and even executable scripts or application such as in AJAX. An example of such an application may include the detection of a device's identifier in a fixed location allowing for tour guide like information to be provided for that location.

[0097] As the server may be running applications which perform more function than just the retrieval of content, a pre-defined interaction process may also be applied by the server to the devices such as allowing the approval to share private content with the entity associated with the detected device. This process may eventually allow or disallow the sharing of information and to facilitate the interacting with another entity.

[0098] As a more complex example, in other embodiments, the devices may utilize the server as a third party to provide for new capabilities such as a secure three way e-commerce transaction between two entities. In this more complex process, the server may require confirmation of each party's identity with visual cross verification of the parties using pictures or other unique identifiers. The server may use this visual cross verification in conjunction with detecting that the individuals are in proximity with each other. The server may verify the proximity using GPS or using the peer to peer detection process in another embodiment. Further, the server may facilitate a process requiring each party to perform a step by step confirmation during the transaction including the stages of: the request for purchase, the payment, the receipt of goods and services, and the providing of payment receipt.

[0099] This differs from the approaches employed by prior art location aware mobile social networking techniques in that no GPS is needed to determine when one device is in proximity to another. Many wireless devices in use are not GPS-capable, and even when they are, GPS will often not operate indoors or where the GPS signal is weak. Using a peer to peer detection process to locate nearby devices allows for the operation of proximity detection indoors.

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[0100] Preferred embodiments can also differ from known peer to peer based social networking in that the information flow between the devices running the applications are over the wide area network via a central server, rather than carried over the peer to peer network itself. An example of this is a service called Flobbi, as discussed previously, where community members can identify each other via Bluetooth transmissions, then interact with chat. The messaging in this case is carried over Bluetooth itself. A distinction from such peer to peer approaches is the use of a central server to "broker" the transactions between peers, enhancing the ability to manage security and information disclosure. Such use allows for the opportunity to customize delivered content to include elements such as advertising or other content customized to the recipient based on additional information such as known personal purchasing history, or interests.

[0101] A further distinction of the preferred embodiment is the use of a central server to determine identities of detected peer devices, which additionally allows for secure and fraud resistant application of policies for the disclosure of information and content. An issue with the existing pure peer to peer approaches is that they are not capable of enforcing policy associated with the disclosure of information to unknown entities in a secure and fraud resistant manor. One reason for this is that information related to a user's device must be disclosed in the process of detection in the form of a static identifier. By the nature of the identifier, it must be static or peers would not be able to directly determine the identity of a friend over time with the information stored on their device. By using a central server, the system may coordinate the change of the identifiers from time to time such that the disclosure of an identifier by one device to another does not compromise the identity of the device. In this case the identifier may be assigned from a central server and such server coordinate the identifier's change from time to time.

[0102] Reliance on a central server also allows the secure and fraud resistant application of disclosure policy. Such policy might include the verification of the identity of the party to which information (identity and presence for instance) or content (pictures of the account owner) is to be provided. Such verification is performed in an anonymous way such that in the process of verifying information associated with each party, no personal information is disclosed between the parties prior to satisfaction of some pre-set policy such as inclusion on a friend list or belonging to a specific group or organization. Another important policy required for such services would be the determination of any past negative feed back ratings by other past peers for behavior for the

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particular user to which the information is to be provided. An individual with significant poor ratings having detected a peer, may be denied access to personal information or even notification of arrival of the detected peer based on the server policy setting by the detected peer or the server in general.

[0103] A further distinction is to enable electronic payments for individuals who are in close proximity to each other. The central server can act as a third trusted party to help facilitate the electronic transaction between the individuals. Secondly, the server allows for a convenient, electronically secure, personally secure and anonymous method for each of the individuals to specify the party with which they wish to engage in a transaction. Thirdly, participants in a transaction can cross validate the identities of the individuals engaged in the transaction. Finally, because this method is proximity based it will also work indoors or in other situations where GPS location information is not available.

[0104] Feature Summary of Preferred Embodiments

[0105] 1. In a first embodiment:

[0106] One device is transmitting a wireless identifier using a wireless protocol capable of peer to peer communication;

[0107] The wireless identifier being associated with a specific account on a server connected to the internet;

[0108] A second device receiving the wireless identifier

[0109] The second device capable of communicating with the server over an internet connection;

[0110] The second device requesting information from the service associated with the first identifier

[0111] The second device having a second identifier associated with a second account on the server; and/or

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[0112] The server providing different amounts of information related to the first account based on the parameters associated with one or both of the first and second accounts

[0113] The identifiers associated with the accounts being updated such that the identifiers would no longer be recognized as being associated with specific accounts without past or current interaction with the server;

[0114] Using one or more of Cellular network timing information, and information form the central server to coordinate the broadcast and search times amongst the devices. (to reduce power and resource consumption); and/or

[0115] Data necessary to engage in an E-commerce transaction may be exchanged as well such as the identity verification such as via a picture and/or mutual identifier detection.

[0116] 2. In a second embodiment,

[0117] A device is capable of operating two wireless protocols simultaneously, utilizing a first wireless protocol in the device to detect the proximity of another wireless device and using the second wireless protocol to communicate with a remote server, where:

[0118] One or more of the devices are mobile devices;

[0119] Where the first wireless protocol is a local, or personal area network wireless protocol such as 802.11, Bluetooth, UWB or other local connectivity protocol;

[0120] Where the first wireless capability used for detecting the presence of another device, or advertising the presence or a device;

[0121] Utilizing a wireless wide area data link from one or more of the wireless devices to, optionally:

[0122] Connect to a central server;

[0123] Perform user authorization functions;

[0124] Perform download of information associated with account identifiers utilizing the short range wireless capability;

[0125] Request forwarding of messages / packets to the other active account;

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[0126] Utilizing the messaging with a mobile proximity based social networking capability; and optionally,

[0127] The messaging being performed via the WWAN; and/or

[0128] The server providing a centrally assigned user identity, with relationship brokering or identification capability.

[0129] 3. In another embodiment,

[0130] A central serving capability is provided to mobile devices utilizing a wireless WAN connection to provide and exchange information between one or more application on one or more wireless devices and the central server where

[0131] the information passed to the central server is collected by one wireless device from another wireless device via a separate local wireless reception from the other wireless device;

[0132] the separate local wireless reception from the second wireless device contains information directly assigned by, derived from, or known to the central server associated with the identity of the second wireless device;

[0133] this identity is related to certain information and preferences of an account holder associated with an application operating on the second wireless device;

[0134] the application is operating on both wireless devices;

[0135] the application operating on the first device also provides its own identifying information to the central server as well as detected identifiers from devices with applications on them;

[0136] The central server contains account information registered to the applications running on each wireless device;

[0137] The preferences associated with the account information also contain policies related to the disclosure of one account's stored information to other accounts and hence to their application on their devices;

[0138] These policies including a classification of other accounts each classification having different policies some of these policies being one of:

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[0139] no not allow notification of my presence

[0140] allow notification of my presence

[0141] disclose my name/ do not disclose my name

[0142] disclose age / do not disclose age

[0143] disclose personal details;

[0144] Where an application running on each device can optionally perform point of sale transitions coordinated via the central server, over the WWAN, utilizing user input on each device as confirmation of successive steps in the transition;

[0145] Further, where at least one of the confirmation steps additionally involves displaying an identifying picture related to one of the devices, on the other device;

[0146] Additionally the server performing an authorization for the transition to a third party;

[0147] Or, optionally, a device is interacting with a point of sale device to associate an itemized list of items with a detected second device;

[0148] The service performing a confirmation with the application on the second device requiring user input that the bill of goods list is correct; and/or

[0149] The server storing the information related to the second devices detected account identity and inventory in a database for later use

[0150] 4. In still other embodiments, a device has a wireless capability with no WWAN capability, but only with the ability to broadcast a unique identifier, and

[0151] A central server stores having the broadcast device's details;

[0152] And when the first device provides these detail to the server, authorized and current information about the broadcast device are provided to the first wireless device;

[0153] Where this information optionally includes advertising information or information related to "e-coupons" for special offers for products or services; and/or

[0154] Where the content of the e-coupons might be customized based on the identity of the requesting device or account holder;

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[0155] Where the content is further customized based on other information known by the server related to the user's account ; or

[0156] Where the other information is related to the user's past purchasing practices or previous requests; and/or

[0157] A mobile device, upon detecting a broadcast device and if enabled to do so, will report that broadcast Id to the server over a WWAN, and retrieve the current content from the server associated with that device and:

[0158] Display it to the user on their device; or

[0159] Execute instructions associated with the information retrieved from the server.

[0160] 5. In still further embodiments, a good or service delivery model utilizing the above described broadcast device, is placed in a known location, and further

[0161] A mobile device is for detecting the fixed device's identifier via the WPAM/WLAN;

[0162] The mobile device reporting this identifier and passing an identifier associated with itself, or the account associated with the user utilizing the device;

[0163] The server determining that the detected broadcast device is associated with the broadcast device with a known location;

[0164] The server further determining that the identifier is associated with a service, and further associated with an account or that service;

[0165] The server retrieving content associated with the service provider's account and providing that content to the application on the requesting mobile device;

[0166] Where that content may be a list of items for sale, services for sale, a opinion pole, food menu, or other menu style content which allows for user selection of items, which can be implemented in java code, xml, simple text, or other for example optionally including active code elements;

[0167] The application on the mobile device displaying the content to the user display with the itemized list of goods, services, or other selection items;

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[0168] A user providing selection of one or more of the items, and confirming they wish to purchase said items, and take delivery at or near the location of the fixed broadcast device;

[0169] The server facilitating the purchasing of the goods or services from the merchant's account and the customer's account, and providing confirmation to each. Such confirmation including an electronic receipt provided to the customer, for user upon arrival of the deliverer of the good to or service;

[0170] The customer confirming receipt of the good or service via the mobile device, thereby completing the transfer of funds and the transition; and/or

[0171] The deliverer of the good or service optionally having a mobile device and optionally:

[0172] such that identifiers from that device may be detected by the customers device and reported to the server to confirm that the provider's delivery person was present;

[0173] such that the broadcast devices identifier is detected by the delivery person's mobile device and reported to the server confirming the deliver person was in the correct area

[0174] such that the customer's device's transmitted identifier is detected by the delivery persons device and reported to the central server further confirming the physical proximity of the parties involved in the transaction; and/or

[0175] The delivery person confirming the delivery of the good or service to the customer via the user input on their mobile device, and that confirmation being reported to the central server.

[0176] 6. In another embodiment, a software program is arranged to operate at the application layer on a mobile device, which interfaces to a device driver interface:

[0177] Using wi-fi 802.11 to perform a WLAN local connection protocol; or

[0178] Using Bluetooth to perform the WLAN local connection;

[0179] Where the device driver interface is an NDIS driver or the like;

[0180] Using 1xEVDO, HSDPA, GPRS, EDGE or the like for a wide area WWAN interface;

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[0181] The application then providing the reported identifiers to a server, which will make decisions regarding a users interest in these detected identifiers, and policy regard privacy other identifiers;

[0182] The decision process optionally based on priority of the identifier, the class an identifier belongs to, a list the identifier is, or is not included on;

[0183] Based on the result of the action function,

[0184] Sending at least one detected identifier to the network, potentially with additional information from the action function, and retrieving information back from the server related to that identifiers' account information stored on that server;

[0185] The server then receiving a request from a device's application, with a detected identifier

[0186] The server examining both the requesting and the requested identifier's identity and making a policy decision regarding the release of the requested identifiers information related to their account;

[0187] The server in some cases providing a continuously or periodically changing account or device identifier to a specific application on a device to enhance the privacy of the identity of that device;

[0188] The changing of the identifier may be effected by a rule based generation local to the application, or may be downloaded from the server directly; and/or

[0189] The update of the identifier being synchronized to such that it is coordinated with predetermined scanning and broadcasting periods allowing for a known update boundary;

[0190] 7. In still another embodiment, a method uses the mobile device's time of day derived from the network or other reference for

[0191] synchronizing a PAN/WLAN discovery and advertisement times to save battery life;

[0192] doing the same in a synchronized way among multiple devices;

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[0193] while coordinating the timing information utilizing the WWAN and a central server available commonly to the devices, such as by

[0194] Synchronizing identifier transmission timing to save power from WWAN network parameters obtained for the server;

[0195] Coordinating any identifier updates to this same timing source; and/or

[0196] Using a pool of identifiers available to the central server to assign identifiers to devices changing the identifiers at some time interval derived for the common time reference

[0197] 8. In another embodiment,

[0198] A central server uses an identity manager to assign identifiers to devices using a WWAN cellular data link, and wherein

[0199] identifiers are occasionally changed

[0200] identifiers are assigned from a pool of identifiers available to the servers;

[0201] identifiers are used as 48 bit media access control (MAC) addresses of the short range wireless network adapter

[0202] identifiers are optionally used as

[0203] an SSID in a IBSS in IEEE-802.11 network beacons

[0204] a BSSID of the IEEE802.11 network adapter;

[0205] in a IEEE802.15.1 Inquiry Response Message as the BD_ADDR

[0206] a device name in a Bluetooth name response packet ; or

[0207] listed in a services list as provided in a LMP_features_req message or LMP_features_req_ext message for a Bluetooth device

[0208] While this invention has been particularly shown and described with references to example embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the scope of the invention encompassed by the appended claims.

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CLAIMS

1. A method comprising:

receiving, by a wireless device, using a short range wireless protocol, a first plurality of beacon transmissions associated with a wireless beacon service, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission is a number;

receiving, by the wireless device using a second wireless protocol, stored information from one or more servers, relating to an entity or object associated with a first unique identifier;

selecting one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a beacon service identifier indicating that a particular received beacon transmission is associated with the wireless beacon service; and

taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.

2. The method of claim 1, wherein the receiving, by the wireless device, using a short range wireless protocol, of the first plurality of beacon transmissions occurs in a first time period, and

wherein the method further comprises, during a second time period:

receiving, by the wireless device, using a short range wireless protocol, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission is a number;

selecting one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same beacon service

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identifier indicating that a particular received beacon transmission is associated with the same wireless beacon service; and

taking second further action relating to the stored information, if a second unique identifier is present among the selected one or more unique identifiers, wherein the second unique identifier is associated with the same entity or object, and wherein the second unique identifier is not equal to the first unique identifier.

3. The method of claim 2 wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same beacon service identifier.

4. The method of claim 3 wherein the second further action is based upon a function currently being performed on a device associated with the wireless beacon service.

5. The method of claim 4 wherein the function is related to
a current phone call,
music being played,
a video being played,
a multi-player game, or
a shared application.

6. The method of claim 2 wherein the first or the second further action is related to receiving advertising information for presentation to a user of the wireless device, based upon the first or the second unique identifiers, or information derived from the first of second unique identifiers.

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7. The method of claim 2 wherein the first further action includes retrieving content from a server based upon information derived from either the first unique identifier or the second unique identifier.

8. The method of claim 2, wherein the first or second further action includes sending a message to another device associated with an account related to the first and the second unique identifiers.

9. The method of claim 2 wherein following the performance of the first or second further action, a server associated with the an account for the user of the wireless device performs a step of sending a message to an email address associated with the account for the user relating to the entity or object associated with the first or second unique identifiers.

10. The method of claim 2 wherein the second further action includes preventing sending of the second unique identifier or information derived from the second unique identifier by the wireless device to one or more servers.

11. The method of claim 1 wherein the first further action comprises:

determining, based upon at least a portion of the stored information, that at least one beacon transmitter is associated with a predetermined location.

12. The method of claim 2 wherein the step of taking first further action further includes, by the wireless device,

sending of the first unique identifier or information derived from the first unique identifier to at least one of the one or more servers, and

receiving the stored information in response.

13. The method of claim 1 further comprising:

wherein the stored information is received by the wireless device from at least one of the one or more servers prior to the performing of the first further action.

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14. The method of claim 2 further comprising:

wherein the stored information is received by the wireless device from at least one of the one or more servers prior to the performing of the first further action.

15. The method of claim 1 further comprising:

wherein the stored information is used to determine if the first unique identifier is present among the first selected one or more unique identifiers.

16. The method of claim 2 wherein all beacon transmitter devices participating in the wireless beacon service have the same beacon service identifier for identifying the beacon transmitters as being enabled with the wireless beacon service.

17. The method of claim 2 wherein the second further action comprises:

determining, based upon at least a portion of the stored information, that the beacon transmitter is associated with a predetermined location.

18. The method of claim 2 wherein one or more of the steps performed by the wireless device are performed as a result of an application program executing on the wireless device utilizing a software interface.

19. The claim of 2 wherein the second further action is related to a product tied to a location.

20. The claim of 2 wherein the second further action is related to an advertisement tied to a location.

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21. The method of claim 1 wherein the first further action includes determining an address or location associated with the wireless device based at least in part upon the first unique identifier being associated with a pre-determined location, and wherein the wireless device is located indoors where a GPS signal may not be available.

22. The method of claim 2 wherein the second further action includes determining an address or location associated with the wireless device based at least in part upon the second unique identifier being associated with a pre-determined location, wherein the wireless device is located indoors where a GPS signal may not be available.

23. The method of claim 2 wherein the second further action includes steps to allow for a user associated with the wireless device to be provided access to an object or device associated with the wireless beacon service.

24. The method of claim 2 wherein the step of taking second further action additionally comprises:

controlling further communications between the wireless device and at least one device or server associated with an entity or object in proximity to the wireless device.

25. The method of claim 3 further comprising:

receiving, by the wireless device, timing notification information for coordination of active times for beacon transmissions.

26. The method of claim 25 wherein the receiving, by the wireless device of the timing notification information is not directly from the beacon transmitter.

27. The method of claim 2 wherein the stored information is used to determine if the second unique identifier is present among the second selected one or more unique identifiers.

Petitioner Samsung Ex-1004, 0071

28. The method of claim 1 wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

29. The method of claim 3 wherein the short range protocol is derived from Bluetooth.

30. A mobile wireless device comprising:

one or more radios for providing reception and transmission for each of a Bluetooth wireless protocol and a second wireless protocol;

one or more processors; and

one or more non-transitory memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving from a beacon transmitter, using the Bluetooth wireless protocol, a first plurality of beacon transmissions during a first time period, each of the beacon transmissions including (a) a MAC address, (b) a unique identifier, wherein the first unique identifier does not directly identify a location of the beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier is a number indicating that each beacon transmission is associated with a wireless beacon service;

receiving from one or more servers, using the second wireless protocol, stored information related to an entity or object associated with the first unique;

selecting one or more unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include the beacon service identifier indicating that a particular received beacon transmission is associated with the wireless beacon service;

taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers; and

and the operations further including:

receiving, by the wireless device, using the Bluetooth wireless protocol wireless, during a second time period, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location

of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission is a number;

selecting one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same beacon service identifier indicating that a particular received beacon transmission is associated with the same wireless beacon service;

taking second further action relating to the stored information, if a second unique identifier is present among the selected one or more unique identifiers, wherein the second unique identifier is associated with the same entity or object, and wherein the second unique identifier is not equal to the first unique identifier; and

wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same beacon service identifier.

Petitioner Samsung Ex-1004, 0073

ABSTRACT

[0209] Systems and methods are provided for reducing communications between servers and a mobile device and providing enhanced security and privacy to wireless beacon services. This can involve a broadcast device transmitting a beacon transmission using a short range wireless radio, such a Bluetooth or WiFi, and including a MAC address, a first unique identifier, and a beacon service identifier. The mobile device then selects one or more unique identifiers from received beacon transmissions, by filtering (that is, selecting) those beacon transmissions which include the beacon service identifier. The wireless device then takes further action, if the first unique identifier is present among the selected one or more unique identifiers, using stored information from the server. The stored information may be delivered to the wireless device in response to the wireless device sending the first unique identifier to a server, or the stored information may have been previously downloaded.

Petitioner Samsung Ex-1004, 0074

SCORE Placeholder Sheet for IFW Content

Application Number: 17942197 Document Date: 09/12/2022

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

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

- Drawing

At the time of document entry (noted above):

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

Form Revision Date: March 1, 2019

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/942,197		James A. Proctor Jr.	111054-0001U8	2459

86012 7590 09/21/2022

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

EXAMINER	

ART UNIT	PAPER NUMBER
2642	

NOTIFICATION DATE	DELIVERY MODE
09/21/2022	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):

patents@vlplawgroup.com

Petitioner Samsung Ex-1004, 0076

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
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In re Application of	:	
Proctor, et al.	:	
Application No. 17/942,197	:	
Date of Deposit: September 12, 2022	:	DECISION ON PETITION
For: EFFICIENT AND SECURE	:	
COMMUNICATION USING WIRELESS	:	
SERVICE IDENTIFIERS	:	

This is a decision on the petition under 37 CFR 1.102(c)(1), filed September 12, 2022, to make the above-identified application special based on applicant's age as set forth in MPEP § 708.02, Section II.

The petition is **GRANTED**.

A grantable petition to make an application special under 37 CFR 1.102(c)(1) and MPEP § 708.02, Section II: Applicant's Age, must be accompanied by evidence showing that the applicant is 65 years of age, or more, such as applicant's statement or a statement from a registered practitioner that he or she has evidence that the applicant is 65 years of age or older. No fee is required.

The instant petition includes a statement by registered attorney David J. Thibodeau, Jr. having evidence showing that one of the inventors in the application is 65 years or older. Accordingly, the above-identified application has been accorded "special" status.

Telephone inquiries concerning this decision should be directed to Paula Britton at 571-272-1556. All other inquiries concerning the examination or status of the application is accessible in the PAIR system at http://portal.uspto.gov/.

/PAULA S BRITTON/
Paralegal, OPET

UNITED STATES PATENT AND TRADEMARK OFFICE

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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
17/942,197	09/12/2022	2642	0	111054-0001U8	30	2

CONFIRMATION NO. 2459

FILING RECEIPT

86012
VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

OC000000049124330

Date Mailed: 09/29/2022

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

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

Inventor(s)

James A. Proctor, JR., Indialantic, FL;
James Arthur Proctor, III, Indialantic, FL;

Applicant(s)

Proxicom Wireless LLC, Indialantic, FL;

Power of Attorney: The patent practitioners associated with Customer Number 86012

Domestic Priority data as claimed by applicant

This application is a CON of 17/366,826 07/02/2021 PAT 11,443,344
which is a CON of 16/817,896 03/13/2020 PAT 11,074,615
which is a CON of 15/271,410 09/21/2016 PAT 11,334,918
which is a CON of 14/861,563 09/22/2015 ABN
which is a CON of 14/472,477 08/29/2014 PAT 9,161,164
which is a CON of 13/775,435 02/25/2013 PAT 8,849,698
which is a CON of 13/212,723 08/18/2011 PAT 8,385,896
which is a CON of 12/364,828 02/03/2009 PAT 8,090,359
which claims benefit of 61/095,359 09/09/2008
and claims benefit of 61/095,001 09/08/2008

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

Petitioner Samsung Ex-1004, 0078

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

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

Projected Publication Date: To Be Determined - pending completion of Missing Parts
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

Preliminary Class

455

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative,

this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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Petitioner Samsung Ex-1004, 0081

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/942,197

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	30 minus 20 =	* 10	x 50 =	500	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x =	0			
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			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	830		TOTAL	

APPLICATION AS AMENDED - PART II

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

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

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

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

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

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/942,197	09/12/2022	James A. Proctor, JR.	111054-0001U8

CONFIRMATION NO. 2459

86012
VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

FORMALITIES LETTER

OC000000049124333

Date Mailed: 09/29/2022

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

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

- The statutory basic filing fee has not been received.
- The application search fee must be submitted.
- The application examination fee must be submitted.
- Additional claim fees of $**500** as a small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- Surcharge as set forth in 37 CFR 1.16(f) has not been received.

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

SUMMARY OF FEES DUE:

The fee(s) required (including the fees noted above) are as follows. Small entity discount is in effect. If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- $**80** basic filing fee.
- $**80** surcharge.
- $**350** search fee.
- $**400** examination fee.
- $**500** for 10 total claims over 20.
- $(**0**) previous unapplied payment amount.

- $**1410** TOTAL FEE BALANCE DUE.

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

Replies should be addressed to:

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

REPLY VIA ELECTRONIC FILING

A reply may be submitted via electronic filing only by registered users of the appropriate USPTO patent electronic filing system and must include:

- A separate document having the document description, "**Applicant response to Pre-Exam Formalities Notice**"; and
- the item(s) for which a reply period is set forth above.

For more information about electronic filing, contact the Patent Electronic Business Center (EBC) 1-866-217-9197 or visit https://www.uspto.gov/ebc

NOTE: If the reply is not being submitted electronically, a copy of this notice must be included.

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

/kung/

Petitioner Samsung Ex-1004, 0084

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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
17/942,197	09/12/2022	2642	0	111054-0001U8	30	2

CONFIRMATION NO. 2459

CORRECTED FILING RECEIPT

86012
VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

OC000000049788782

Date Mailed: 10/18/2022

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

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Inventor(s)

James A. Proctor, JR., Indialantic, FL;
James Arthur Proctor, III, Indialantic, FL;

Applicant(s)

Proxicom Wireless LLC, Indialantic, FL;

Power of Attorney: The patent practitioners associated with Customer Number 86012

Domestic Priority data as claimed by applicant

This application is a CON of 17/366,826 07/02/2021 PAT 11,443,344
which is a CON of 16/817,896 03/13/2020 PAT 11,074,615
which is a CON of 15/271,410 09/21/2016 PAT 11,334,918
which is a CON of 14/861,563 09/22/2015 ABN
which is a CON of 14/472,477 08/29/2014 PAT 9,161,164
which is a CON of 13/775,435 02/25/2013 PAT 8,849,698
which is a CON of 13/212,723 08/18/2011 PAT 8,385,896
which is a CON of 12/364,828 02/03/2009 PAT 8,090,359
which claims benefit of 61/095,359 09/09/2008
and claims benefit of 61/095,001 09/08/2008

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

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Permission to Access Application via Priority Document Exchange: Yes

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/942,197**
Projected Publication Date: Reprint Filing Receipt
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

Preliminary Class

455

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

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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Electronic Patent Application Fee Transmittal

Application Number:	17942197
Filing Date:	12-Sep-2022
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U8

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:				
CLAIMS IN EXCESS OF 20	2202	53	50	2650
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**2650**

Electronic Acknowledgement Receipt

EFS ID:	47034320
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	16-NOV-2022
Filing Date:	12-SEP-2022
Time Stamp:	12:08:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2650
RAM confirmation Number	E2022AFC09213676
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	Preliminary Amendment	20221116_111054-0001U8_TPO_Preliminary_Amendment.pdf	151626 92b9579fb335b5744c60431db8d93d1e661c8bb2	no	24
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38346 9e3cc097b3ba32d7d24fb7cf1c19491c7c2c4d14	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	189972		

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

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

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New International Application Filed with the USPTO as a Receiving Office

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Amendments to the Claims:

This listing of claims replaces all prior versions of the claims:

1-30. (Cancelled)

31. (New) A method comprising:

receiving, at a wireless device, via a short range wireless protocol, a first plurality of beacon transmissions, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the short range wireless protocol;

receiving, at the wireless device via a second wireless protocol, the stored information from one or more servers, the stored information relating to a particular entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the short range wireless protocol;

causing selection of one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with a particular wireless beacon service; and

taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.

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32. (New) The method of claim 31, wherein the receiving, at the wireless device, via a short range wireless protocol, of the first plurality of beacon transmissions occurs in a first time period, and

wherein the method further comprises, during a second time period:

receiving, at the wireless device, via a short range wireless protocol, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not accessible to the wireless device utilizing the short range wireless protocol;

causing selection of one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same particular beacon service identifier indicating that the particular received beacon transmission is associated with the same particular wireless beacon service; and

taking second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the first unique identifier and the second unique identifier are both associated with the same particular entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device.

33. (New) The method of claim 32 wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier, and wherein a plurality of

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beacon transmissions including the particular service identifier and the first unique identifier are received in the first time period, and no beacon transmissions including the same particular service identifier and the second unique identifier are received in the first time period.

34. (New) The method of claim 33 wherein the second further action is based upon a function currently being performed on a device associated with the wireless beacon service.

35. (New) The method of claim 34 wherein the function is related to
a current phone call,
music being played,
a video being played,
a multi-player game, or
a shared application.

36. (New) The method of claim 32 wherein the first or the second further action is related to receiving advertising information for presentation to a user of the wireless device, based upon the first or the second unique identifier, or information derived from the first or second unique identifier.

37. (New) The method of claim 32 wherein one or more of the first further action and the second further action includes receiving content from a server based upon information derived from either the first unique identifier or the second unique identifier.

38. (New) The method of claim 32, wherein the first or second further action includes sending a message to another device associated with an account related to the first and the second unique identifiers.

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39. (New) The method of claim 32 wherein following the performance of the first or second further action, a server associated with an account for a user of the wireless device performs a step of sending an email message to an email address associated with the account for the user, the email message relating to the particular entity or object.

40. (New) The method of claim 32 wherein the second further action includes preventing sending of the second unique identifier or information derived from the second unique identifier by the wireless device to at least one of the one or more servers.

41. (New) The method of claim 31 wherein the first further action comprises: determining, based upon at least a portion of the stored information, that at least one beacon transmitter is associated with a predetermined location.

42. (New) The method of claim 31 wherein the step of taking first further action further includes causing the wireless device, to:

send the first unique identifier or information derived from the first unique identifier to at least one of the one or more servers, and

receive the stored information in response.

43. (New) The method of claim 31 wherein the stored information is received at the wireless device from at least one of the one or more servers prior to the performing of the first further action.

44. (New) The method of claim 32 wherein the stored information is received at the wireless device from at least one of the one or more servers prior to performing one or more of the first and the second further action.

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45. (New) The method of claim 31 further comprising:

using the stored information to determine if the first unique identifier is present among the first selected one or more unique identifiers.

46. (New) The method of claim 32 wherein all beacon transmitter devices participating in the particular wireless beacon service have the same particular beacon service identifier.

47. (New) The method of claim 32 wherein the second further action comprises:

determining, based upon at least a portion of the stored information, that the beacon transmitter is associated with a predetermined location.

48. (New) The method of claim 32 wherein the steps performed at the wireless device are performed as a result of an application program executing on the wireless device.

49. (New) The method of claim 32 wherein the second further action is related to either a product tied to a location or an advertisement tied to a location.

50. (New) The method of claim 31 wherein the first further action includes determining an address or location associated with the wireless device based at least in part upon the first unique identifier being associated with a pre-determined location, and wherein the wireless device is located indoors where a GPS signal may not be available.

51. (New) The method of claim 32 wherein the second further action includes determining an address or location associated with the wireless device based at least in part upon the second unique identifier being associated with a pre-determined location, wherein the wireless device is located indoors where a GPS signal may not be available.

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52. (New) The method of claim 32 wherein the second further action includes allowing a user associated with the wireless device to be provided access to an object or device associated with the wireless beacon service.

53. (New) The method of claim 32 wherein the step of taking second further action additionally comprises:

controlling further communications between the wireless device and at least one device or server associated with an entity or object in proximity to the wireless device.

54. (New) The method of claim 33 further comprising:

receiving, at the wireless device, timing notification information for coordination of active times for beacon transmissions.

55. (New) The method of claim 54 wherein the receiving, at the wireless device of the timing notification information is not directly from the beacon transmitter.

56. (New) The method of claim 32 further comprising:

using the stored information to determine if the second unique identifier is present among the selected one or more of the unique identifiers from the second plurality of beacon transmissions.

57. (New) The method of claim 31 wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

58. (New) The method of claim 33 wherein the short range protocol is derived from Bluetooth.

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59. (New) A mobile wireless device comprising:

one or more radios for providing reception and transmission for each of a Bluetooth wireless protocol and a second wireless protocol;

one or more processors; and

one or more memory devices coupled to the one or more processors, the one or more memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving from a beacon transmitter, using the Bluetooth wireless protocol, a first plurality of beacon transmissions during a first time period, each of the beacon transmissions including (a) a MAC address, (b) a unique identifier, the unique identifier does not directly identify a location of the beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol;

receiving from one or more servers, using the second wireless protocol, stored information related to a entity or object associated with a first unique identifier;

selecting one or more unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with the particular wireless beacon service;

taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers;

receiving, by the wireless device, using the Bluetooth wireless protocol, during a second time period, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly

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identify a location of a beacon transmitter, and (c) the beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not accessible to the wireless device utilizing the Bluetooth wireless protocol;

selecting one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same particular beacon service identifier indicating that a particular received beacon transmission is associated with the same particular wireless beacon service;

taking second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the second unique identifier is associated with the same entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device; and

wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier.

60. (New) A computer program product for installation in a memory in a wireless device, the computer program product comprising computer program instructions that, when executed by one or more processors in the wireless device, cause the wireless device to:

process a first plurality of beacon transmissions, received at the wireless device via a Bluetooth protocol, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that

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the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol;

process stored information transferred from one or more servers to the wireless device via a second wireless protocol, wherein the stored information relates to an entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the Bluetooth wireless protocol;

select one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with a particular wireless beacon service; and

perform a first further action, the first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.

61. (New) The computer program product of claim 60 wherein the computer program instructions, when executed by the one or more processors in the wireless device, cause the wireless device to:

during a first time period:

process the first plurality of beacon transmissions in the first time period, and

during a second time period:

process a second plurality of beacon transmissions, received at the wireless device via the Bluetooth protocol, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated

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with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol;

select one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same particular beacon service identifier indicating that the particular received beacon transmission is associated with the same particular wireless beacon service; and

perform a second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the first unique identifier and the second unique identifier are both associated with the same particular entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device.

62. (New) The computer program product of claim 61 wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier, and wherein a plurality of beacon transmissions including the particular beacon service identifier and the first unique identifier are received in the first time period, and no beacon transmissions including the same service identifier and the second unique identifier are received in the first time period.

63. (New) The computer program product of claim 62 wherein the second further action is based upon a function currently being performed on a device associated with the wireless beacon service.

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64. (New) The computer program product of claim 63 wherein the function is related to a current phone call,

music being played,

a video being played,

a multi-player game, or

a shared application.

65. (New) The computer program product of claim 61 wherein the first or the second further action is additionally related to receiving advertising information for presentation to a user of the wireless device, based upon the first or the second unique identifiers, or based upon information derived from the first or second unique identifier.

66. (New) The computer program product of claim 60 wherein the first further action is additionally related to receiving advertising information for presentation to a user of the wireless device, based upon the unique identifier, or based upon information derived from the first unique identifier.

67. (New) The computer program product of claim 61 wherein one or more of the first further action and the second further action additionally includes causing the wireless device to receive content from a server based upon information derived from either the first unique identifier or the second unique identifier.

68. (New) The computer program product of claim 62 wherein the first further action additionally includes causing the wireless device to receive content from a server based upon information derived from the first unique identifier.

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69. (New) The computer program product of claim 61, wherein the first or second further action additionally includes causing the wireless device to send a message to another device associated with an account related to the first or the second unique identifiers, or information derived from the first or the second unique identifiers.

70. (New) The computer program product of claim 61, wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to:

after the first or second further action:

send information to a server associated with an account for a user of the wireless device, to enable the server to send a message to an email address associated with the account for the user.

71. (New) The computer program product of claim 60, wherein the first further action additionally includes causing the wireless device to send information to a server associated with an account for a user of the wireless device, and enabling the server to send a message to an email address associated with the account for the user as a result of the first further action.

72. (New) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to prevent sending the second unique identifier or information derived from the second unique identifier by the wireless device to at least one of the one or more servers.

73. (New) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to determine that at least one beacon transmitter is associated with a predetermined location.

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74. (New) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to:

send the first unique identifier or information derived from the first unique identifier to at least one of the one or more servers, and

subsequently receive the stored information in response thereto.

75. (New) The computer program product of claim 60 wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to

receive stored information at the wireless device from at least one of the one or more servers prior to performing the first further action.

76. (New) The computer program product of claim 61 wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to:

receive stored information at the wireless device from at least one of the one or more servers prior to performing one or more of the first and the second further action.

77. (New) The computer program product of claim 60 wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to:

use the stored information to determine if the first unique identifier is present among the first selected one or more unique identifiers.

78. (New) The computer program product of claim 61 wherein all beacon transmitter devices participating in the particular wireless beacon service have the same particular beacon service identifier.

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79. (New) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to determine, based upon at least a portion of the stored information, that the beacon transmitter is associated with a predetermined location.

80. (New) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to display a current location, based at least in part upon a predetermined location associated with the first unique identifier, or based at least in part upon information derived from the first unique identifier.

81. (New) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to display a current location on the wireless device, based at least in part upon a predetermined location associated with the second unique identifier, or based at least in part upon information derived from the second unique identifier.

82. (New) The computer program product of claim 61 wherein the second further action is additionally related to either a product tied to a location or to an advertisement tied to a location

83. (New) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to determine an address or location associated with the wireless device based at least in part upon the first unique identifier being associated with a pre-determined location, when the wireless device is located indoors where a GPS signal may not be available.

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84. (New) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to determine an address or location associated with the wireless device based at least in part upon the second unique identifier being associated with a pre-determined location, when the wireless device is located indoors where a GPS signal may not be available.

85. (New) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to allow a user associated with the wireless device to access to an object or device associated with the wireless beacon service.

86. (New) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to control further communications between the wireless device and at least one other device or server associated with an entity or object in proximity to the wireless device.

87. (New) The computer program product of claim 62 wherein the computer program instructions, when executed by the wireless device, further cause the wireless device to:

receive, at the wireless device, timing notification information for coordination of active times for beacon transmissions.

88. (New) The computer program product of claim 87 wherein the timing notification information is not received directly from the beacon transmitter.

89. (New) The computer program product of claim 61 wherein the computer program instructions, when executed by the wireless device, further cause the wireless device to:

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use the stored information to determine if the second unique identifier is present among the selected one or more of the unique identifiers from the second plurality of beacon transmissions.

90. (New) The computer program product of claim 60 further comprising program instructions that, when executed by the one or more processors, cause the wireless device to:

use the stored information to determine if the first unique identifier is present among the selected one or more of the unique identifiers from the first plurality of beacon transmissions.

91. (New) The computer program product of claim 60 wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

92. (New) The mobile wireless device of claim 59 wherein the operations further comprise:

receiving, at the mobile wireless device, timing notification information for coordination of active times for beacon transmissions.

93. (New) The computer program product of claim 63 wherein the receiving, at the wireless device of the timing notification information is not directly from the beacon transmitter.

94. (New) The mobile wireless device of claim 59 wherein the operations further comprise:

using the stored information to determine if the second unique identifier is present among the selected one or more of the unique identifiers from the second plurality of beacon transmissions.

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95. (New) The mobile wireless device of claim 59 wherein each MAC address or a respective beacon transmission is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

96. (New) The mobile wireless device of claim 59 wherein the second further action is based upon a function currently being performed on a device associated with the wireless beacon service.

97. (New) The mobile wireless device of claim 96 wherein the function is related to
a current phone call,
music being played,
a video being played,
a multi-player game, or
a shared application.

98. (New) The mobile wireless device of claim 59 wherein one or more of the first further action and the second further action includes receiving content from a server based upon information derived from either the first unique identifier or the second unique identifier.

99. (New) The mobile wireless device of claim 59, wherein the first or second further action includes sending a message or causing a server to send a message to another device associated with an account related to the first and the second unique identifiers.

100. (New) The mobile wireless device of claim 59 wherein the second further action includes preventing sending of the second unique identifier or information derived from the

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second unique identifier by the mobile wireless device to at least one of the one or more servers.

101. (New) The mobile wireless device of claim 59 wherein at least one of the first further action or the second further action comprises: determining that at least one beacon transmitter is associated with a predetermined location.

102. (New) The mobile wireless device of claim 59 wherein the operations further comprise:

using the stored information to determine if the first unique identifier is present among the first selected one or more unique identifiers.

103. (New) The mobile wireless device of claim 59 wherein one of the first further action and second further action additionally includes

determining an address or location associated with the wireless device based at least in part upon the first or second unique identifier or information derived from the first or second unique identifier being associated with a pre-determined location, and wherein the mobile wireless device may be located indoors where a GPS signal may not be available.

104. (New) The mobile wireless device of claim 59 wherein the second further action includes allowing a user associated with the mobile wireless device to be provided access to an object or device associated with the wireless beacon service.

105. (New) The mobile wireless device of claim 59 wherein the first or second further action additionally comprises:

controlling further communications between the mobile wireless device and at least one device or server associated with an entity or object in proximity to the wireless device based upon information derived from the first or second unique identifier.

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106. (New) The method of claim 31 wherein the first further action is related to receiving advertising information for presentation to a user of the wireless device, based upon the first unique identifier, or information derived from the first unique identifier.

107. (New) The method of claim 31 wherein the first further action includes receiving content from a server based upon information derived from the first unique identifier.

108. (New) The method of claim 31?? wherein following the performance of the first further action, a server associated with an account for a user of the wireless device performs a step of sending an email message to an email address associated with the account for the user as a result of the first further action.

109. (New) The method of claim 31 wherein the first further action comprises: determining that at least one beacon transmitter is associated with a predetermined location.

110. (New) The method of claim 32 wherein the second further action comprises: determining that the beacon transmitter is associated with a predetermined location.

111. (New) The method of claim 31 wherein the first further action is related to either a product tied to a location or an advertisement tied to a location.

112. (New) The method of claim 33 wherein the step of taking second further action additionally comprises:

controlling further communications between the wireless device and at least one device or server associated with an entity or object in proximity to the wireless device.

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113. (New) The method of claim 31 further comprising:

using the stored information to determine if the first unique identifier is present among the selected one or more of the unique identifiers from the first plurality of beacon transmissions.

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REMARKS/ARGUMENTS

Status of the Claims

With entry of the foregoing amendments, claims 31-113 are now presented for examination.

Explanation of Claim Amendments

The claims presented here are similar to those that were allowed in U.S. Patent Application 17/366,826 (now issued as US Patent 11,443,344) to which this application claims priority.

The difference with the claims in the present case is in the recitation of the "unique identifier". In this case the "unique identifier" is both "relevant to stored information associated with a wireless beacon service" and "not otherwise accessible to the wireless device using the short range wireless protocol"

Support for the unique identifier being "relevant to the stored information associated with a wireless beacon service" is found in the specification.

See at least Par [0050] which explains "By utilizing the central server 100, broadcast devices may be tied to a location or product thereby providing relevant information about the location such as in the museum tour example previously discussed. In this situation, the content delivered to device 202 may be informative information about an exhibit including pictures, text, audio, or video and the like.

And see also Par [0057] which further explains "First the identifier may be used as the MAC address of the station device or network adapter, and one or both the BSSID and the SSID

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may be used to indicate these particular beacons are associated with a service."

Example embodiments also describe that the "stored information" is not accessible using the short range wireless protocol, and instead being provided via the broadcast only beacon transmitters:

Par [0069] describes one example where it is explained that "The server detects that the entity associated with DI2 is an advertisement company, and that this device is a broadcast device only, and that there is an electronic coupon available for download to Device 1"

Seen also Par [0086] which describes how the mobile device receives stored information from the server: "Requiring the brokering of the communication via a central server can also allow a mobile device to receive information associated with a "broadcast only" device…"

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Conclusion

With entry of the foregoing amendments, all of the claims presented should be in condition for allowance.

Payment for the added claims is being submitted herewith in full. Therefore no additional fee is believed due but please charge U.S. Patent Office Deposit Account Number 50-4929 as may be necessary.

November 16, 2022

Respectfully submitted,

/David J Thibodeau/
David J Thibodeau
USPTO Reg. No 31671
1(617)925-5520

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: Proctor, James et al.	
Serial No.: 17/942,197	Examiner: Not yet assigned
Filed: September 12, 2022	Art Unit: 2642
For: Efficient and Secure Wireless Communication Using Wireless Service Identifiers	Confirmation No.: 2459

PRELIMINARY AMENDMENT

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

Sir:

Please enter the enclosed amendments to the application prior to first examination.

Amendments to the Claims are reflected in the claim listing beginning on page 2.

Our **Remarks** begin on page 22.

Electronic Patent Application Fee Transmittal

Application Number:	17942197
Filing Date:	12-Sep-2022
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U8

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	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	10	50	500
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	2051	1	80	80

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1410**

Electronic Acknowledgement Receipt

EFS ID:	47034244
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	16-NOV-2022
Filing Date:	12-SEP-2022
Time Stamp:	12:01:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1410
RAM confirmation Number	E2022AFC03123575
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	Applicant Response to Pre-Exam Formalities Notice	20221116_111054-0001U8_TPO_Response_Missing_Parts.pdf	76743 fd6735e61c805c1608863b9ee4413f97f6f7fe47	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	48541 518c62b985f4c7afc6e3b11befa92aeea35877aa	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	125284		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: Proctor, James et al.	
Serial No.: 17/942,197	Examiner: Not yet assigned
Filed: September 12, 2022	Art Unit: 2642
For: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	Confirmation No.: 2459

CERTIFICATE OF TRANSMISSION

I hereby certify that the following paper is being electronically transmitted to the Patent and Trademark Office by EFS-Web on November 16, 2022.

/Elisabeth Smith/
Elisabeth Smith

RESPONSE TO NOTICE TO FILE MISSING PARTS

Mail Stop: Missing Parts - VIA EFS-Web
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice to File Missing Parts mailed September 29, 2022 in the above identified application, Applicant submits the following:

- ☒ Payment of the basic filing fee of $80.00;
- ☒ Payment of the search fee of $350.00;
- ☒ Payment of the examination fee of $400.00;
- ☒ Payment of 10 additional claims of $500.00; and
- ☒ Payment of the surcharge of $80.00.

It is understood that the instant submission perfects the above-referenced application and that no further papers or fees are required. An early confirmation of the same is requested.

Respectfully submitted,

Date: 16 November 2022

/David J Thibodeau Jr. /
David J. Thibodeau, Jr.
Reg. No. 31,671
VLP Law Group LLP
Customer Number 86012
Tel.: (617) 925-5520

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/942,197	09/12/2022	2642	4060	111054-0001U8	83	3

CONFIRMATION NO. 2459

UPDATED FILING RECEIPT

OC000000050866050

86012
VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

Date Mailed: 11/18/2022

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

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

Inventor(s)

James A. Proctor, JR., Indialantic, FL;
James Arthur Proctor, III, Indialantic, FL;

Applicant(s)

Proxicom Wireless LLC, Indialantic, FL;

Power of Attorney: The patent practitioners associated with Customer Number 86012

Domestic Priority data as claimed by applicant

This application is a CON of 17/366,826 07/02/2021 PAT 11,443,344
which is a CON of 16/817,896 03/13/2020 PAT 11,074,615
which is a CON of 15/271,410 09/21/2016 PAT 11,334,918
which is a CON of 14/861,563 09/22/2015 ABN
which is a CON of 14/472,477 08/29/2014 PAT 9,161,164
which is a CON of 13/775,435 02/25/2013 PAT 8,849,698
which is a CON of 13/212,723 08/18/2011 PAT 8,385,896
which is a CON of 12/364,828 02/03/2009 PAT 8,090,359
which claims benefit of 61/095,359 09/09/2008
and claims benefit of 61/095,001 09/08/2008

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

Petitioner Samsung Ex-1004, 0122

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: 09/27/2022
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/942,197**
Projected Publication Date: 02/23/2023
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

Preliminary Class

455

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

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/942,197

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	83 minus 20 =	* 63	x 50 =	3150	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x =	0			
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			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	830		TOTAL	

APPLICATION AS AMENDED - PART II

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

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

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

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

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

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

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Report Information from Dialog

December 09 2022 10:37

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Search Strategy

Databases: Inspec®

Set#	Searched for	Results
S1	(beam transmission mac address)	54°

° Duplicates are removed from the search and from the result count.

Petitioner Samsung Ex-1004, 0130

Document 1 of 54

SpotMAC: a pencil-beam MAC for wireless mesh networks

Author: Kwan-Wu Chin 1 1 Sch. of Electr., Comput. & Telecommun., Wollongong Univ., Wollongong, NSW, Wollongong Univ., Sch. of Electr., Comput. & Telecommun., Northfields Avenue, Wollongong, NSW, Australia kwanwu@uow.edu.au

Publication info: Proceedings 16th International Conference on Computer Communications and Networks : 81-8. IEEE. (2007)

ProQuest document link

Databases: Inspec® (1898 - current)

Document 2 of 54

STAR: a carrier sense agnostic MAC scheme for a crowded NLoS-FSOC optical LAN

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Publication info: IEEE/OSA Journal of Optical Communications and Networking 14.10: 815-27. IEEE. (2022)

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HEC-MAC: A Hybrid Energy-Aware Cross-Layer MAC Protocol for Wireless Sensor Networks

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Publication info: International Journal of Distributed Sensor Networks : 536794 (12 .). Hindawi Publishing Corporation. (2015)

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A Full-Duplex Directional MAC Framework for Underwater Acoustic Sensor Networks

Author: Liu, Qipei 1 ; Qiao, Gang 1 ; Mazhar, Suleman 1 ; Liu, Songzuo 1 ; Lou, Yi 1 1 Nat. Key Lab. of Underwater Acoust. Technol., Harbin Eng. Univ., Harbin, Harbin Engineering University, National Key Laboratory of Underwater Acoustic Technology, Harbin, 150001, China liuqipei@hrbeu.edu.cn ; qiaogang@hrbeu.edu.cn ; suleman@hrbeu.edu.cn ; liusongzuo@hotmail.com ; louyi@hrbeu.edu.cn

Publication info: IEEE Sensors Journal 22.14: 14647-61. IEEE. (2022)

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Document 5 of 54

Providing balanced and enhanced transmission for WLANs with multi-beam access point

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Publication info: 2008 6th Annual Communication Networks and Services Research Conference (CNSR '08) : 242-8. IEEE. (2008)

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Characteristics evaluation of a MAC protocol using smart antennas for ad hoc networks

Author: Takata, M. 1 ; Nagashima, K.; Watanabe, T. 1 Grad. Sch. of Sci. & Technol., Shizuoka Univ., Hamamatsu, Shizuoka Univ., Graduate Sch. of Sci. & Technol., Hamamatsu, Japan

Publication info: Transactions of the Information Processing Society of Japan 46.10: 2513-22. Inf. Process. Soc. Japan. (Oct 2005)

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Co-design of efficient contention MAC with directional antennas in wireless sensor networks

Author: Dunlop, John 1 ; Cortes, Joan 1 1 Dept. of Electron. & Electr. Eng., Univ. of Strathclyde, Glasgow, Univ. of Strathclyde, Dept. of Electron. & Electr. Eng., Glasgow, UK j.dunlop@eee.strath.ac.uk ; jcortes@eee.strath.ac.uk

Publication info: 2008 International Wireless Communications and Mobile Computing Conference Conference : 383-8. IEEE. (2008)

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Enhancing the performance of medium access control for WLANs with multi-beam access point

Petitioner Samsung Ex-1004, 0132

Author: Jianfeng Wang 1 ; Yuguang Fang 1 ; Dapeng Wu 1 1 Dept. of Electr. & Comput. Eng., Florida Univ., Gainesville, FL, Florida Univ., Dept. of Electr. & Comput. Eng., Gainesville, FL, USA
Publication info: IEEE Transactions on Wireless Communications 6.2: 556-65. IEEE. (Feb 2007)
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Competent routing protocol in directional MAC for handling deafness in ad hoc networks

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Publication info: 2015 Fifth International Conference on Communication Systems and Network Technologies (CSNT).Proceedings : 148-52;488. IEEE Computer Society. (2015)
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Experimental evaluation of damage effect on dynamic characteristics of concrete encased composite column-beam connections

Author: Hüsem, Metin 1 ; Nasery, Mohammad Manzoor 1 ; Okur, Fatih Yesevi 1 ; Altunişik, Ahmet Can 1 1 Dept. of Civil Eng., Karadeniz Tech. Univ., Trabzon, Karadeniz Technical University, Department of Civil Engineering, Trabzon, 61080, Turkey mhusem@ktu.edu.tr ; mnasery@ktu.edu.tr ; yesevi@ktu.edu.tr ; ahmetcan@ktu.edu.tr
Publication info: Engineering Failure Analysis 91 : 129-50. Elsevier B.V. (Sep 2018)
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Resource Management in Future Millimeter Wave Small-Cell Networks: Joint PHY-MAC Layer Design

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Publication info: IEEE Access 7 : 76910-19. IEEE. (2019)
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On designing MAC protocols for wireless networks using directional antennas

Author: Choudhury, R. R. 1 ; Xue Yang 1 ; Ramanathan, R.; Vaidya, N. H. 1 Dept. of Comput. Sci., Illinois Univ. at Urbana-Champaign, Urbana, IL, Illinois Univ. at Urbana-Champaign, Dept. of Comput. Sci., Urbana, IL, USA
Publication info: IEEE Transactions on Mobile Computing 5.5: 477-91. IEEE. (May 2006)
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A directional MAC protocol with deafness avoidance in ad hoc networks

Author: Takata, M. 1 ; Bandai, M.; Watanabe, T. 1 Grad. Sch. of Sci. & Eng., Shizuoka Univ., Hamamatsu, Shizuoka Univ., Graduate Sch. of Sci. & Eng., Hamamatsu, Japan
Publication info: IEICE Transactions on Communications 90.4: 866-75. Inst. Electron. Inf. & Commun. Eng. (Apr 2007)
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Author: Torgerson, J. F. 1 1 Unisys Corp., Roseville, MN, Unisys Corp., Roseville, MN, USA
Publication info: Proceedings 14th Conference on Local Computer Networks (Cat. No.89CH2746-6) : 41-8;xii+456. IEEE Comput. Soc. Press. (1989)
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A potent approach for the development of FPGA based DAQ system for HEP experiments

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Publication info: Journal of Instrumentation 12.10: T10010 (23 .). IOP Publishing. (Oct 2017)
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On medium access control schemes for wireless networks in the millimeter-wave and Terahertz bands

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Publication info: Nano Communication Networks 19 : 67-80. Elsevier B.V. (Mar 2019)
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On the influence of the hidden and exposed terminal problems on asynchronous IEEE 802.15.5 networks

Author: Rodenas-Herraiz, David 1 ; Garcia-Sanchez, Felipe 2 ; Garcia-Sanchez, Antonio-Javier 2 ; Garcia-Haro, Joan 2 1 Comput. Lab., Univ. of Cambridge, Cambridge, University of Cambridge, Computer Laboratory, William Gates Building, 15 JJ Thompson Avenue, Cambridge, CB3 0FD, UK dr424@cam.ac.uk 2 Dept. of Inf. & Commun. Technol., Univ. Politec. de Cartagena (UPCT), Cartagena, Universidad Politecnica de Cartagena (UPCT), Department of Information and Communication Technologies, Campus Muralla del Mar, Cartagena, E-30202, Spain felipe.garcia@upct.es ; antoniojavier.garcia@upct.es ; joang.haro@upct.es
Publication info: Computer Standards & Interfaces 42 : 53-70. Elsevier B.V. (Nov 2015)
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Selection of Optimal Deployment and Routing Configurations in Underwater Acoustic Sensor Networks for Avoiding Energy Holes

Author: Bouabdallah, Fatma 1 1 Inf. Technol. Dept., King Abdulaziz Univ., Jeddah, King Abdulaziz University, Information Technology Department, P.O. Box 42808, Jeddah, 21551, Saudi Arabia fatma.bouabdallah@gmail.com
Publication info: Mobile Information Systems 2019 : 3597304 (13 .). Hindawi. (2019)
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A MPR optimization algorithm for FSO communication system with star topology

Author: Linlin Zhao 1 ; Xuefen Chi 1 ; Peng Li 2 ; Lin Guan 3 1 Dept. of Commun. Eng., Jilin Univ., Changchun, Jilin University, Department of Communication Engineering, Changchun, 130012, China chixf@jlu.edu.cn 2 Nanjing Univ. of Inf. Sci. & Technol., Nanjing, Nanjing University of Information Science & Technology, Nanjing, 210044, China 3 Dept. of Comput. Sci., Loughborough Univ., Loughborough, Loughborough University, Department of Computer Science, Loughborough, UK

Publication info: Optics Communications 356 : 147-54. Elsevier B.V. (Dec 1, 2015)

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An adaptive routing protocol in underwater sparse acoustic sensor networks

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Publication info: Ad Hoc Networks 34 : 121-43. Elsevier B.V. (Nov 2015)

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SSID Oracle Attack on Undisclosed Wi-Fi Preferred Network Lists

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Publication info: Wireless Communications and Mobile Computing 2018 : 5153265 (15 .). Hindawi. (2018)

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Millimeter Wave Communication: A Comprehensive Survey

Petitioner Samsung Ex-1004, 0136

Author: Xiong Wang 1 ; Linghe Kong 1 ; Fanxin Kong 2 ; Fudong Qiu 3 ; Mingyu Xia 4 ; Arnon, Shlomi 4 ; Guihai Chen 1 1 Dept. of Comput. Sci. & Eng., Shanghai Jiao Tong Univ., Shanghai, Shanghai Jiao Tong University, Department of Computer Science and Engineering, Shanghai, 200240, China wangxiong@sjtu.edu.cn ; linghe.kong@sjtu.edu.cn ; gchen@cs.sjtu.edu.cn 2 Dept. of Comput. & Inf. Sci., Univ. of Pennsylvania, Philadelphia, PA, University of Pennsylvania, Department of Computer and Information Science, Philadelphia, 19104, PA, USA fanxink@seas.upenn.edu 3 2012 Lab., Huawei, Shenzhen, Huawei, 2012 Lab., Shenzhen, 518129, China qiufudong@huawei.com 4 Dept. of Electr. & Comput. Eng., Ben-Gurion Univ. of the Negev, Beersheba, Ben-Gurion University of the Negev, Department of Electrical and Computer Engineering, Beersheba, 84105, Israel mingyu@bgu.ac.il ; shlomi@bgu.ac.il

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Designing heterogeneous sensor networks for estimating and predicting path travel time dynamics: an information-theoretic modeling approach

Author: Tao Xing 1 ; Xuesong Zhou 2 ; Taylor, Jeffrey 1 1 Dept. of Civil & Environ. Eng., Univ. of Utah, Salt Lake City, UT, University of Utah, Department of Civil and Environmental Engineering, Salt Lake City, 84112-0561, UT, USA tao.xing@utah.edu ; jeff.d.taylor@utah.edu 2 Sch. of Sustainable Eng. & the Built Environ., Arizona State Univ., Tempe, AZ, Arizona State University, School of Sustainable Engineering and the Built Environment, Tempe, 85287, AZ, USA xzhou74@asu.edu

Publication info: Transportation Research, Part B: Methodological 57 : 66-90. Elsevier Science Ltd. (Nov 2013)

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Sense-and-Predict: Harnessing Spatial Interference Correlation for Cognitive Radio Networks

Author: Seunghwan Kim 1 ; Han Cha 1 ; Jeemin Kim 2 ; Seung-Woo Ko 3 ; Seong-Lyun Kim 1 1 Sch. of Electr. & Electron. Eng., Yonsei Univ., Seoul, Yonsei University, School of Electrical and Electronic Engineering, Seoul, 03722, South Korea shkim@ramo.yonsei.ac.kr ; chan@ramo.yonsei.ac.kr ; slkim@yonsei.ac.kr 2 Access Eng. Team, SK Telecom, Seoul, SK Telecom, Access Engineering Team, Seoul, 04539, South Korea jimin0214@sk.com 3 Div. of Electron. & Electr. Inf. Eng., Korea Maritime & Ocean Univ., Busan, Korea Maritime and Ocean University, Division of Electronics and Electrical Information Engineering, Busan, 49112, South Korea swko@kmou.ac.kr

Publication info: IEEE Transactions on Wireless Communications 18.5: 2777-93. IEEE. (May 2019)

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Improving both energy and time efficiency of depth-based routing for underwater sensor networks

Author: Boyu Diao 1 ; Yongjun Xu 1 ; Zhulin An 1 ; Fei Wang 1 ; Chao Li 1 1 Inst. of Comput. Technol., Beijing, Institute of Computing Technology, Beijing, 100190, China diaoboyu2012@ict.ac.cn ; xyj@ict.ac.cn ; anzhulin@ict.ac.cn ; wangfei@ict.ac.cn ; lichao@ict.ac.cn

Publication info: International Journal of Distributed Sensor Networks : 781932 (9 .). Hindawi Publishing Corporation. (2015)

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Utilizing kinematics and selective sweeping in reinforcement learning-based routing algorithms for underwater networks

Author: Plate, R. 1 ; Wakayama, C. 1 1 Maritime Syst. Div., SPAWAR Syst. Center Pacific, San Diego, CA, SPAWAR Systems Center Pacific, Maritime Systems Division, Code 56490, San Diego, 92152-5001, CA, USA rplate@spawar.navy.mil ; wakayama@spawar.navy.mil

Publication info: Ad Hoc Networks 34 : 105-20. Elsevier B.V. (Nov 2015)

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Pre-scheduled handoff for service-aware and seamless internet access

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Publication info: Computer Networks 110 : 324-37. Elsevier B.V. (Dec 9, 2016)

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Databases: Inspec® (1898 - current)

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Energy Aware Optimal Resource Allocation in Backhaul Constraint Wireless Networks: A Two Base Stations Scenario

Petitioner Samsung Ex-1004, 0138

Author: Yuan Gao 1 ; Peng Xue 2 ; Yi Li 1 ; Hongyi Yu 3 ; Xianfeng Wang 3 ; Shihai Gao 3 1 State Key Lab. on Microwave & Digital Commun., Tsinghua Univ., Beijing, Tsinghua University, State Key Laboratory on Microwave and Digital Communications, Beijing, 100084, China yuangao08@mails.tsinghua.edu.cn ; lydiauestc@126.com 2 Naval Aeronaut. & Astronaut. Univ., Yantai, Naval Aeronautical and Astronautical University, Yantai, 264000, China xuep04@foxmail.com 3 Inf. Sci. & Technol. Inst., Zhengzhou, Information Science and Technology Institute, Zhengzhou, 450002, China maxyucn@sohu.com ; nuaa001@126.com ; 1105423080@qq.com

Publication info: International Journal of Distributed Sensor Networks : 472169 (9 .). Hindawi Publishing Corporation. (2015)

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Security of Visible Light Communication systems—A survey

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Publication info: Physical Communication 34 : 246-60. Elsevier B.V. (Jun 2019)

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An edge computing-enabled computation offloading method with privacy preservation for internet of connected vehicles

Author: Xiaolong Xu 1 ; Yuan Xue 1 ; Lianyong Qi 2 ; Yuan Yuan 3 ; Xuyun Zhang 4 ; Umer, Tariq 5 ; Shaohua Wan 6 1 Sch. of Comput. & Software, Nanjing Univ. of Inf. Sci. & Technol., Nanjing, Nanjing University of Information Science and Technology, School of Computer and Software, Nanjing, China njuxlxu@gmail.com ; xueyuannuist@gmail.com 2 Sch. of Inf. Sci. & Eng., Qufu Normal Univ., Qufu, Qufu Normal University, School of Information Science and Engineering, Qufu, China lianyongqi@gmail.com 3 Dept. of Comput. Sci. & Eng., Michigan State Univ., East Lansing, MI, Michigan State University, Department of Computer Science and Engineering, East Lansing, MI, USA yyuan@msu.edu 4 Dept. of Electr. & Comput. Eng., Univ. of Auckland, Auckland, University of Auckland, Department of Electrical and Computer Engineering, Auckland, New Zealand xuyun.zhang@auckland.ac.nz 5 Dept. of Comput. Sci., COMSATS Univ. Islamabad, Wah, COMSATS University Islamabad, Department of Computer Science, Wah Campus, Wah, Pakistan t.umer@ciitwah.edu.pk 6 Sch. of Inf. & Safety Eng., Zhongnan Univ. of Econ. & Law, Wuhan, Zhongnan University of Economics and Law, School of Information and Safety Engineering, Wuhan, China shaohua.wan@ieee.org

Publication info: Future Generation Computer Systems 96 : 89-100. Elsevier B.V. (Jul 2019)

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Energy efficiency and resource allocation of IEEE 802.15.6 IR-UWB WBANs: Current state-of-the-art and future directions

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Publication info: 2017 Information Theory and Applications Workshop (ITA) : 10 . IEEE. (2017)
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Interworking IEEE 802/FDDI LANs via the ISDN frame relay bearer service

Author: Marsden, P. 1 1 British Telecom Res. Lab., Ipswich, British Telecom Res. Lab., Ipswich, UK
Publication info: Proceedings of the IEEE 79.2: 223-9. (Feb 1991)
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A tutorial survey on vehicular communication state of the art, and future research directions

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Publication info: Vehicular Communications 18 : 28-66. Elsevier B.V. (Aug 2019)
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Antenna design for graph inference: striking a balance between quality and quantity

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Publication info: 2014 United States National Committee of URSI National Radio Science Meeting (USNC-URSI NRSM) : 1 .;100. IEEE. (2014)
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The deafness problems and solutions in wireless ad hoc networks using directional antennas

Author: Gossain, H. 1 ; Cordeiro, C.; Cavalcanti, D.; Agrawal, D. P. 1 Dept. of ECECS, Cincinnati Univ., Cincinnati, OH, Cincinnati Univ., Dept. of ECECS, Cincinnati, OH, USA
Publication info: IEEE Global Telecommunications Conference Workshops (IEEE Cat. No.04EX958) : 108-13;iii+554. IEEE. (2004)
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Implementation research of embedded transparent bridge in HFC

Author: Zhang Xiao-tong 1 ; Guo Tao-tao 1 ; Wang Qin 1 1 Inf. Eng. Sch., Sci. & Technol. Univ., Beijing, Inf. Eng. Sch., Sci. & Technol. Univ., Beijing, China
Publication info: Mini-Micro Systems 27.7: 1153-7. Mini-Micro Syst. (Jul 2006)
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Extending the maximal number of stations in the ATMR protocol

Author: Bach, C. 1 1 Univ. of Hagen, Hagen, Univ. of Hagen, Hagen, Germany
Publication info: Thirteenth Annual Conference on European Fibre Optic Communications and Networks. Proceedings : 78-82 vol.2;3 vol. (229+253+274). AKM Messen. (1995)
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Signal detection and achievable rates for multiple access optical wireless scattering communication

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Publication info: GLOBECOM 2017 - 2017 IEEE Global Communications Conference : 6 . IEEE. (2017)
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Design and Implementation of a Hybrid RF-VLC System with Bandwidth Aggregation

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Publication info: 2018 14th International Wireless Communications & Mobile Computing Conference (IWCMC) : 194-200. IEEE. (2018)
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OCC-ID: New Broadcasting Service-Based Cloud Model and Image Sensor Communications

Author: Le, Thithanhnhan 1 ; Nam-Tuan Le 1 ; Yeong Min Jang 1 1 Dept. of Electron. Eng., Kookmin Univ., Seoul, Kookmin University, Department of Electronics Engineering, 77Jeongneung-ro, Seongbuk-gu, Seoul, 02707, South Korea yjang@kookmin.ac.kr
Publication info: International Journal of Distributed Sensor Networks 2016 : 1763692 (10 .). Hindawi Publishing Corporation. (2016)
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Regional PC communication network for residential use supported by fiber-optic access systems

Author: Irie, K. 1 ; Ohta, N. 1 ; Morisaki, M. 1 ; Tsuji, H. 1 1 NTT Opt. Network Syst. Lab., NTT, Yokosuka, NTT, NTT Opt. Network Syst. Labs., Yokosuka, Japan
Publication info: Proceedings of the 2nd International Workshop on Community Networking Integrated Multimedia Services in the Home (Cat. No.TH8097) : 9-16;vii+311. IEEE. (1995)

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Databases: Inspec® (1898 - current)

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Integrated FSO/PON for broadband access networks: a comprehensive protocol stack design and analysis

Author: Mai, Vuong V. 1 ; Pham, Anh T. 1 1 Comput. Commun. Lab., Univ. of Aizu, Aizu-Wakamatsu, University of Aizu, Computer Communications Lab., Aizu-Wakamatsu, Japan d8161107@u-aizu.ac.jp ; pham@u-aizu.ac.jp

Publication info: 2015 IEEE Global Communications Conference (GLOBECOM). Proceedings : 7 .;617. IEEE. (2015)

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Databases: Inspec® (1898 - current)

Document 43 of 54

Group communication security on regional PC communication network

Author: Nishio, G. 1 ; Irie, K. 1 ; Morisaki, M. 1 1 Multimedia Network Lab., NTT, Yokosuka, NTT, Multimedia Network Lab., Yokosuka, Japan

Publication info: Transactions of the Institute of Electronics, Information and Communication Engineers B-I 80-.6: 366-74. Inst. Electron. Inf. & Commun. Eng. (Jun 1997)

ProQuest document link

Databases: Inspec® (1898 - current)

Document 44 of 54

A cross layer fair resource allocation scheme For an OV-CDMA based optical network

Author: Inaty, Elie 1 ; Raad, Robert 1 ; Fortier, Paul 2 ; Maier, Martin 1 Fac. of Eng., Univ. of Balamand, Balamand, University of Balamand, Faculty of Eng., Balamand, Lebanon elie.inaty@balamand.edu.lb ; robert.j.raad@balamand.edu.lb 2 Fac. of Sc. & Eng., Laval Univ., Quebec City, QC, Laval University, Faculty of Sc. and Eng., Quebec City, QC, Canada fortier@gel.ulaval.ca

Publication info: MELECON 2010 - 2010 15th IEEE Mediterranean Electrotechnical Conference : 1575-80. IEEE. (2010)

ProQuest document link

Databases: Inspec® (1898 - current)

Document 45 of 54

Petitioner Samsung Ex-1004, 0143

Large capacity multiplex-port brouter for regional PC communication network system

Author: Irie, K. 1 ; Ohta, N. 1 ; Suto, K. 1 ; Morisaki, M. 1 ; Tsuji, H. 1 1 Multimedia Network Lab., NTT, Yokosuka, NTT, Multimedia Network Lab., Yokosuka, Japan
Publication info: 1998 International Zurich Seminar on Broadband Communications. Accessing, Transmission, Networking. Proceedings (Cat. No.98TH8277) : 273-8;ix+307. IEEE. (1998)
ProQuest document link

Databases: Inspec® (1898 - current)

Document 46 of 54

FDDI advanced concentrator architecture considerations

Author: Vogt, J. 1 1 SynOpt. Commun. Inc., Santa Clara, CA, Synoptics Commun. Inc., Santa Clara, CA, USA
Publication info: Proceedings. 16th Conference on Local Computer Networks (Cat. No.91TH0397-0) : 356-61;xiii+639. IEEE Comput. Soc. Press. (1991)
ProQuest document link

Databases: Inspec® (1898 - current)

Document 47 of 54

Low-end card for regional PC communication network

Author: Irie, K. 1 ; Ohta, N. 1 ; Morisaki, M. 1 ; Tsuji, H. 1 1 NTT Opt. Network Syst. Lab., NTT, Yokosuka, NTT, NTT Opt. Network Syst. Labs., Yokosuka, Japan
Publication info: Transactions of the Institute of Electronics, Information and Communication Engineers B-I 80-.3: 121-9. Inst. Electron. Inf. & Commun. Eng. (Mar 1997)
ProQuest document link

Databases: Inspec® (1898 - current)

Document 48 of 54

Personal communications services over HFC CATV networks

Author: Elfeitori, A. A. 1 ; Leung, V. C. M. 1 1 Dept. of Electr. Eng., British Columbia Univ., Vancouver, BC, British Columbia Univ., Dept. of Electr. Eng., Vancouver, BC, Canada
Publication info: CCECE '97. Canadian Conference on Electrical and Computer Engineering. Engineering Innovation: Voyage of Discovery. Conference Proceedings (Cat. No.97TTH8244) : 462-5 vol.2;2 vol. (xxxi+895). IEEE. (1997)
ProQuest document link

Databases: Inspec® (1898 - current)

Petitioner Samsung Ex-1004, 0144

Document 49 of 54

2016 IEEE Global Electromagnetic Compatibility Conference (GEMCCON)

Publication info: 2016 IEEE Global Electromagnetic Compatibility Conference (GEMCCON) : 72. IEEE. (2016)
ProQuest document link

Databases: Inspec® (1898 - current)

Document 50 of 54

2015 IEEE 14th Canadian Workshop on Information Theory (CWIT)

Publication info: 2015 IEEE 14th Canadian Workshop on Information Theory (CWIT) : 220. IEEE. (2015)
ProQuest document link

Databases: Inspec® (1898 - current)

Document 51 of 54

Large capacity multiplex-port brouter with SDH interface for regional PC communication network system

Author: Irie, K. 1 ; Ohta, N. 1 ; Suto, K. 1 ; Morisaki, M. 1 ; Tsuji, H. 1 1 Multimedia Network Lab., NTT, Yokosuka, NTT, Multimedia Network Lab., Yokosuka, Japan
Publication info: 1997 IEEE International Conference on Communications. Towards the Knowledge Millennium. ICC '97. Conference Record (Cat. No.97CH36067) : 1602-6 vol.3;3 vol. xxviii+1743. IEEE. (1997)
ProQuest document link

Databases: Inspec® (1898 - current)

Document 52 of 54

Low-end card for regional PC communication network

Author: Irie, K. 1 ; Ohta, N. 1 ; Morisaki, M. 1 ; Tsuji, H. 1 1 NTT Opt. Network Syst. Lab., NTT, Yokosuka, NTT, NTT Opt. Network Syst. Labs., Yokosuka, Japan
Publication info: Electronics and Communications in Japan, Part 1 (Communications) 80.10: 20-8. Scripta Technica. (Oct 1997)
ProQuest document link

Databases: Inspec® (1898 - current)

Document 53 of 54

Regional community network system

Petitioner Samsung Ex-1004, 0145

Author: Ohta, N. 1 ; Morisaki, M. 1 ; Tsuji, H. 1 1 NTT Optical Network Sys. Labs., Yokosuka, NTT Optical Network Sys. Labs., Yokosuka, Japan

Publication info: IEICE Transactions on Communications 79-.7: 890-8. Inst. Electron. Inf. & Commun. Eng. (Jul 1996)

ProQuest document link

Databases: Inspec® (1898 - current)

Document 54 of 54

Large capacity multiplex-port brouter with SDH interface for regional PC communication network system

Author: Irie, K. 1 ; Ohta, N. 1 ; Suto, K.-I. 1 ; Morisaki, M. 1 ; Tsuji, H. 1 1 Multimedia Network Lab., NTT, Yokosuka, NTT, Multimedia Network Lab., Yokosuka, Japan

Publication info: IEICE Transactions on Communications 80-.7: 1008-15. Inst. Electron. Inf. & Commun. Eng. (Jul 1997)

ProQuest document link

Databases: Inspec® (1898 - current)

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Petitioner Samsung Ex-1004, 0146

Bibliographic Data

Application No: 17/942,197

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /JASON A HARLEY/ Examiner's Signature | Initials

Title: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/12/2022	370	2468	111054-0001U8
RULE			

APPLICANTS

Proxicom Wireless LLC, Indialantic, FL, UNITED STATES

INVENTORS

James A. Proctor JR., Indialantic, FL, UNITED STATES

James Arthur Proctor III, Indialantic, FL, UNITED STATES

CONTINUING DATA

This application is a CON of 17366826 07/02/2021 PAT 11443344

17366826 is a CON of 16817896 03/13/2020 PAT 11074615

16817896 is a CON of 15271410 09/21/2016 PAT 11334918

15271410 is a CON of 14861563 09/22/2015ABN

14861563 is a CON of 14472477 08/29/2014 PAT 9161164

14472477 is a CON of 13775435 02/25/2013 PAT 8849698

13775435 is a CON of 13212723 08/18/2011 PAT 8385896

13212723 is a CON of 12364828 02/03/2009 PAT 8090359

12364828 has PRO of 61095359 09/09/2008

12364828 has PRO of 61095001 09/08/2008

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

09/27/2022

** SMALL ENTITY **

STATE OR COUNTRY

UNITED STATES

ADDRESS

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301
UNITED STATES

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$1,410

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United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/942,197	09/12/2022	James A. Proctor JR.	111054-0001U8	2459

86012 7590 12/21/2022

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

EXAMINER	
HARLEY, JASON A	

ART UNIT	PAPER NUMBER
2468	

NOTIFICATION DATE	DELIVERY MODE
12/21/2022	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):

patents@vlplawgroup.com

Office Action Summary	Application No. 17/942,197	Applicant(s) Proctor et al.	
	Examiner JASON A HARLEY	Art Unit 2468	AIA (FITF) Status No

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 11/18/22.

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

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

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

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

Disposition of Claims*

5) ☑ Claim(s) 31-113 is/are pending in the application.

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

6) ☐ Claim(s) _____ is/are allowed.

7) ☐ Claim(s) 31-36 and 59-60 is/are rejected.

8) ☑ Claim(s) 37-58 and 61-113 is/are objected to.

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

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

Application Papers

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

11)☑ The drawing(s) filed on 9/12/22 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Double Patenting

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

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a

result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

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

Instant Application	Patent No. 11,443,344
31. (New) A method comprising: receiving, at a wireless device, via a short range wireless protocol, a first plurality of beacon transmissions, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not	1. A method comprising: receiving, at a wireless device, via a short range wireless protocol, a first plurality of beacon transmissions, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not

directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the short range wireless protocol; receiving, at the wireless device via a second wireless protocol, the stored information from one or more servers, the stored information relating to a particular entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the short range wireless protocol; causing selection of one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a	directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies a wireless beacon service as opposed to identifying a communication network or a device accessible using the short range wireless protocol; receiving, at the wireless device via a second wireless protocol, stored information from one or more servers, the stored information relating to a particular entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the short range wireless protocol; causing selection of one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with a particular wireless

particular received beacon transmission 1s associated with a particular wireless beacon service; and taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.	beacon service; and taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.
59. (New) A mobile wireless device comprising: one or more radios for providing reception and transmission for each of a Bluetooth wireless protocol and a second wireless protocol; one or more processors; and one or more memory devices coupled to the one or more processors, the one or more memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including: receiving from a beacon transmitter, using the Bluetooth wireless protocol, a first plurality of beacon transmissions during a first time period,	29. A mobile wireless device comprising: one or more radios for providing reception and transmission for each of a Bluetooth wireless protocol and a second wireless protocol; one or more processors; and one or more memory devices coupled to the one or more processors, the one or more non-transitory memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including: receiving from a beacon transmitter, using the Bluetooth wireless protocol, a first plurality of beacon transmissions during a first time period, each of the beacon

each of the beacon transmissions including (a) a MAC address, (b) a unique identifier, the unique identifier does not directly identify a location of the beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol; receiving from one or more servers, using the second wireless protocol, stored information related to a entity or object associated with a first unique identifier; selecting one or more unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received	transmissions including (a) a MAC address, (b) a unique identifier, wherein the first unique identifier does not directly identify a location of the beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies a wireless beacon service as opposed to identifying a communication network or a device accessible using the Bluetooth wireless protocol; receiving from one or more servers, using the second wireless protocol, stored information related to a entity or object associated with a first unique identifier; selecting one or more unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with the particular wireless beacon service;

beacon transmission is associated with the particular wireless beacon service; taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers; receiving, by the wireless device, using the Bluetooth wireless protocol, during a second time period, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) the beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not accessible to	taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers; receiving, by the wireless device, using the Bluetooth wireless protocol, during a second time period, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) the beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies a wireless beacon service as opposed to identifying a communication network or a device accessible using the Bluetooth wireless protocol; selecting one or more of the unique identifiers from the second plurality of beacon transmissions,

the wireless device utilizing the Bluetooth wireless protocol; selecting one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same particular beacon service identifier indicating that a particular received beacon transmission is associated with the same particular wireless beacon service; taking second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the second unique identifier is associated with the same entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device; and	by filtering the beacon transmissions which include the same particular beacon service identifier indicating that a particular received beacon transmission is associated with the same particular wireless beacon service; taking second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the second unique identifier is associated with the same entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device; and wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon

wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier.	transmission including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier.
60. (New) A computer program product for installation in a memory in a wireless device, the computer program product comprising computer program instructions that, when executed by one or more processors in the wireless device, cause the wireless device to: process a first plurality of beacon transmissions, received at the wireless device via a Bluetooth protocol, each beacon transmission comprising three fields (a) a MAC address, (b) a unique	30. A computer program product for installation in a non-transitory medium in a wireless device, the computer program product comprising computer program instructions that, when executed by one or more processors in the wireless device, cause the wireless device to: process a first plurality of beacon transmissions, received at the mobile wireless device via a Bluetooth protocol, each beacon transmission comprising three fields (a) a MAC address, (b) a

identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol; process stored information transferred from one or more servers to the wireless device via a second wireless protocol, wherein the stored information relates to an entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the Bluetooth wireless protocol; select one or more of the unique identifiers from the first plurality of beacon transmissions, by	unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies a wireless beacon service as opposed to identifying a communication network or a device accessible using the Bluetooth wireless protocol; process stored information transferred from one or more servers to the mobile wireless device via a second wireless protocol, wherein the stored information relates to an entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the Bluetooth wireless protocol; select one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service

filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with a particular wireless beacon service; and perform a first further action, the first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.	identifier indicating that a particular received beacon transmission is associated with the a particular wireless beacon service; and perform a further action, the further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.

3. Claims 31-36, 59, 60 rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-6, 29, 30 of U.S. Patent No. 11,443,344 in view of the claims are not identical but are not patentably distinct from each other each features beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier and filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with a particular wireless beacon service.

Claim Objections

2. Claims 37-58, 61-113 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 60 is rejected under 35 U.S.C. 101 because the claim is directed toward a computer program, according to the applicant's specification paragraphs 0039, 0176 the program is software arranged to operate at the application layer on a mobile device stored on a computer readable medium.

To possibly overcome the rejection, it's recommend that applicant's amend the claim to include **non-transitory** computer-readable medium.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON A HARLEY whose telephone number is (571)270-5435. The examiner can normally be reached 7:30-300 6:30-8:30.

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, Asad M Nawaz can be reached on (571) 272-3988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON A HARLEY/
Examiner, Art Unit 2468

/KHALED M KASSIM/
Primary Examiner, Art Unit 2468

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	Art Unit
	JASON A HARLEY	2468

✓	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	12/09/2022								
	1	-								
	2	-								
	3	-								
	4	-								
	5	-								
	6	-								
	7	-								
	8	-								
	9	-								
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	35	✓								
	36	✓								
	37	O								
	38	O								
	39	O								
	40	O								
	41	O								
	42	O								

Petitioner Samsung Ex-1004, 0163

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	**Art Unit**
	JASON A HARLEY	2468

CLAIM		DATE								
Final	Original	12/09/2022								
	43	O								
	44	O								
	45	O								
	46	O								
	47	O								
	48	O								
	49	O								
	50	O								
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	75	O								
	76	O								
	77	O								
	78	O								
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	81	O								
	82	O								
	83	O								
	84	O								
	85	O								
	86	O								
	87	O								
	88	O								
	89	O								
	90	O								
	91	O								
	92	O								
	93	O								
	94	O								

Petitioner Samsung Ex-1004, 0164

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	**Art Unit**
	JASON A HARLEY	2468

CLAIM		DATE								
Final	Original	12/09/2022								
	95	O								
	96	O								
	97	O								
	98	O								
	99	O								
	100	O								
	101	O								
	102	O								
	103	O								
	104	O								
	105	O								
	106	O								
	107	O								
	108	O								
	109	O								
	110	O								
	111	O								
	112	O								
	113	O								

Petitioner Samsung Ex-1004, 0165

Notice of References Cited	Application/Control No. 17/942,197	Applicant(s)/Patent Under Reexamination Proctor et al.	
	Examiner JASON A HARLEY	Art Unit 2468	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-20150200811-A1	07-2015	KASSLIN; Mika	H04W8/186	370/254
*	B	US-20030224787-A1	12-2003	Gandolfo, Pierre T.	H04W8/08	455/435.2
*	C	US-20080205340-A1	08-2008	Meylan; Arnaud	H04W48/18	370/331
	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.

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	154	(US-17366826-$ | US-20060114104-$ | US-20060116160-$ | US-20060125631-$ | US-20060141932-$ | US-20060153085-$ | US-20060171341-$ | US-20060193258-$ | US-20060200843-$ | US-20060217131-$ | US-20060229058-$ | US-20060234631-$ | US-20060240840-$ | US-20060245373-$ | US-20060245393-$ | US-20060245404-$ | US-20060264212-$ | US-20060268765-$ | US-20060268834-$ | US-20060270412-$ | US-20060282738-$ | US-20060287813-$ | US-20070001904-$ | US-20070002833-$ | US-20070004427-$ | US-20070004428-$ | US-20070010278-$ | US-20070015549-$ | US-20070025287-$ | US-20070026818-$ | US-20070030824-$ | US-20070032225-$ | US-20070043828-$ | US-20070049297-$ | US-20070060105-$ | US-20070060117-$ | US-20070060130-$ | US-20070061487-$ | US-20070078851-$ | US-20070081503-$ | US-20070091859-$ | US-20070094084-$ | US-20070096909-$ | US-20070100651-$ | US-20070106612-$ | US-20070117576-$ | US-20070118748-$ | US-20070121534-$ | US-20070121550-$ | US-20070133453-$ | US-20070143348-$ | US-20070161382-$ | US-20070173248-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 11:35 AM

Petitioner Samsung Ex-1004, 0167

		20070178886-$ | US- 20070178907-$ | US- 20070179792-$ | US- 20070187491-$ | US- 20070190494-$ | US- 20070201417-$ | US- 20070204158-$ | US- 20070211727-$ | US- 20070230441-$ | US- 20070233367-$ | US- 20070237321-$ | US- 20070242643-$ | US- 20070242765-$ | US- 20070244633-$ | US- 20070244811-$ | US- 20070255653-$ | US- 20070264968-$ | US- 20070264991-$ | US- 20070270099-$ | US- 20070280269-$ | US- 20070281634-$ | US- 20070286111-$ | US- 20080002641-$ | US- 20080008117-$ | US- 20080008118-$ | US- 20080008119-$ | US- 20080008120-$ | US- 20080008121-$ | US- 20080009307-$ | US- 20080010190-$ | US- 20080025282-$ | US- 20080036653-$ | US- 20080037487-$ | US- 20080039020-$ | US- 20080045236-$ | US- 20080051033-$ | US- 20080051059-$ | US- 20080052109-$ | US- 20080056215-$ | US- 20080070593-$ | US- 20080071874-$ | US- 20080080397-$ | US- 20080089519-$ | US- 20080097851-$ | US- 20080097879-$ | US- 20080099552-$ | US- 20080102856-$ | US- 20080104227-$ | US- 20080108308-$ | US- 20080109741-$ | US- 20080109843-$ | US- 20080114647-$ | US- 20080114699-$ | US- 20080114834-$ | US- 20080119136-$ | US- 20080132170-$ | US- 20080132223-$ | US- 20080132252-$ | US-					

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L3	79	(US-7492254-$ | US- 7502933-$ | US- 7509131-$ | US- 7515914-$ | US- 7522058-$ | US- 7545784-$ | US- 7546141-$ | US- 7580699-$ | US- 7590246-$ | US- 7620026-$ | US- 7630986-$ | US- 7647024-$ | US- 7647055-$ | US- 7661132-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 11:44 AM

Petitioner Samsung Ex-1004, 0169

		7702108-$ | US- 7711100-$ | US- 7711620-$ | US- 7714712-$ | US- 7716484-$ | US- 7729326-$ | US- 7756467-$ | US- 7773995-$ | US- 7774231-$ | US- 7775430-$ | US- 7822000-$ | US- 7826425-$ | US- 7836512-$ | US- 7848765-$ | US- 7876701-$ | US- 7877082-$ | US- 7886962-$ | US- 7904952-$ | US- 7936736-$ | US- 7942337-$ | US- 7952481-$ | US- 7962369-$ | US- 7963441-$ | US- 7965983-$ | US- 7991644-$ | US- 7991664-$ | US- 8014755-$ | US- 8024272-$ | US- 8073795-$ | US- 8089405-$ | US- 8090359-$ | US- 8112794-$ | US- 8116749-$ | US- 8121917-$ | US- 8160495-$ | US- 8185133-$ | US- 8204039-$ | US- 8205240-$ | US- 8229458-$ | US- 8233841-$ | US- 8254338-$ | US- 8275359-$ | US- 8295819-$ | US- 8321913-$ | US- 8332521-$ | US- 8364171-$ | US- 8369842-$ | US- 8374592-$ | US- 8385896-$ | US- 8385913-$ | US- 8478300-$ | US- 8543500-$ | US- 8559968-$ | US- 8576846-$ | US- 8688570-$ | US- 8787575-$ | US- 8825538-$ | US- 9038129-$ | US-					

Petitioner Samsung Ex-1004, 0170

		9137012-$ | US- 9161164-$ | US- 9373091-$ | US- 9646319-$ | US- 9659285-$ | US- 9734198-$ | US- 9805347-$).DID.					
L4	180	(US-10133527-$ | US- 10140072-$ | US- 10387087-$ | US- 10489096-$ | US- 10642576-$ | US- 17366826-$ | US- 20010003191-$ | US- 20010036200-$ | US- 20020032746-$ | US- 20020061009-$ | US- 20020065720-$ | US- 20020073027-$ | US- 20020077083-$ | US- 20020077118-$ | US- 20020101993-$ | US- 20020123965-$ | US- 20020128932-$ | US- 20020131445-$ | US- 20020161666-$ | US- 20020188565-$ | US- 20020188656-$ | US- 20030021250-$ | US- 20030028481-$ | US- 20030045272-$ | US- 20030053484-$ | US- 20030074259-$ | US- 20030100328-$ | US- 20030134650-$ | US- 20030149874-$ | US- 20030158959-$ | US- 20030195808-$ | US- 20030200140-$ | US- 20030200489-$ | US- 20030220835-$ | US- 20040019564-$ | US- 20040030601-$ | US- 20040076136-$ | US- 20040093268-$ | US- 20040097243-$ | US- 20040137886-$ | US- 20040167837-$ | US- 20040186768-$ | US- 20040190468-$ | US- 20040203895-$ | US- 20040205198-$ | US- 20040208151-$ | US- 20040243519-$ | US- 20040245332-$ | US- 20040260608-$ | US- 20040264404-$ | US- 20040264466-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 11:44 AM

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		20050038876-$ | US- 20050047385-$ | US- 20050054350-$ | US- 20050068928-$ | US- 20050086211-$ | US- 20050099291-$ | US- 20050113090-$ | US- 5804803-$ | US- 5815811-$ | US- 5987011-$ | US- 6002918-$ | US- 6049711-$ | US- 6067297-$ | US- 6081629-$ | US- 6163771-$ | US- 6188681-$ | US- 6199048-$ | US- 6233565-$ | US- 6236674-$ | US- 6259898-$ | US- 6422462-$ | US- 6439345-$ | US- 6446208-$ | US- 6487540-$ | US- 6487601-$ | US- 6493550-$ | US- 6553006-$ | US- 6580700-$ | US- 6587034-$ | US- 6601040-$ | US- 6615804-$ | US- 6616049-$ | US- 6629149-$ | US- 6675017-$ | US- 6675153-$ | US- 6700535-$ | US- 6712274-$ | US- 6715681-$ | US- 6716101-$ | US- 6738808-$ | US- 6788702-$ | US- 6791997-$ | US- 6799049-$ | US- 6837436-$ | US- 6845338-$ | US- 6857021-$ | US- 6868079-$ | US- 6901270-$ | US- 6909399-$ | US- 6909721-$ | US- 6929149-$ | US- 6934535-$ | US- 6965914-$ | US- 6970850-$ | US- 6978165-$ | US- 6990587-$ | US- 6993049-$ | US- 7003283-$ | US-					

Petitioner Samsung Ex-1004, 0172

		7005968-$ | US- 7010267-$ | US- 7016336-$ | US- 7020106-$ | US- 7030761-$ | US- 7030812-$ | US- 7039027-$ | US- 7039358-$ | US- 7065559-$ | US- 7126926-$ | US- 7127236-$ | US- 7142120-$ | US- 7142527-$ | US- 7151764-$ | US- 7156311-$ | US- 7158756-$ | US- 7167487-$ | US- 7173922-$ | US- 7173923-$ | US- 7174031-$ | US- 7177594-$ | US- 7181521-$ | US- 7185204-$ | US- 7194438-$ | US- 7197326-$ | US- 7200132-$ | US- 7206820-$ | US- 7207480-$ | US- 7209468-$ | US- 7213742-$ | US- 7213743-$ | US- 7221668-$ | US- 7233801-$ | US- 7233960-$ | US- 7245602-$ | US- 7246149-$ | US- 7249182-$ | US- 7254406-$ | US- 7280836-$ | US- 7280847-$ | US- 7289810-$ | US- 7302256-$ | US- 7305245-$ | US- 7313120-$ | US- 7315944-$ | US- 7322043-$ | US- 7324824-$ | US- 7324957-$ | US- 7327701-$ | US- 7330112-$ | US- 7339909-$ | US- 7340438-$ | US- 7340439-$ | US- 7342876-$ | US- 7343564-$ | US- 7346341-$ | US- 7349871-$ | US- 7359674-$ | US-					

Petitioner Samsung Ex-1004, 0173

		7363494-$ | US- 7376433-$ | US- 7379920-$ | US- 7386878-$ | US- 7403120-$ | US- 7403762-$ | US- 7412246-$ | US- 7414988-$ | US- 7433649-$ | US- 7433694-$ | US- 7434723-$ | US- 7436831-$ | US- 7440781-$ | US- 7471954-$).DID.					
L5	65	(US-0156856-$ | US- 0702686-$ | US- 1098477-$ | US- 1207654-$ | US- 1296155-$ | US- 17366826-$ | US- 1759620-$ | US- 1908235-$ | US- 20050114654-$ | US- 20050124359-$ | US- 20050131837-$ | US- 20050136845-$ | US- 20050136891-$ | US- 20050156026-$ | US- 20050165667-$ | US- 20050174975-$ | US- 20050180367-$ | US- 20050185615-$ | US- 20050187873-$ | US- 20050187959-$ | US- 20050188062-$ | US- 20050213553-$ | US- 20050243737-$ | US- 20050243781-$ | US- 20050250552-$ | US- 20050266868-$ | US- 20050273440-$ | US- 20060003785-$ | US- 20060022038-$ | US- 20060029024-$ | US- 20060030335-$ | US- 20060032901-$ | US- 20060045042-$ | US- 20060046709-$ | US- 20060047835-$ | US- 20060050728-$ | US- 20060069922-$ | US- 20060079284-$ | US- 20060085419-$ | US- 20060089134-$ | US- 20060089876-$ | US- 20060094447-$ | US- 20060095348-$ | US- 20060095349-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 11:45 AM

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		20060099966-$ | US-20060104200-$ | US-20060104243-$ | US-20060106850-$ | US-20060111045-$ | US-2218268-$ | US-2235002-$ | US-2506121-$ | US-2564287-$ | US-2688189-$ | US-2752347-$ | US-2766024-$ | US-2766184-$ | US-2798749-$ | US-7936736-$ | US-8090359-$ | US-8116749-$ | US-8369842-$ | US-8385896-$ | US-8385913-$ | US-9038129-$ | US-9161164-$).DID.					
L6	2	("20200304978").PN.	(US-PGPUB; USPAT; USOCR; DERWENT)	OR	OFF	OFF	2021/08/06 11:55 AM
L7	9	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2021/08/06 11:55 AM
L8	579	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2021/08/06 11:56 AM
L9	1982	(beacon near3(transmission or transfer$4 or transmit$5)) same(mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:13 PM
L10	254	(beacon near3(transmission or transfer$4 or transmit$5)) same(picture or photo or jpeg)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:14 PM
L11	6564	(beacon near3(transmission or transfer$4 or transmit$5)) same(service)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:14 PM
L12	9	L9 and L10 and L11	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:15 PM
L13	2687	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:18 PM
L14	488	(beacon near3(transmission or	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:18 PM

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		transfer$4 or transmit$5 or signal$2)) same(picture or photo or jpeg)					
L15	8928	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(service)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:18 PM
L16	14	L13 and L14 and L15	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:19 PM
L17	3513	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(picture or photo or jpeg or content or (fingerprint$2))	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:25 PM
L18	130	L13 and L17 and L15	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:26 PM
L19	2	"20050136845"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:39 PM
L20	1	"20060050728"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 12:39 PM
L21	18908	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(service or number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 01:32 PM
L22	2687	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 01:34 PM
L23	8928	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(service)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 01:34 PM
L24	947	L22 and L21 and L23	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 01:34 PM
L25	600	(bluetooth or (wifi)) and L24	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 01:36 PM
L26	29410	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(interval$2 or period or time)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 01:51 PM
L27	436	L26 and L25	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 01:52 PM
L28	57	(US-17366826-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06

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L29	488	(beacon	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06

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		near3(transmission or transfer$4 or transmit$5 or signal$2)) same(picture or photo or jpeg)					02:22 PM
L30	49	L29 and L21 and L22	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 02:22 PM
L31	45	(bluetooth or (wifi)) and L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 02:23 PM
L32	2	"20050136845"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/08 12:49 PM
L33	1	"2006005028"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:42 AM
L34	1	"20060050728"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:42 AM
L35	4841	(advertis$4) same(presentation or display) same(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:45 AM
L36	43189	(beacon near3(transmission or transfer$4 or transmit$5))	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:46 AM
L37	202	L35 and L36	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:46 AM
L38	1414	(advertis$4) same(presentation or display) same(identifier$2) same(ue or terminal or wtru or phone or computer)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:49 AM
L39	30	L38 and L36	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:49 AM
L40	700	email and L38	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:10 AM
L41	8	L40 and L36	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:10 AM
L42	70185	beacon same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:22 AM
L43	25	L40 and L42	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:22 AM
L44	94136	(account or profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:24 AM
L45	240	L40 and L44	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:24 AM
L46	2	"20080195621"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 11:34 AM
L47	58023	(advertis$4) same(location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 08:03 PM

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L48	13391	(mu or ue or terminal or wtru or phone or apparatus) near7(indoor)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 08:13 PM
L49	58065	(advertis$4) same(location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:01 AM
L50	13399	(mu or ue or terminal or wtru or phone or apparatus) near7(indoor)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:01 AM
L51	326	L49 and L50	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:01 AM
L52	70245	beacon same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:03 AM
L53	89	L51 and L52	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:03 AM
L54	351	(time or timing) near7(notification) same (beacon) same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 10:26 AM
L55	97	(timing) near7(notification) same (beacon) same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 10:43 AM
L56	2	"20070201417"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 11:57 AM
L57	1	"20070043828"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 11:57 AM
L58	284	((("Proctor") near3 ("James") near3 ("A"))).INV.	(USPAT)	OR	OFF	OFF	2021/08/10 12:02 PM
L59	34	L58 and beacon	(USPAT)	OR	OFF	OFF	2021/08/10 12:03 PM
L60	1	"16/817896"	(USPAT)	OR	OFF	OFF	2021/08/10 12:06 PM
L61	1	"15271410"	(USPAT)	OR	OFF	OFF	2021/08/10 12:10 PM
L62	0	"15/271410"	(USPAT)	OR	OFF	OFF	2021/08/10 12:10 PM
L63	319526	h04l 67/306	(USPAT)	OR	OFF	OFF	2021/08/10 07:07 PM
L64	177597	h04w 4/80	(USPAT)	OR	OFF	OFF	2021/08/10 07:07 PM
L65	319522	h04l 61/6022	(USPAT)	OR	OFF	OFF	2021/08/10 07:07 PM
L66	177387	h04w 4/029	(USPAT)	OR	OFF	OFF	2021/08/10

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							07:08 PM
L67	3	"16/247626"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:59 PM
L68	3160	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:48 PM
L69	829	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:49 PM
L70	343	L69 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:50 PM
L71	0	(service adj idenifier) and L70	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:52 PM
L73	2	"20040023640"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 10:32 AM
L74	829	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:45 PM
L75	343	L74 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:45 PM
L76	4	(service adj identifier) and L75	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:45 PM
L77	9	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2021/12/03 01:53 PM
L78	582	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2021/12/03 01:53 PM
L79	65	(US-0156856-$ | US-0702686-$ | US-1098477-$ | US-1207654-$ | US-1296155-$ | US-17366826-$ | US-1759620-$ | US-1908235-$ | US-20050114654-$ | US-20050124359-$ | US-20050131837-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:54 PM

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		20050136845-$ | US- 20050136891-$ | US- 20050156026-$ | US- 20050165667-$ | US- 20050174975-$ | US- 20050180367-$ | US- 20050185615-$ | US- 20050187873-$ | US- 20050187959-$ | US- 20050188062-$ | US- 20050213553-$ | US- 20050243737-$ | US- 20050243781-$ | US- 20050250552-$ | US- 20050266868-$ | US- 20050273440-$ | US- 20060003785-$ | US- 20060022038-$ | US- 20060029024-$ | US- 20060030335-$ | US- 20060032901-$ | US- 20060045042-$ | US- 20060046709-$ | US- 20060047835-$ | US- 20060050728-$ | US- 20060069922-$ | US- 20060079284-$ | US- 20060085419-$ | US- 20060089134-$ | US- 20060089876-$ | US- 20060094447-$ | US- 20060095348-$ | US- 20060095349-$ | US- 20060099966-$ | US- 20060104200-$ | US- 20060104243-$ | US- 20060106850-$ | US- 20060111045-$ | US- 2218268-$ | US- 2235002-$ | US- 2506121-$ | US- 2564287-$ | US- 2688189-$ | US- 2752347-$ | US- 2766024-$ | US- 2766184-$ | US- 2798749-$ | US- 7936736-$ | US- 8090359-$ | US- 8116749-$ | US- 8369842-$ | US- 8385896-$ | US- 8385913-$ | US- 9038129-$ | US- 9161164-$).DID.				
L80	79	(US-7492254-$ | US- 7502933-$ | US- 7509131-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:54 PM

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		7515914-$ | US- 7522058-$ | US- 7545784-$ | US- 7546141-$ | US- 7580699-$ | US- 7590246-$ | US- 7620026-$ | US- 7630986-$ | US- 7647024-$ | US- 7647055-$ | US- 7661132-$ | US- 7702108-$ | US- 7711100-$ | US- 7711620-$ | US- 7714712-$ | US- 7716484-$ | US- 7729326-$ | US- 7756467-$ | US- 7773995-$ | US- 7774231-$ | US- 7775430-$ | US- 7822000-$ | US- 7826425-$ | US- 7836512-$ | US- 7848765-$ | US- 7876701-$ | US- 7877082-$ | US- 7886962-$ | US- 7904952-$ | US- 7936736-$ | US- 7942337-$ | US- 7952481-$ | US- 7962369-$ | US- 7963441-$ | US- 7965983-$ | US- 7991644-$ | US- 7991664-$ | US- 8014755-$ | US- 8024272-$ | US- 8073795-$ | US- 8089405-$ | US- 8090359-$ | US- 8112794-$ | US- 8116749-$ | US- 8121917-$ | US- 8160495-$ | US- 8185133-$ | US- 8204039-$ | US- 8205240-$ | US- 8229458-$ | US- 8233841-$ | US- 8254338-$ | US- 8275359-$ | US- 8295819-$ | US- 8321913-$ | US- 8332521-$ | US- 8364171-$ | US- 8369842-$ | US-					

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		8374592-$ | US-8385896-$ | US-8385913-$ | US-8478300-$ | US-8543500-$ | US-8559968-$ | US-8576846-$ | US-8688570-$ | US-8787575-$ | US-8825538-$ | US-9038129-$ | US-9137012-$ | US-9161164-$ | US-9373091-$ | US-9646319-$ | US-9659285-$ | US-9734198-$ | US-9805347-$).DID.					
L81	399008	h04w 4/02	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L82	395522	h04w 8/26	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L83	651491	h04l 41/12	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L84	650389	h04l 67/18	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L85	829	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:03 PM
L86	343	L85 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:03 PM
L87	6	(service adj (identifier or id)) and L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:03 PM
L88	26	((service or beacon) adj (identifier or id)) and L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:10 PM
L89	1274	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2 or parameter$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:14 PM
L90	127	((service or beacon) adj (identifier or id)) and L89	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:15 PM
L91	538	L89 and (mac adj	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05

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		address)					01:18 PM
L92	37	((service or beacon) adj (identifier or id)) and L91	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:18 PM
L93	5104	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(field$2 or parameter$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:24 PM
L94	1800	L93 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:24 PM
L95	200	((service or beacon) adj (identifier or id)) and L94	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:25 PM
L96	962	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(mac adj address$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:27 PM
L97	2967	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(service)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:28 PM
L98	4384	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:28 PM
L99	98	L98 and L97 and L96	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:29 PM
L100	2	"20180234959"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/06 10:39 AM
L101	1	"20180167883"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/06 10:48 AM
L102	9	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2022/04/17 09:08 PM
L103	586	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/04/17 09:08 PM

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L104	598	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/12/09 10:08 AM
L105	598	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/12/09 10:08 AM
L106	1950	L93 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L107	11	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L108	105525	(account or profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L109	20366	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(service or number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L110	258	(beacon near3(transmission or transfer$4 or transmit$5)) same(picture or photo or jpeg)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L111	20366	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(service or number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L112	47582	(beacon near3(transmission or transfer$4 or transmit$5))	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L113	62714	(advertis$4) same(location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L114	371	L74 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L115	29	((service or beacon) adj (identifier or id)) and L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L116	572	L89 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L117	117	L98 and L97 and L96	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L118	685038	h04w 4/02	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L119	1239579	h04l 41/12	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L120	1237235	h04l 67/18	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM

L121	646433	h04l 67/306	(USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM
L122	646429	h04l 61/6022	(USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM
L123	4	"16/247626"	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM
L124	105525	(account or profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	254	(beacon near3(transmission OR transfer$4 OR transmit$5)) SAME (picture OR photo OR jpeg)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N2	19507	(beacon near3(transmission OR transfer$4 OR transmit$5 OR signal$2)) SAME (service OR number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N3	45	(bluetooth OR (wifi)) AND L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N4	60436	(advertis$4) SAME (location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N5	340	(time OR timing) near7(notification) SAME (beacon) SAME (transmission OR transfer$4 OR transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:10 PM
N6	71	L58 AND beacon	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:10 PM
N7	4926	(beacon near2 (transmission OR transfer$5 OR data OR message OR packet$2)) SAME (contain$4 OR includ$4 OR hav$4 OR compris$5) SAME (number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:10 PM
N8	28	((service OR beacon) ADJ (identifier OR id)) AND L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM
N9	5344	(beacon near2 (transmission OR transfer$5 OR data OR message OR packet$2)) SAME	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM

Petitioner Samsung Ex-1004, 0186

		(contain$4 OR includ$4 OR hav$4 OR compris$5) SAME (field$2 OR parameter$2)					
N10	45	(bluetooth OR (wifi)) AND L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM
N11	6	(service ADJ (identifier OR id)) AND L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM
N12	28	((service OR beacon) ADJ (identifier OR id)) AND L91	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:15 PM
N13	3085	(beacon near2 (transmission OR transfer$5 OR data OR message OR packet$2)) SAME (contain$4 OR includ$4 OR hav$4 OR compris$5) SAME (service)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:15 PM
N14	94	(timing) near7(notification) SAME (beacon) SAME (transmission OR transfer$4 OR transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:17 PM
N15	128	L13 AND L17 AND L15	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:29 PM

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	Art Unit
	JASON A HARLEY	2468

CPC - Searched*		
Symbol	**Date**	**Examiner**
H04W 4/029	12/09/2022	JH
H04L 67/306	12/09/2022	JH
H04L 61/6022	12/09/2022	JH
H04W 4/80	12/09/2022	JH
H64L 41/12	12/09/2022	JH
H04W 4/02	12/09/2022	JH
H04L 67/18	12/09/2022	JH
H04W 8/26	12/09/2022	JH

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
455	41.2	12/09/2022	JH
455	456.3	12/09/2022	JH

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

/JASON A HARLEY/ Examiner, Art Unit 2468	

Petitioner Samsung Ex-1004, 0188

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	Art Unit
	JASON A HARLEY	2468

Search Notes		
Search Notes	**Date**	**Examiner**
Database Search	12/09/2022	JH
Inventor Search	12/09/2022	JH
101/112 Search	12/09/2022	JH
Continuation Search	12/09/2022	JH
Assignee Search	12/09/2022	JH
NPL Search	12/09/2022	JH

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

/JASON A HARLEY/ Examiner, Art Unit 2468	

Petitioner Samsung Ex-1004, 0189

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

	1	Petition for Inter Partes Review, dated 5/15/2020, Case No. IPR2020-00932, Target Corporation vs. Proxicom Wireless, L.L.C.
	2	Petition for Inter Partes Review, dated 5/15/2020, Case No. IPR2020-00933, Target Corporation vs. Proxicom Wireless, L.L.C.
	3	Petition for Inter Partes Review, dated 5/27/2020, Case No. IPR2020-00934, Target Corporation vs. Proxicom Wireless, L.L.C.
	4	Petition for Inter Partes Review, dated 5/27/2020, Case No. IPR2020-00977, Target Corporation vs. Proxicom Wireless, L.L.C.
	5	Petition for Inter Partes Review, dated 5/8/2020, Case No. IPR2020-00903, Target Corporation vs. Proxicom Wireless, L.L.C.
	6	Petition for Inter Partes Review, dated 5/8/2020, Case No. IPR2020-00904, Target Corporation vs. Proxicom Wireless, L.L.C.
	7	Petition for Inter Partes Review, dated 6/1/2020, Case No. IPR2020-00978, Target Corporation vs. Proxicom Wireless, L.L.C.
	8	Petition for Inter Partes Review, dated 6/1/2020, Case No. IPR2020-00979, Target Corporation vs. Proxicom Wireless, L.L.C.
	9	Petition for Inter Partes Review, dated 6/1/2020, Case No. IPR2020-00980, Target Corporation vs. Proxicom Wireless, L.L.C.
	10	Priyantha et al., "The Cricket Indoor Location System," Massachusetts Institute of Technology, pp 1-199 (2005)
	11	Priyantha, et al., "The Cricket Location-Support System," 6th ACM International Conference on Mobile Computing and Networking (ACM MOBICOM), Boston, MA, MIT Laboratory for Computer Science (2000)

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

	12	Provisional U.S. Appl. No. 60/758,011, filed Jan. 11, 2006.
	13	Provisional U.S. Appl. No. 60/758,012, filed Jan. 11, 2006.
	14	Quiqley, A., et al., "BlueStar, a privacy centric location aware system," Telstra Research Laboratories, Melbourne, Australia, IEEE 2004, 6
	15	Roth, C.; Email dated April 14, 2020 regarding Initial Identification of Disputed Claim Terms; Target Corporation vs. Droxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-2
	16	Roth, C.; Email dated April 14, 2020 regarding Initial Identification of Disputed Claim Terms; Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-2
	17	Rusli, E., "Gift card marketplace Cardpool Introduces Instand Redemption, Attracts Super Angels" [online], Sep. 7, 2010. Retrieved from the Internet URL: http://techcrunch.com/2010/09/07/gift-card-marketplace-cardpool-plasticjungle/, one page.
	18	S. S. (Peter) Wang et al., E-911 Location Standards and Location Commercial Services, Nokia Research Center (2000) 5 pages.
	19	Sarma et al., RFID Systems and Security and Privacy Implications, B.S. Kaliski Jr. et al. (Eds.): CHES 2002, LNCS 2523, 2003. c Springer-Verlag Berlin Heidelberg 2003, 16 pages
	20	Savvides, A., et al., "Chapter 15: Localization in Sensor Networks," pp. 327-349
	21	Schiller, Jochen, et al., "Location-Based Services," Elsevier, ISBN 9781493303786
	22	Shih et al., "Wake on Wireless: An Event Driven Energy Saving Strategy for Battery Operated Devices," MOBICOM '02 September 23-26, 2002, Atlanta, Georgia, USA, Copyright 2002, 12 pages.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

	23	Shruthi et al., "Wibree Using Digital Radio Technology" International Journal of Advanced Trends in Computer Science and Engineering, Vol. 3 , No.1, Pages : 260 - 264 (2014), Special Issue of ICETETS 2014 - Held on 24-25 February, 2014 in Malla Reddy Institute of Engineering and Technology, Secunderabad-14, AP, India
	24	Simple Pairing Whitepaper, Bluetooth Special Interest Group, V10r00, (2006)
	25	Social Serendipity: Mobilizing Social Software, Eagle et al., Pervasive Computing, 1536-1268, pp. 28- 34 (2005)
	26	Specification of the Bluetooth System, Bluetooth Master Table of Contents & Compliance Requirements, Covered Core Package version: 2.1 + EDR (2007)
	27	Specification Vol. 0, Specification of the Bluetooth System, Wireless Connections Made Easy, Master Table of Contents & Compliance Requirements, Covered Core Package version 3.0 + HS, Current Master TOC, April 21, 2009, 1712
	28	Srinivasan, T., et al., "HPRS: A Hybrid P2P Reputation System using File and Peer Rating," Third International Symposium on Information Assurance and Security, IEEE, pp. 307-312 (2007)
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	35	Target Corporation's Preliminary Invalidity Contentions dated March 16, 2020, filed in Proxicom Wireless LLC v. Target Corporation, U.S. District Court, Middle District of Florida, Orlando Division, C.A. No. 6:19-cv-1886-RBD-LRH
	36	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00903, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	37	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00904, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	38	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00931, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
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	40	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00933, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	41	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00934, Target corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
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	44	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00979, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6

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	45	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00980, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
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	47	Transaction Receipt; PACER Service Center, dated August 6, 2020, pp. 1-3
	48	Transcript of Telephonic Motion Hearing, dated June 3, 2020; United States District Court, Middle District of Florida, Orlando Division; pp. 1-41; Case No. IPR2020-00903; Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 5:19-cv-1886-RBD-LRH; pp. 1-41
	49	Transcript of Telephonic Motion Hearing, dated June 3, 2020; United States District Court, Middle District of Florida, Orlando Division; pp. 1-41; Case No. IPR2020-00904; Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-41
	50	U.S. Appl. No. 60/758,010, filed Jan. 11, 2006 by Rajiv Laroia for Methods and apparatus for facilitating identification, synchronization or acquisition using beacon signals, 30 pages.

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	1	Joint Claim Construction Statement, dated June 15, 2020; Case No. IPR2020-00979, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	2	Joint Claim Construction Statement, dated June 15, 2020; Case No. IPR2020-00980, Target Corporation vs. Proxicom Nireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	3	Joint Claim Construction Statement, dated May 22, 2020; Case No. IPR2020-00903, Target Corporation vs. Proxicom Nireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-28
	4	Joint Claim Construction Statement, dated May 22, 2020; Case No. IPR2020-00904, Target Corporation vs. Proxicom Nireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-28
	5	Joint Claim Construction Statement, dated May 22, 2020; Case No. IPR2020-00931, Target Corporation vs. Proxicom Nireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-28
	6	Joint Claim Construction Statement, dated May 22, 2020; Case No. IPR2020-00932, Target Corporation vs. Proxicom Nireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-28
	7	Joint Claim Construction Statement, dated May 22, 2020; Case No. IPR2020-00933, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-28
	8	Joint Claim Regarding Claim Construction Briefing Procedure, dated June 15, 2020; Case No. IPR2020-00903, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	9	Joint Statement Regarding Claim Cnstruction Briefing Procedure, dated June 15, 2020; Case No. IPR2020-00931, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-28
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	32	Nissanka B. Priyantha, et al., Anchor-Free Distributed Localization in Sensor Networks, LCS Tech. Report #892 (2003)
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	34	Non-Final Office Action received for U.S. Patent Application No. 14/861,563, mailed on May 09, 2016, 16 pages.
	35	Non-Final Office Action received for U.S. Patent Application No. 16/817,896, mailed on Jun 09, 2020, 22 pages.
	36	Non-Final Office Action received for U.S. Patent Application No. 16/817,896, mailed on Nov 24, 2020, 34 pages.
	37	Non-Final Office Action received for U.S. Patent Application No. 16/817,896, mailed on Sep 03, 2020, 23 pages.
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	39	Notice of Allowance dated Jul. 1, 2010 for U.S. Appl. No. 12/364,828.
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	41	Notice of Allowance received for U.S. Patent Application No. 16/817,896, mailed on Jun 28, 2021, 4 pages.
	42	Notice of Allowance received for U.S. Patent Application No. 16/817,896, mailed on Mar 19, 2021, 17 pages.
	43	Notice of Allowance, U.S. Appl. No. 13/015,306 mail date Nov. 8, 2012.
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	46	Office Action received in related U.S. Appl. No. 12/364,823, dated Jun. 16, 2010.
	47	Office Action received in related U.S. Appl. No. 12/364,828, dated May 14, 2010.
	48	Office Action received in related U.S. Appl. No. 12/364,938, dated May 13, 2010.
	49	Office Action, U.S. Appl. No. 12/364,819, mail date Apr. 16, 2012.
	50	Office Action, U.S. Appl. No. 12/364,819, mail date Nov. 15, 2010.

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

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

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

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

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

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

Electronic Patent Application Fee Transmittal

Application Number:	17942197
Filing Date:	12-Sep-2022
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U8

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:				

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		Total in USD ($)		**104**

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Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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	Application Number	17942197
	Filing Date	2022-09-12
	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

	1	U.S. Appl. No. 60/758,011, filed Jan. 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals for identification, synchronization or acquisition in an ad hoc wireless network, 26 pages.
	2	U.S. Appl. No. 60/758,011, filed Jan. 11, 2006.
	3	U.S. Appl. No. 60/758,012, filed Jan. 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals in a cognitive radio network, 24 pages.
	4	U.S. Appl. No. 60/758,012, filed Jan. 11, 2006.
	5	U.S. Appl. No. 60/845,051, filed Sep. 15, 2006 by Junyi Li for Beacons in a mixed wireless communication system, 30 pages.
	6	U.S. Appl. No. 60/845,052, filed Sep. 15, 2006 by Aleksandar Jovicic for Beacons in a mixed wireless communication system, 29 pages.
	7	U.S. Appl. No. 60/845,052, filed Sep. 15, 2006.
	8	U.S. Appl. No. 60/863,304, filed Oct. 27, 2006 by Rajiv Laroia for Power Allocation Scheme, 15 pages.
	9	U.S. Provisional Application No. 60/758,010 filed on January 11, 2006 by Rajiv Laroia for Methods and apparatus for facilitating identification, synchronization or acquisition using beacon signals, 30 pages.
	10	U.S. Provisional Application No. 60/758,011 filed on January 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals for identification, synchronization or acquisition in an ad hoc wireless network, 26 pages.
	11	U.S. Provisional Application No. 60/758,012 filed on January 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals in a cognitive radio network, 24 pages.

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	12	U.S. Provisional Application No. 60/845,051 filed on September 15, 2006 by Junyi Li for Beacons in a mixed wireless communication system, 30 pages.
	13	U.S. Provisional Application No. 60/845,052 filed on September 15, 2006 by Aleksandar Jovicic for Beacons in a mixed wireless communication system, 29 pages.
	14	U.S. Provisional Application No. 61/054,162 filed on May 18, 2008 by Mark Braverman for System And Method For Electronic Payment
	15	U.S. Provisional Application No. 61/122,240 filed on December 12, 2008 by Rajiv Patel for System And Method For Electronic Payment
	16	Using Blouetooth, MC909X User Guide, Symbol Technologies, Inc., pp. 1-66 (2005)
	17	Using MC9094 Phone, MC909X User Guide, Symbol Technologies, Inc., pp. 1-20 (2005)
	18	Wang, et al., "Peer2Me - Rapid Application Framework for Mobile Peer-to-Peer Applications", Department of Compute and Information Science
	19	Wang, F., et al., "Bridging Physical and Virtual Worlds: Complex Event Processing for RFID Data Streams," University of California, Los Angeles Computer Science Department, Springer-Verlag Berlin Heidelberg 2006, pp. 588-607
	20	Want, R., et al., "Bridging Physical and Virtual Worlds with Electronic Tags," Xerox PARC, CHI '99 15-20 May 1999, PP- 370-377
	21	Wauters, R., "TC50: Gift Card Auction Site Rackup Aims to Shake Up Market" [online], Sep. 14, 2009. Retrieved from the Internet URL: http://techcrunch.com/2009/09/14/tc50-gift-card-auction-site-rackup-aims-- to-shake-up-market/, one page.
	22	WaveWorks Portable Shopping System Integration Guide, Integration Services Group, Pittsburgh, Pennsylvania, pp. 1-185

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	23	Wei, G., et al., "HiPEC: A Hybrid P2P Model for Electronic Commerce," Zhejiang Gongshang University College of Computer & Information Engineering, pp 1-5 (2008)
	24	Weis et al. "Security and privacy aspects of low-cost radio frequency identification systems". In: Security in pervasive Computing. Springer, 201-212 (2004)
	25	Weis et al., Security and Privacy Aspects of Low-Cost Radio Frequency Identification Systems, International Journal of Security and Networks, Volume 5 Issue 2/3, March 2010, 12 pages.
	26	Wg, Hid, "Device Identification Specification", V12r00, 1-20 (2006) NEED PUBLICATION DETAILS
	27	Yang, H., et al., "Indoor Localization Systems - Tracking objects and personnel with sensors, wireless networks and RFID," Measurement+ Control, Vol. 42/1, Feb. 2009, pp. 18-23
	28	Zhang, Y., et al., "Progress in WWW Research and Development," 1oth Asia-PacificWeb Conference, APWeb 2008, Shenyang, China, April 26-28, 2008 Proceedings, pp. 331-341
	29	Zhou, Y., et al., "A Map Registration Localization Approach based on Mobile Beacons for Wireless Sensor Networks," Communications Research Centre Canada, 2011 Crown, 5 pp.

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

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

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(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/David Thibodeau/	Date (YYYY-MM-DD)	2023-02-15
Name/Print	David Thibodeau	Registration Number	31671

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

Privacy Act Statement

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

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

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

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: Proctor, James et al.	
Serial No.: 17/942,197	Examiner: Harley, Jason A.
Filed: September 12, 2022	Art Unit: 2468
For: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS	Confirmation No.: 2459

CERTIFICATE OF TRANSMISSION

I hereby certify that the following paper is being electronically transmitted to the Patent and Trademark Office by EFS-Web on February 16, 2023.

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Commissioner for Patents
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Sir/Madam:

INFORMATION DISCLOSURE STATEMENT

In keeping with the duty of candor and good faith owed to the Patent and Trademark Office, Applicant wishes to bring to the Examiner's attention the references listed on the accompanying form PTO-1449. Pursuant to 37 C.F.R. §1.98(d)(1), copies of the cited art from U.S. Patent Application Serial No. 17/366,826, filed July 2, 2021 from which the present application is a continuation application, are not enclosed herewith because these were submitted in the earlier application.

Petitioner Samsung Ex-1004, 0214

Please charge any additional fee occasioned by this paper to our Deposit Account No. 504914.

Respectfully submitted,

/David J Thibodeau Jr /
David J. Thibodeau, Jr.
Reg. No. 31,671

VLP Law Group, LLP
555 Bryant StreetSuite 820
Palo Alto, CA 94301
Telephone: (617) 925-5520

Petitioner Samsung Ex-1004, 0215

Electronic Acknowledgement Receipt

EFS ID:	47536773
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	16-FEB-2023
Filing Date:	12-SEP-2022
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Application Type:	Utility under 35 USC 111(a)

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Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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	1	20060099966	A1	2006-05-11	MOTON et al.	
	2	20060104200	A1	2006-05-18	PARK JAE-HYUN	
	3	20060104243	A1	2006-05-18	PARK SOO-HONG	
	4	20060106850	A1	2006-05-18	MORGAN et al.	
	5	20060111045	A1	2006-05-25	ORLASSINO et al.	

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	6	20060114104	A1	2006-06-01	SCARAMOZZINO UMBERTO R	
	7	20060116160	A1	2006-06-01	FUCCELLO JAMES R	
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	10	20060153085	A1	2006-07-13	WILLINS et al.	
	11	20060171341	A1	2006-08-03	WANG et al.	
	12	20060193258	A1	2006-08-31	BALLAI PHILIP N	
	13	20060200843	A1	2006-09-07	MORGAN et al.	
	14	20060217131	A1	2006-09-28	ALIZADEH-SHABDIZ et al.	
	15	20060229058	A1	2006-10-12	ROSENBERG LOUIS B	
	16	20060234631	A1	2006-10-19	DIEGUEZ JORGE	

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	17	20060240840	A1	2006-10-26	MORGAN et al.	
	18	20060245373	A1	2006-11-02	BAJIC ZELJKO	
	19	20060245393	A1	2006-11-02	BAJIC ZELJKO	
	20	20060245404	A1	2006-11-02	BAJIC ZELJKO	
	21	20060264212	A1	2006-11-23	SEKHAR RAMESH	
	22	20060268746	A1	2006-11-30	WIJTING et al.	
	23	20060268765	A1	2006-11-30	BAJIC et al.	
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	25	20060270412	A1	2006-11-30	WILLINS et al.	
	26	20060282738	A1	2006-12-14	SOHN et al.	
	27	20060287813	A1	2006-12-21	QUIGLEY AARON	

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	Attorney Docket Number	111054-0001U8

	28	20070001904	A1	2007-01-04	MENDELSON EHUD	
	29	20070002833	A1	2007-01-04	BAJIC ZELJKO	
	30	20070004427	A1	2007-01-04	MORGAN et al.	
	31	20070004428	A1	2007-01-04	MORGAN et al.	
	32	20070010278	A1	2007-01-11	D'AGOSTINO et al.	
	33	20070015549	A1	2007-01-18	HERNANDEZ et al.	
	34	20070025287	A1	2007-02-01	GOREN et al.	
	35	20070026818	A1	2007-02-01	WILLINS et al.	
	36	20070030824	A1	2007-02-08	RIBAUDO et al.	
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	47	Joint Claim Construction Statement filed May 22, 2020 with the United States District Court, Middle District of Florida, Orlando Division
	48	Joint Claim Construction Statement, dated June 15, 2020; Case No. IPR2020-00934, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	49	Joint Claim Construction Statement, dated June 15, 2020; Case No. IPR2020-00977, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
	50	Joint Claim Construction Statement, dated June 15, 2020; Case No. IPR2020-00978, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6

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	1	Office Action, U.S. Appl. No. 12/364,819; Date of Mailing: Apr. 16, 2012.
	2	Office Action, U.S. Appl. No. 12/364,823, mail date Dec. 28, 2010.
	3	Office Action, U.S. Appl. No. 12/364,828, mail date May 14, 2010.
	4	Office Action, U.S. Appl. No. 12/364,828, mail date Sep. 15, 2010.
	5	Office Action, U.S. Appl. No. 12/364,938, mail date May 13, 2010.
	6	Office Action, U.S. Appl. No. 12/364,938, mail date Sep. 14, 2010.
	7	Office Action, U.S. Appl. No. 13/015,306 mail date Jul. 17, 2012.
	8	Office Action, U.S. Appl. No. 13/015,306; Date of Mailing Jan. 9, 2012.
	9	Office Action, U.S. Appl. No. 13/212,766; Date of Mailing: Apr. 26, 2012.
	10	Office Action, U.S. Appl. No. 13/213,028, mail date May 5, 2012.
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	13	Office Action, U.S. Application No. 12/364,819, mail date April 16, 2012.
	14	Office Action, U.S. Application No. 12/364,819, mail date August 26, 2010.
	15	Office Action, U.S. Application No. 12/364,819, mail date November 15, 2010.
	16	Office Action, U.S. Application No. 12/364,823, mail date June 16, 2010.
	17	Office Action, U.S. Application No. 12/364,828, mail date May 14, 2010.
	18	Office Action, U.S. Application No. 12/364,828, mail date September 15, 2010.
	19	Office Action, U.S. Application No. 12/364,938, mail date May 13, 2010.
	20	Office Action, U.S. Application No. 12/364,938, mail date September 14, 2010.
	21	Office Action, U.S. Application No. 13/212,766, mail date April 26, 2012.
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	32	Ondrus, J., et al., "An Architecture for Mobile Payments and Couponing in the Retail Industry," 17th Bled eCommerce Conference eGlobal, Bled, Slovenia, June 21-23, 2004, pp. 1-15
	33	Order dated February 12, 2019, United States District Court Middle District of Florida Orlando Division

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	34	Ortiz-Yepes, "Enhancing Authentication in eBanking with NFC enabled mobile phones"; Masters Thesis, Department of Mathematics and Computer Science, Eihdhoven University of Technology; Aug. 11, 2008.
	35	P370/470 Radio Scanner, Preliminary Symbol, Symbol Technologies, Inc., pp. 1-34 (1999)
	36	Panos Kourouthanassis, et al., Grocery Supply-Chain Management: MyGROCER Innovative Business and echnology Framework, 17th Int'l Logistics Congress 264-73 (2001)
	37	Panos Kourouthanassis, et al., Intelligent Cokes and Diapers: MyGROCER Ubiquitous Computing Environment, First Int'l Mobile Bus. Conf., 150-72 (2002)
	38	Part 15.3: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for High Rate Wireless Personal Area Networks (WPANs)", IEEE Standards Board, Approved 12 June 2003, The Institute of Electrical and Electronics Engineers, Inc. (New York); pp. 5, 25, 118 and 203
	39	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 8/13/2020, Case No. IPR2020-00903, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-50
	40	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 8/13/2020, Case No. IPR2020-00904, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-50
	41	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 8/13/2020, Case No. IPR2020-00931, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-48
	42	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 8/19/2020, Case No. IPR2020-00932, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-46
	43	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 8/19/2020, Case No. IPR2020-00933, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-48
	44	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 9/8/2020, Case No. IPR2020-00934, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-49

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	46	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 9/8/2020, Case No. IPR2020-00978, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-71
	47	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 9/8/2020, Case No. IPR2020-00979, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-78
	48	Patent Owner Proxicom Wireless, LLC's Preliminary Response Pursuant to 37 C.F.R. 42.107; dated 9/8/2020, Case No. IPR2020-00980, Target Corporation vs. Proxicom Wireless, L.L.C.; pp. 1-73
	49	Patro, R.J., "Localization in Wireless Sensor Network with Mobile Beacons," Honeywell Tech. Solution Lab, IEEE 2004, pp. 22-24
	50	Petition for Inter Partes Review, dated 5/15/2020, Case No. IPR2020-00931, Target Corporation vs. Proxicom Wireless, L.L.C.

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Signature	/David Thibodeau/	Date (YYYY-MM-DD)	2023-02-15
Name/Print	David Thibodeau	Registration Number	31671

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[Continued on next page]

(54) Title: DISCOVERY PROTOCOL

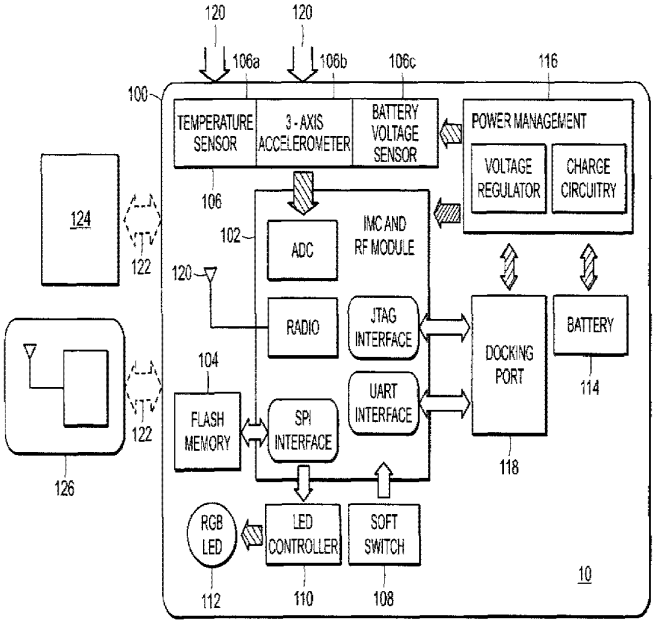


FIG. 1

(57) Abstract: A method and device may comprise transmitting, via a transmitter, a plurality of transmit pings at a transmit interval. A receiver may listen, for a live ping and the receiver may be configured to be turned on at a beginning of the assess interval, and off at an end of the detect duration. The receiver may further receive the live ping. After receiving the live ping, transmission of a new ping may be delayed for a delay duration. The new pings may be transmitted at the transmit interval.

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DISCOVERY PROTOCOL

RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Patent Application Number 61/093,909 filed on 03 September 2008, the entire contents of which are herein incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] This disclosure relates to a discovery protocol and, more particularly, to a system and method for discovering devices.

[0003] Some devices, such as wireless sensors including active radio frequency identification (RFID) tags may be capable of discovering other devices. To receive signals and, in turn, discover devices which may have sent those signals, the devices may need to have a receiver that may be powered on and off. Further, in order to be discovered by other devices, these same devices may need to transmit one or more signals.

[0004] Additionally, while transmitting and receiving signals, these devices may require additional power. The device's receiver may be continuously powered on for a relatively long time before a signal is received, and in turn, before another device is discovered. Further, the device may transmit many signals before another device receives one of those signals, and, in turn, discovers that device.

BRIEF SUMMARY OF THE INVENTION

[0005] In a first implementation, a method may comprise transmitting, via a transmitter, a plurality of transmit pings at a transmit interval, the transmit interval corresponding to a time between transmission of each transmit ping. The method may further comprise listening, via a receiver, for a live ping, the receiver configured to be turned on at a beginning of an assess interval, and off at an end of a detect duration.

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The assess interval may correspond to a time each packet in the live ping is spaced apart multiplied by an amount of packets in the live ping. Further, the detect duration may correspond to the time each packet in the live ping is spaced apart plus a transmit time. Furthermore, the transmit time may correspond to a time required for a packet to travel from one device to another. The method may further comprise receiving, via the receiver, at least one packet from the live ping. Additionally, the method may comprise delaying, after receiving the live ping, transmission of a new ping for a delay duration. The delay duration may correspond to an amount of time determined, at least in part, by a counter value of a packet of the live ping. The method may further comprise transmitting, via the transmitter, the new ping at the transmit interval.

[0006] One or more of the following features may be included. At least one of the transmit ping, the live ping, and the new ping may comprise a plurality of packets, each transmitted at a burst interval. The burst interval may correspond to a time each packet in the plurality of packets is spaced apart. Further, at least one packet of the plurality of packets may be received in the transmit time. Moreover, the transmit time may be less than one burst interval. Furthermore, the detect duration may correspond to the transmit time plus one burst interval. Also, each packet may comprise at least one of a device identifier, status information, and a counter value.

[0007] In some embodiments, the transmit interval may be between about 3 seconds and about 12 seconds. Further, the burst interval may be between about 1 millisecond and about 2 milliseconds. Moreover, at least one of the transmit ping, the live ping, and the new ping may comprise between about 96 packets and about 320 packets. Additionally, the packets may be RF packets. The method may further comprise delaying, after receiving the live ping, transmission of a new ping for an additional backoff duration. The backoff duration may correspond to an amount of time configured to prevent pings from colliding.

[0008] In a second implementation, a method may comprise transmitting, via a transmitter, a plurality of transmit pings at a transmit interval. The transmit interval

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may correspond to a time between transmission of each transmit ping. Each transmit ping may include a number of packets. The method may further comprise listening, via a receiver, for a live ping, each live ping including a number of packets. The receiver may be configured to be turned on at a beginning of an assess interval, and off at an end of a detect duration. The assess interval may correspond to a time each packet in the live ping is spaced apart multiplied by an amount of packets in the live ping. The detect duration may correspond to the time each packet in the live ping is spaced apart plus a transmit time. The transmit time may correspond to a time required for a packet to travel from one device to another. The method may further comprise receiving, via the receiver, at least one packet of the live ping. Additionally, the method may comprise delaying, after receiving the live ping, transmission of a new ping for a delay duration plus a backoff duration. The delay duration may correspond to an amount of time determined, at least in part, by a counter value of the received packet of the live ping. The counter value may designate which packet in the live ping was received by the receiver. The backoff duration may correspond to an amount of time configured to prevent pings from colliding. The method may further comprise transmitting, via the transmitter, the new ping at the transmit interval. The new ping may include a plurality of packets.

[0009] One or more of the following features may be included. The assess interval may be B * M. B may correspond to the time each packet in the live ping is spaced apart. M may correspond to the number of packets in the live ping. Further, the detect duration may be B + P. P may correspond to the amount of time each packet of the live ping is in transmission. Moreover, the backoff duration may be configured to prevent pings from colliding for up to N / (B * M) devices. N may correspond to the transmit interval. The transmit interval may correspond to a time between transmission of each ping. Furthermore, the method may comprise duty cycling the receiver based upon, at least in part, the assess interval. Additionally, the method may comprise duty cycling the receiver based upon, at least in part, the detect duration.

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[0010] In a third implementation, a method may comprise transmitting, via a transmitter, a plurality of transmit pings at a transmit interval. The transmit interval may correspond to a time between transmission of each transmit ping. Each transmit ping may include a number of packets. The method may further comprise listening, via a receiver, for a live ping. Additionally, the method may comprise receiving, via the receiver, at least one packet of the live ping. The method may further comprise delaying, after receiving the live ping, transmission of a new ping for a delay duration. The delay duration may correspond to an amount of time determined, at least in part, by a counter value of a packet of the live ping. Also, the method may comprise transmitting, via the transmitter, the new ping at the transmit interval. The new ping may include a plurality of packets.

[0011] One or more of the following features may be included. A monitoring device having the transmitter may be in communication with a remote device having a second receiver, without network synchronization. The method may further comprise duty cycling the receiver.

[0012] In a fourth implementation, a device may comprise a transmitter. The transmitter may be configured to transmit a plurality of transmit pings at a transmit interval. The transmit interval may correspond to a time between transmission of each transmit ping. Each transmit ping may include a number of packets. The device may also comprise a receiver. The receiver may be configured to listen for a live ping and to receive at least one packet of the live ping. The transmitter may be further configured to delay transmission of a new ping for a delay duration, and to transmit a new ping at the transmit interval. The delay duration may correspond to an amount of time determined, at least in part, by a counter value of the at least one packet of the live ping.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

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[0013] FIG. 1 is a diagrammatic view of a monitoring system;

[0014] FIG. 2 is a diagrammatic view of a transmitter and receiver;

[0015] FIG. 3 is a flowchart of a discovery process implemented by the monitoring system of FIG. 1;

[0016] FIG. 4 is a timing diagram of signals transmitted and received by the monitoring system of FIG. 1.

[0017] FIG. 5 is a flowchart of an activity state classification process implemented by a monitoring device;

[0018] FIG. 6 is a diagrammatic view of the monitoring device worn by a human; and

[0019] FIG. 7 is a table showing parameters used by the monitoring device.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Referring to FIGs. 1 and 2, there is shown a monitoring system 10. Monitoring system 10 is merely an example of a system and/or device which may be configured to operate in accordance with the discovery protocol of the subject application. Monitoring system 10 may include RF module 102. Monitoring system 10 may be a monitoring device or electronic tag which may be attached to an object or worn by a person or animal. In one embodiment, as shown in FIG. 2, an RF module (e.g., RF module 200) may include transmitter 202 and receiver 204. Monitoring system 10 may comprise several components housed in an enclosure 100. Enclosure 100 may be of a compact form that may be attached to an object. For example, enclosure 100 may be worn by an animal such as a dog. The enclosure 100 may be fixed to a collar or other device. In such a case, enclosure 100 may take the form of a conventional tag, such as a dog tag, or an ID tag worn by an employee at a workplace, such as a hospital. Monitoring system 10 may include an integrated microcontroller (IMC) and radio frequency (RF) module 102, flash memory storage 104, a plurality of sensors 106, soft switch 108, light emitting diode (LED) controller 110 which may

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control an LED 112, battery 114, power management circuitry 116 and docking port 118.

[0021] Additionally, plurality of sensors 106 may include temperature sensor 106a and accelerometer 106b, which may measure environmental conditions relative to monitoring device 10. One or more of plurality of sensors 106 may measure one or more characteristics of an object that monitoring device 10 may be attached to. For example, temperature sensor 106a may receive environmental input 120, and may be adapted to detect the ambient air temperature of the environment or the temperature of a nearby surface, such as the surface of the object attached to monitoring system 10. Again by example, accelerometer 106b may be a 3-axis accelerometer which may detect acceleration, deceleration and other movements of the monitoring system 10 and/or the object it may be attached to. Accelerometer 106b may utilize three analog outputs to provide measurements in real time to IMC module 102. Alternatively, other sensors may be substituted for or added to plurality of sensors 106, thereby providing other measurements relating to the environment or the object. For example, alternative sensors may measure ambient light, humidity, altitude, or heart rate of the object (e.g., a person, animal, etc.).

[0022] IMC module 102 may perform a number of functions as determined by the mode of operation of monitoring device 10. IMC 102 may receive analog signals from plurality of sensors 106, and may convert the signals to digital signals with an analog-to-digital converter (ADC). Further, IMC 102 may capture and process the signals according to one or more software or firmware programs stored at IMC 102 or flash memory 104. The signals may be processed at IMC 102, for example, by sampling the signals at variable intervals, deriving a conditioned selection of signals, detecting an event based on the signals, or producing data relating to a set of signals. The processed event data may be stored to flash memory 104 through a serial peripheral interface (SPI). The event data may also be sent to the radio (RF) module (at IMC 102) with antenna 120, where it may be transmitted via wireless communication 122 to base station 124 or remote device 126. Base station 124 may

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be a stand alone base station, a computer, or both. In some embodiments base station 124 may be in communication with a computer which may allow the base station to be bridged to a network. Remote device 126 may be similar system and/or device to monitoring system 10, and may include any of the features of monitoring system 10. The RF module at IMC 102 may also receive wireless signals from base station 124 or remote device 126, enabling data transfer or other communication.

[0023] For example, one mode of operation of monitoring device 10 may be discovery mode and/or ping mode. While in discovery mode and/or ping mode, monitoring device 10 may be configured to operate in accordance with the discovery protocol of the subject application.

[0024] In some embodiments, base station 124 may connect to a computer via a universal serial bus (USB) connection or similar connection. The base station may be USB or wall powered and may be capable of communicating to the tag (e.g., monitoring system 10). The base station may typically reside in a user's home, or any other suitable location. The base station may also serve as a charging dock for the tag (e.g., monitoring system 10). In other embodiments, base station 124 may be a network connected base station, i.e., an integrated transceiver and network (e.g., Ethernet) module. The transceiver may include a transmitter and receiver such as those described herein.

[0025] IMC 102 may be programmed to detect a particular reading or signal ("event"), which may be received from one or more of the plurality of sensors 106 or communication with base station 124 or remote device 126. In response to the event, IMC 102 may send a signal to LED controller 110, which may indicate to activate one or more LED lights 112. LED lights 112 may turn on or enter a blinking pattern to indicate the occurrence of the event. For example, One or more LED lights 112 may flash to indicate that battery 114 is low on power, the ambient temperature has reached a threshold, or another remote device 126 is nearby.

[0026] Further, soft switch 108 may connect to IMC 102 and may be configured to toggle modes of operation of monitoring system 10, such as power on, power off

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and low power operation. IMC 102 may also interface with docking port 118, which may be connected to a port of a base station. Through this link, IMC 120 may transfer data stored at flash memory 104, as well as information about monitoring device 10 such as hardware and software settings, storage capacity, and firmware version. IMC 102 may also receive commands and data from the base station, such as a command to update firmware of IMC 102, accompanied by updated firmware.

[0027] In one embodiment, monitoring device 10 may be a tag worn by a pet animal such as a dog. The pet animal may be the object and/or agent monitored by monitoring device 10. One or more of the plurality of sensors 106 may detect or measure the temperature and/or acceleration, for example, of the pet animal, and a radio receiver at IMC 120 and/or the RF module may receive signals from a second tag (e.g., a tag including remote device 126). The second tag may be worn by a second pet animal. This data may be processed by IMC 102 to produce event data. The event data may relate to the environment and the behavior of the pet animal, such as its activities (e.g., whether it is walking, running or at rest) and its interaction with other animals as evidenced by signals received by the second tag (e.g., remote device 126). The event data may be transferred to base station 124 in real time, or may be stored to flash memory 104 for transfer at a later time. Base station 124 may communicate with monitoring device 10 by receiving the event data and sending commands and other signals to monitoring device 10. Further base station 124 may report the event data or transfer the data to a server on a computer network. A pet owner may access base station 124 or the network in order to monitor the behavior of his or her pet animal.

[0028] In another embodiment, monitoring device 10 may be a tag, badge, strip, insert, etc. (e.g., an ID tag) worn by a human (e.g., a worker in a building or a nurse in a hospital). For example, if monitoring device 10 is an ID tag worn by a nurse in a hospital, monitoring device 10 may be in communication with a base station located in the hospital. Monitoring device 10 may relay information describing the nurse's movement in around the hospital to the base station. Further, monitoring device 10

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may be in communication with other devices in the hospital (e.g., remote device 126), and may discover such devices in accordance with the discovery protocol of the subject application. Monitoring device 10 may provide various alerts based upon, at least in part, the nurse's movement around the hospital or in relation to the other devices.

[0029] Various client electronic devices may be directly or indirectly coupled to the network. For example, personal computers may be directly coupled to the network via a hardwired network connection. Notebook computers may be directly coupled to the network via a hardwired network connection. Laptop computers may be wirelessly coupled to the network via a wireless communication channel established between the laptop computer and a wireless access point (i.e., WAP), which may be directly coupled to the network. The WAP may be, for example, an IEEE 802.11a, 802.11b, 802.11g, Wi-Fi, and/or Bluetooth device that is capable of establishing wireless communication channel between a laptop computer and the WAP. A personal digital assistant may be wirelessly coupled the network via wireless communication channel established between the personal digital assistant and a cellular network / bridge, which may be directly coupled the network.

[0030] As is known in the art, all of the IEEE 802.11x specifications may use Ethernet protocol and carrier sense multiple access with collision avoidance (i.e., CSMA/CA) for path sharing. The various 802.11x specifications may use phase-shift keying (i.e., PSK) modulation or complementary code keying (i.e., CCK) modulation, for example. As is known in the art, Bluetooth is a telecommunications industry specification that allows e.g., mobile phones, computers, and personal digital assistants to be interconnected using a short-range wireless connection.

THE DISCOVERY PROTOCOL

[0031] As discussed above monitoring device 10 may include IMC 102, which may include an RF module. In other embodiments, the RF module may be separate

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from IMC 102. Referring now to FIGS. 2-4, RF module 200 may include a transmitter 202 and a receiver 204, both of which may be included in monitoring device 10. Transmitter 202 and receiver 204 may also be separate devices. As shown in FIG. 3, transmitter 202 and receiver 204 may, either alone or in conjunction with other devices described above, perform discovery process **300** in accordance with a discovery protocol described herein. For illustrative purposes, transmitter 202 and receiver 204 are discussed throughout this disclosure as being configured to transmit and receive RF signals, however they may operate with any other type of communication signal. For example transmitter 202 and receiver 204 may transmit and receive infrared signals, visible light signals, acoustic signals, or data modulated in other mediums.

[0032] For illustrative purposes only, transmitter 202 and receiver 204 will be discussed throughout this disclosure as being associated with monitoring device 10. When transmitting and receiving RF signals, monitoring device 10 may be in RF mode. In RF mode, transmitter 202 and receiver 204 may be configured to transmit and receive RF signals. However monitoring device 10 may switch to other modes in order to communicate (i.e., transmit and receive) using Bluetooth, Zigbee, WiFi (802.11), and/or infrared (IR) signals.

[0033] Transmitter 202 may transmit **302** a plurality of transmit pings 206 at transmit interval 208. Transmit interval 208 may correspond to the time (e.g., N seconds) between the transmission of each ping. In some embodiments, N may be between 3 and 12 seconds, or any other number which may be used in each particular monitoring system. Each transmit ping may be a burst (e.g., a number M) of short RF packets. In some embodiments, M may be between 96 and 320, or any other number which may be used in each particular monitoring system. Calibration of different monitoring systems using different signal types, etc., may yield other optimal values for N and M. Each packet (e.g., an RF packet) may include, inter alia, a device identifier, status information, and/or a counter value. Different counter values may correspond to different positions of packets in each burst. Further, each RF packet

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may be spaced apart at a burst interval (e.g., B milliseconds). In other words, each RF packet in each transmit ping may be B milliseconds apart.

[0034] Receiver 204 may listen **304** for a live ping (e.g., live ping 210). Live ping 210 may have been transmitted by a different transmitter associated with a different monitoring device (e.g., remote device 126), for the purposes of detection and/or discovery. For the purposes of this disclosure, listening means that the receiver (e.g., receiver 204) is "on", receiving, or otherwise able to detect signals. Referring now to FIGS. 2 and 4, receiver 204 may be configured to be turned on at a beginning of assess interval 402, and off at an end of detect duration 404. When "off", the receiver may be asleep, or otherwise using substantially less power than when "on". As shown in FIG. 4, assess interval 402 may correspond to an amount of time each packet in a ping (e.g., live ping 210) is spaced apart (e.g., B), multiplied an amount of packets (e.g., M) in live ping 210 (e.g., B * M). The plurality of packets in a ping (e.g. live ping 210) may be referred to herein as a burst.

[0035] Further, detect duration 404 may correspond to the amount of time each packet in a ping (e.g., live ping 210) is spaced apart (e.g., B) plus an amount of time each packet is in the air. B may also be referred to herein as a "burst interval". Each packet may be on the air and in progress for a transmit time (e.g., P milliseconds). The transmit time may correspond to a time required for a packet to travel from one device to another. Accordingly, detect duration 404 may be B + P = R milliseconds long. In other words, at least one packet in a transmit ping may be received in R milliseconds. B, M, and P may be calculated and calibrated such that as long as each packet in a ping (e.g., live ping 210) has a transmit time (e.g., transmit time 408 of P milliseconds or less), another device (e.g., remote device 126) will receive the at least one packet of the ping. In some embodiments, transmit time may also include the time required for a packet to be received in its entirety, including processing time at the receiving device. In some situations, a portion of a packet may be received and may be rejected, however an entire packet may still be received in the transmit time. It follows that in some embodiments, transmit time P must be less than the amount of

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time B (e.g., one burst interval) that each packet in a ping (e.g., live ping 210) is spaced apart.

[0036] As discussed above, receiver 204 may be configured to be turned on at the beginning of assess interval 402, and off at an end of detect duration 404. This process, wherein receiver 204 is powered on/off, or is otherwise inactive for a period of time, may be referred to herein as "duty cycling" the receiver. A "duty cycle" may be a percentage of time that the receiver is in an "on" state. For example, if the receiver (e.g., receiver 204) is "on" (i.e., active, or listening) for 25 seconds, and "off" for 75 seconds, its duty cycle may be 25/100, or 25%. Monitoring device 10 may be configured such that receiver 204 is duty cycled to minimize its power usage, while maximizing its discoverability when in discovery or ping mode. Accordingly, receiver 204 may be duty cycled based upon, at least in part, either the assess interval, the detect duration, or both. In some embodiments, the receiver may be duty cycled based upon, at least in part, information in at least one packet of the live ping.

[0037] Further, receiver 204 may receive **306** live ping 210. Receiving live ping 210 may include receiving one or more packets of the total number of packets (e.g., M) in live ping 210. As discussed above, live ping 210 may have been sent by another monitoring device, (e.g., remote device 210). For illustrative purposes, assume that each system/device (e.g., monitoring system 10 and/or remote device 126) listens for R milliseconds (e.g., detect duration 404 of B + P milliseconds) to detect any pings which may be in progress (e.g., live ping 210). Further, assume each packet of a ping (e.g., live ping 210) may include a device identifier, status information, and a counter value. The counter value may correspond to different positions of packets in each burst. If one of the devices receives a packet (e.g., from live ping 210), it can use a counter value of the packet to determine delay duration 212. In other words the device (e.g., monitoring system 10) may calculate (via, e.g., IMC 102) delay duration 212 in order to delay transmitting a new ping (e.g., new pings 214).

[0038] Accordingly, transmitter 202 may delay **308**, after live ping 210 is

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received, transmission of a new ping (e.g., new pings 214) for delay duration 212. Once a new ping has been delayed in time, the transmitter may transmit **310** the new ping (e.g., new pings 214) at transmit interval 208. In other words, the transmitter may resume pinging at a base value of N (e.g., transmit interval 208). In this way, the new ping may be received by the device which sent live ping 210 (e.g., remote device 126), and other systems and/or devices in the environment may eventually receive the new ping after each one has performed a discovery process similar to discovery process 300.

[0039] In some embodiments, at least one of the transmit ping, the live ping, and the new ping includes a plurality of packets, each transmitted at a burst interval (e.g., burst interval 406). The burst interval may correspond to a time each packet in the plurality of packets is spaced apart. In some systems, the burst interval may typically be between 1 and 2 milliseconds. As shown in FIG. 4, burst interval 406 may refer to "t-burst" in some systems, and to "t-packet", in other systems. Burst interval 406 may be measured in a variety of ways, including along a rising edge from one packet to the next (i.e., t-burst). In other embodiments, all pings are transmitted at burst interval 406. Some systems may include a transmit time (i.e., t-packet) and at least one transmitted packet may be received in the transmit time. In one embodiment, the transmit time is less than one burst interval. It should be noted that different applications may have different maximum size packets. As such, t-burst may be set according to the maximum size packet that may be sent. Also, in some applications, each packet in the burst may be the same size, however in other applications, packets within a burst may be sized differently.

[0040] In another implementation, transmitter 202 may delay, after live ping 210 is received, transmission of a new ping (e.g., new pings 214) for an additional backoff duration (e.g., backoff duration 216). Backoff duration 216 may be a random duration. If the number of devices in the environment is large enough that the channel on which the devices are communicating cannot be shared at the desired ping rate without collisions, applying the delay duration may effectively reduce the ping rate

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(i.e., increase N) by spacing out the transmissions. However, in this situation, transmitting devices may constantly be in contention. Random backoff duration 216 may help ensure that contending devices still discover other devices equally. In other words, delay duration and backoff duration 216 may be configured to prevent pings from colliding for up to N / (B * M) devices, where N is a transmit interval (e.g., transmit interval 208), B is the burst interval, and M is the number of packets in the ping (e.g., live ping 210).

[0041] In another embodiment, and for example, both monitoring system 10 (which may also be a monitoring device) and remote device 126, the radio (e.g., RF module which may include a transmitter and/or receiver) may be configured to operate within the 2.4GHz industrial, scientific, and medical (ISM) band. Further, the radio may use 2FSK (frequency-shift keying) with no Manchester encoding, a frequency deviation of 140kHz, and a data rate of 250 kbps. The tag (e.g., monitoring system 10) may be capable of a max output power of 1dBm, while the base station (e.g.,base station 124) may be capable of up to 0dBm. A four byte preamble, four byte sync word, and 16 bit CRC (cyclic redundancy check) may be included in each packet.

[0042] Channel sharing may be limited to time division schemes based on the assessment and backoff described above. Based on typical usage, transmitter duty cycle for a single device (e.g., monitoring system 10) may be less than 6% in ping mode. While in file transfer mode, the transmitter uses as much of the channel as possible, with carrier sense before each transmission to avoid collisions.

[0043] Further, in ping mode, there may be no opportunity for frequency diversity because it may be desired that devices discover each other quickly and with minimal power. Therefore, all devices may ping on one default channel. However, in file transfer mode, both devices may have an opportunity to synchronize with one another for the duration of the file transfer. At this point, some frequency agility may be possible to avoid channels with heavy traffic and increase the reliability of the protocol. When it is time to initiate a file transfer, the base station may send out

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notification of its preferred file transfer channel in the file transfer request ping. Then, it may begin operating in file transfer mode on this new channel. The tag addressed by the file transfer request may also switch to the new channel and enter file transfer mode. On failure or completion of the file transfer, both devices may revert to ping mode on the default channel. Failure also may result in the base station moving the preferred file transfer channel to the next in a rotating list.

ACTIVITY STATE CLASSIFICATION

[0044] Ping mode may allow each device (e.g., monitoring device 10 and/or remote device 126) in an environment to maintain up-to-date knowledge about the presence of other devices. The environment may be an area in which there are multiple devices (e.g. monitoring device 10 and/or remote device 126) that are discoverable to one another. The environment may also be referred to as a network. Further, ping mode may be optimized such that real-time activity classification may be used to dynamically adjust ping periods, such that the average ping period for each discoverable device in the network is maximized, while reliable device discovery is maintained. In other words, shorter ping periods (i.e., faster ping rates) may be necessary when devices are in a state of motion. This may cause frequent changes to the network structure (i.e., ping periods of each device) in the environment

[0045] For example, if two devices, or tags, (e.g., monitoring device 10 and/or remote device 126) are passing by each other, then at least one of the devices must broadcast its ping during the limited time period when the devices are proximate in order for the devices to discover each other and for the encounter to be registered. On the other hand, if the two tags are stationary, the network structure is unlikely to change and the ping periods may be increased (i.e., the ping rates decreased). In other words, ping rates may be increased with increased movement to enhance discoverability. Maximization of the average ping period of each device in the system may result in saving power as the transmitter may be duty cycled for longer periods of

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time when devices are moving slowly, or are stationary.

[0046] Referring now to FIGS. 5-7 there is shown an activity state classification process **500**. Monitoring device 600 may be similar to monitoring system and/or device 10, may include any of the features thereof, and may be a tag worn by a human. Monitoring device 600 may be worn as a bracelet around the wrist, as a necklace around the neck, or may be otherwise attached to a human. For exemplary purposes, monitoring device 600 is shown as being worn by a human (e.g., human 614), however other configurations are possible. Similarly, monitoring device 600 may be worn by a pet animal, such as a dog. Similar to monitoring system 10, monitoring device 600 may include one or more sensors (e.g., sensor 602), a receiver (e.g. receiver 604), a transmitter (e.g., transmitter 606), a controller (e.g., controller 608) and a battery (e.g., battery 610). Controller 608 may be similar to IMC 102 of monitoring system 10. In some embodiments, controller 608 may be any type of microcontroller, microprocessor, or processor configured to perform the operations described herein. Further receiver 604 and transmitter 606 may be included in a single module, such as a transceiver or RF module. Similarly, receiver 604, transmitter 606, and controller 608 may be part of the same module, such as IMC/RF module 102 of monitoring system 10.

[0047] Controller 608 may receive **502** signal 612 from sensor 602. Sensor 602 may be attached to an object (e.g., human 614, an animal, a gurney, a hospital bed, a wheelchair, an intravenous pump machine, a cleaning cart, a car, etc.) via monitoring device 600. In some embodiments, sensor 602 may be attached to the object by itself, independent of monitoring device 600. In such systems, sensor 602 may communicate with a controller (e.g., controller 608) wirelessly in order for the controller to receive the signal. Sensor 602 may also simply travel with the object, or may otherwise be configured to sense a characteristic of the object. Signal 612 may represent a characteristic of the object. For example, signal 612 may represent an acceleration, a deceleration, a velocity, an orientation, a feature derived from image processing, a feature derived from RF signal processing, a feature derived from a

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GPS, a feature derived from a cell tower triangulation, a vibration, a tilt, a feature derived from an acoustic signal, a feature of a dead reckoning system, a switch, a feature of a visible light detector, and a feature of a received infrared signal.

[0048] Further, controller 608 may classify **504** activity state 702 of the object (e.g., human 614) based upon, at least in part, the characteristic. Activity state 702 may be indicative of a movement of the object (e.g., human 614). For example, and as shown in FIG. 7, activity state 702 of human 614 may be classified as inactive (S_I), low activity (S_L), walking (S_W), jogging (S_J), or running (S_R). If the object were a dog, the activity state of the dog may additionally be classified as trotting (S_T) or galloping (S_G). Other states may include sprinting, biking, rolling, driving, sliding or being carried. Activity states may have different classifications for a number of different objects such as different animals, hospital equipment, cars, planes, etc., based upon the types of movement these objects may undertake. Activity states may be defined by observing movements of each object and classifying them. When classifying activity state 702, based upon the characteristic, controller 608 may do so by using values of the characteristic, which may be derived from signal 612.

[0049] Additionally, controller 608 may determine **506** locomotive rate 704. Locomotive rate 704 (L) may correspond to activity state 702 of the object (e.g. human 614). Locomotive rate 704 may be used to calculate locomotion (LO), or the total (i.e., integral) amount of motion (i.e., movement) of the object (e.g., human 614) over a period of time (i.e., a sample interval, D). In other words, the total movement of an object from time1 (t1) to time2 (t2) (e.g., $D_{t1,t2}$) may be $LO_{t1,t2}$. Locomotion may not depend on the path of the movement of the object. Since locomotion may be the total movement of the object, $LO_{t1,t2}$ may be greater than or equal to $D_{t1,t2}$. Several methods may be used to calculate L from the sensor signal and/or other measurements. For example, accelerometer readings may be integrated to approximate velocity over a period of time (i.e., a sample interval). Another method may take advantage of the activity state classification described above. For example, given an activity state (e.g., activity state 702, S), locomotive rate 704 of that state,

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L_S, may be defined by looking up a value in a table (e.g., FIG. 7) indexed by S. Controller 608 may look up locomotive rate 704, corresponding to activity state 702, or any other values in the table of FIG. 7, and may use those values to make further calculations. A table such as that in FIG. 7 may be stored in flash memory which may be included in monitoring device 600.

[0050] As shown in FIG. 7, each activity state 702 may have corresponding locomotive rate 704. Where the activity state is "inactive" (S_i), the locomotive rate (L_i) may be approximated at .0001 m/s. It should be noted that all values in FIG. 7 are shown for exemplary purposes only. Values for locomotive rate 704 may be calculated through research and empirical methods, measured, averaged, or experimentally found, for any type of object. For example, if a human (e.g., human 614) has an activity state of "walking", the locomotive rate (L_w) may have been approximated, or statistically calculated to be on average 1 m/s.

[0051] The table in FIG. 7 may include values for other parameters including but not limited to those shown in FIG. 7. One such parameter may be device range 706. In some systems, each device in the environment may have the same device range. In other systems, the device range of each device may be different. Device range 706 may be a maximum distance that a device's (e.g., monitoring device 600) pings may travel while still being receivable at a receiver of another device. In other words, device range 706 may be a maximum distance away from another device, at which the device (e.g., monitoring device 600) is still discoverable to the other device.

[0052] Controller 608 may calculate **508** a ping period (e.g., ping period 708) based upon, a least in part, locomotive rate 704. Ping period 708 (N) may be a number of seconds per ping period unit. As shown in FIG. 7, ping period 708 may be defined in terms of unit time over ping period unit (i.e., s/ping period unit). Given activity state 702, locomotive rate 704, and device range 706, controller 608 may calculate ping period 708 (N) using Formula 1 (below).

Formula 1: N (s / ping period unit) = R (m / ping period unit) / L (m / s)

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[0053] In some embodiments, controller 608 may calculate ping rate. Further, in some systems, it may be necessary to bound the formula. To bound the formula, constants, C1, and/or C2 may be used. C1 may be a lower limit, and may ensure that ping period 708 (N) is not shorter than the time it takes to burst the ping itself (e.g., B*M, as discussed above). C2 may be an upper limit, and may ensure that devices (e.g., monitoring device 600) that may leave the network (i.e., environment) for reasons other than movement may be detected. For example if a device (e.g., monitoring device 600) loses power, it may lead to a time between pings that is greater than the maximum period. The values C1 and C2 may be specific to each particular application or each particular object (e.g., human 614, a dog, a car, etc.). When using the two constants C1 and C2, controller 608 may calculate ping period 708 (N) using Formula 2 (below).

Formula 2: N (s / ping period unit)= min(max(R (m / ping period unit) / L (m / s), C_1), C_2)

[0054] In some embodiments controller 608 may calculate ping period 708 (N) using only C1 or only C2. Moreover, controller 608 may duty cycle a transmitter (e.g., transmitter 606) based upon, at least in part, ping period 708. In other words controller 608 may turn transmitter 606 "on" and "off" based on ping period 708. If locomotive rate 704 is relatively low (i.e., the activity state is inactive) and in turn Formula 2 yields a high ping period (N), controller 608 may turn transmitter 606 to an "off" (or otherwise inactive, asleep, or using less power) mode for longer periods of time. Conversely, if locomotive rate 704 is relatively high (i.e., the activity state is jogging or running) and in turn Formula 2 yields a low ping period (N), controller 608 may turn transmitter 606 to an "on" (or otherwise active, awake, or using more power) mode for longer periods of time. In this way, controller 608 may be configured to efficiently use transmitter 606 to be discovered by other devices in the environment

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while saving power.

[0055] Moreover controller 608 may be configured to cause transmitter 606 to transmit **512** pings based upon, at least in part, ping period 708. For example, if locomotive rate 704 is increased (i.e., the object is moving faster), controller 608 may decrease the amount of time between each ping (i.e., decrease the ping period) transmitted. In other words, controller 608 may increase the ping rate of transmitter 606. If locomotive rate 704 is decreased (i.e., the object is moving slower), controller 608 may increase the amount of time between each ping (i.e., increase the ping period). In other words, controller 608 may decrease the ping rate of transmitter 606. In one embodiment, at least one packet of at least one of the pings transmitted by transmitter 606 may include information representing the activity state (e.g., activity state 702) of the object (e.g., human 614).

[0056] In this way, controller 608 may be configured to use transmitter power efficiently, while still allowing other devices in the environment to discover it. As such, controller 608 may maximize discoverability by increasing ping rates during high periods of locomotion while minimizing power consumption through reducing transmissions of pings during low states of locomotion.

[0057] In another embodiment, controller 608 may decrease the ping period of pings transmitted by transmitter 606 based upon, at least in part, a change in the activity state of the object. Further, controller 608 may increase the ping period of pings transmitted by transmitter 606 based upon, at least in part, a change in the activity state of the object. In this situation, controller 608 may control the ping period of pings transmitted by transmitter 606 without use of the locomotive rate.

[0058] In one implementation, controller 608 may dynamically adjust the ping period of the transmitter based upon, at least in part, a real-time activity state classification of the object. The real-time activity state classification may be based upon, at least in part, the characteristic. As discussed above controller 608 may classify **504** activity state 702 of the object (e.g., human 614) based upon, at least in part, the characteristic. If controller 608 continuously runs an activity state classifier

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(i.e., continuously classifies the activity state of the object), it may continuously use locomotive rate 704 to calculate the ping period. In this way, controller 608 may dynamically adjust the ping period or ping rate of transmitter 606.

[0059] Various operations and features have been described above, however some embodiments may not require each operation and/or feature. For example, controller 608 may duty cycle transmitter 606 based upon, at least in part, the characteristic which is represented by signal 612, without using locomotive rate 704. Controller 608 may also use signal 612 to directly control the duty cycling of transmitter 606. In other embodiments, ping period 708 may be calculated based upon, at least in part, the characteristic. Controller 608 may calculate ping period 708 without using locomotive rate 704.

[0060] In one implementation controller 608 may regulate power drawn from a battery (e.g., battery 610) based upon, at least in part, the characteristic, or signal 612. For example, controller 608 may regulate the power that transmitter 606 draws from battery 610 by duty cycling transmitter 606 and/or controlling the transmission of pings transmitted by transmitter 606 based upon the characteristic, or signal 612. Further a voltage regulator, which may be part of power management circuitry 116 may be used to regulate power drawn from the battery based upon the characteristic, or signal 612. Additionally, controller 608 may be configured to regulate power drawn from the battery 610 based upon, at least in part, activity state 702.

[0061] Some of the embodiments described above may be implemented as software modules executed by a processor of a computing system, and/or in a computer program product that may be stored on a storage device, storage medium, or computer readable medium having instructions that when executed by a processor perform portions of the discovery process above. The storage device, storage medium, or computer readable medium may include, but is not limited to, any type of disk including floppy disks, optical disks, compact disk read only memories (CD-ROMS), compact disk rewritables (CD-RWs), magneto-optical disks, semiconductor devices such as read-only memories (ROMs), random access memories (RAMs) such

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as dynamic and static RAMs, electronically erasable programmable read-only memories (EEPROMs), flash memories, magnetic or optical cards, or any type of media suitable for storing electronic instructions. Other embodiments may be implemented as software modules executed by a programmable control device.

[0062] A number of implementations have been described. Nevertheless, it will be understood that various modifications may be made. Accordingly, other implementations are within the scope of the following claims.

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H&K Docket No.: 115788.00019 Holland & Knight LLP
Assignee: SNIF Labs, Inc., Boston, MA 10 St. James Avenue
Inventor: Gips, et al. Boston, MA 02116

CLAIMS

What is claimed is:

1) A method comprising:

transmitting, via a transmitter, a plurality of transmit pings at a transmit interval, the transmit interval corresponding to a time between transmission of each transmit ping;

listening, via a receiver, for a live ping, the receiver configured to be turned on at a beginning of an assess interval, and off at an end of a detect duration, the assess interval corresponding to a time each packet in the live ping is spaced apart multiplied by an amount of packets in the live ping, the detect duration corresponding to the time each packet in the live ping is spaced apart plus a transmit time, the transmit time corresponding to a time required for a packet to travel from one device to another;

receiving, via the receiver, at least one packet from the live ping;

delaying, after receiving the live ping, transmission of a new ping for a delay duration, the delay duration corresponding to an amount of time determined, at least in part, by a counter value of a packet of the live ping; and

transmitting, via the transmitter, new pings at the transmit interval.

2) The method of claim 1 wherein at least one of the transmit ping, the live ping, and the new ping comprises a plurality of packets, each transmitted at a burst interval, the burst interval corresponding to a time each packet in the plurality of packets is spaced apart.

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H&K Docket No.: 115788.00019 Holland & Knight LLP
Assignee: SNIF Labs, Inc., Boston, MA 10 St. James Avenue
Inventor: Gips, et al. Boston, MA 02116

3) The method of claim 2 wherein at least one packet of the plurality of packets is received in the transmit time.

4) The method of claim 3 wherein the transmit time is less than one burst interval.

5) The method of claim 4 wherein the detect duration corresponds to the transmit time plus one burst interval.

6) The method of claim 2 wherein each packet comprises at least one of a device identifier, status information, and a counter value.

7) The method of claim 1 wherein the transmit interval is between about 3 seconds and about 12 seconds.

8) The method of claim 2 wherein the burst interval is between about 1 millisecond and about 2 milliseconds.

9) The method of claim 2 wherein at least one of the transmit ping, the live ping, and the new ping comprises between about 96 packets and about 320 packets.

10) The method of claim 2 wherein the packets are RF packets.

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11) The method of claim 1 further comprising

delaying, after receiving the live ping, transmission of a new ping for an additional backoff duration, the backoff duration corresponding to an amount of time configured to prevent pings from colliding.

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12) A method comprising:

transmitting, via a transmitter, a plurality of transmit pings at a transmit interval, the transmit interval corresponding to a time between transmission of each transmit ping, each transmit ping including a number of packets;

listening, via a receiver, for a live ping, each live ping including a number of packets, the receiver configured to be turned on at a beginning of an assess interval, and off at an end of a detect duration, the assess interval corresponding to a time each packet in the live ping is spaced apart multiplied by an amount of packets in the live ping, the detect duration corresponding to the time each packet in the live ping is spaced apart plus a transmit time, the transmit time corresponding a time required for a packet to travel from one device to another;

receiving, via the receiver, at least one packet of the live ping;

delaying, after receiving the live ping, transmission of a new ping for a delay duration plus a backoff duration, the delay duration corresponding to an amount of time determined, at least in part, by a counter value of the received packet of the live ping, the counter value designating which packet in the live ping was received by the receiver, the backoff duration corresponding to an amount of time configured to prevent pings from colliding; and

transmitting, via the transmitter, the new ping at the transmit interval, the new ping including a plurality of packets.

13) The method of claim 12 wherein the assess interval is B * M, wherein B

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corresponds to the time each packet in the live ping is spaced apart, and M corresponds to the amount of packets in the live ping.

14) The method of claim 12 wherein the detect duration is B + P, wherein P corresponds to the amount of time each packet of the live ping is in transmission.

15) The method of claim 12 wherein the backoff duration is configured to prevent pings from colliding for up to N / (B * M) devices, wherein N corresponds to the transmit interval, the transmit interval corresponding to a time between transmission of each ping.

16) The method of claim 12 further comprising duty cycling the receiver based upon, at least in part, the assess interval.

17) The method of claim 12 further comprising duty cycling the receiver based upon, at least in part, the detect duration.

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18) A method comprising:

transmitting, via a transmitter, a plurality of transmit pings at a transmit interval, the transmit interval corresponding to a time between transmission of each transmit ping, each transmit ping including a number of packets;

listening, via a receiver, for a live ping;

receiving, via the receiver, at least one packet of the live ping;

delaying, after receiving the live ping, transmission of a new ping for a delay duration, the delay duration corresponding to an amount of time determined, at least in part, by a counter value of a packet of the live ping; and

transmitting, via the transmitter, the new ping at the transmit interval, the new ping including a plurality of packets.

19) A method of claim 18 wherein a monitoring device having the transmitter is in communication with a remote device having a second receiver, without network synchronization.

20) The method of claim 19 further comprising duty cycling the receiver.

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21) A device comprising:

a transmitter configured to transmit a plurality of transmit pings at a transmit interval, the transmit interval corresponding to a time between transmission of each transmit ping, each transmit ping including a number of packets;

a receiver configured to listen for a live ping and to receive at least one packet of the live ping; and

the transmitter further configured to delay transmission of a new ping for a delay duration, the delay duration corresponding to an amount of time determined, at least in part, by a counter value of the at least one packet of the live ping, and to transmit a new ping at the transmit interval.

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22) A method comprising:

listening, via a receiver, for a live ping;

receiving, via the receiver, at least one packet of the live ping; and

duty cycling the receiver based upon, at least in part, information in at least one packet of the live ping.

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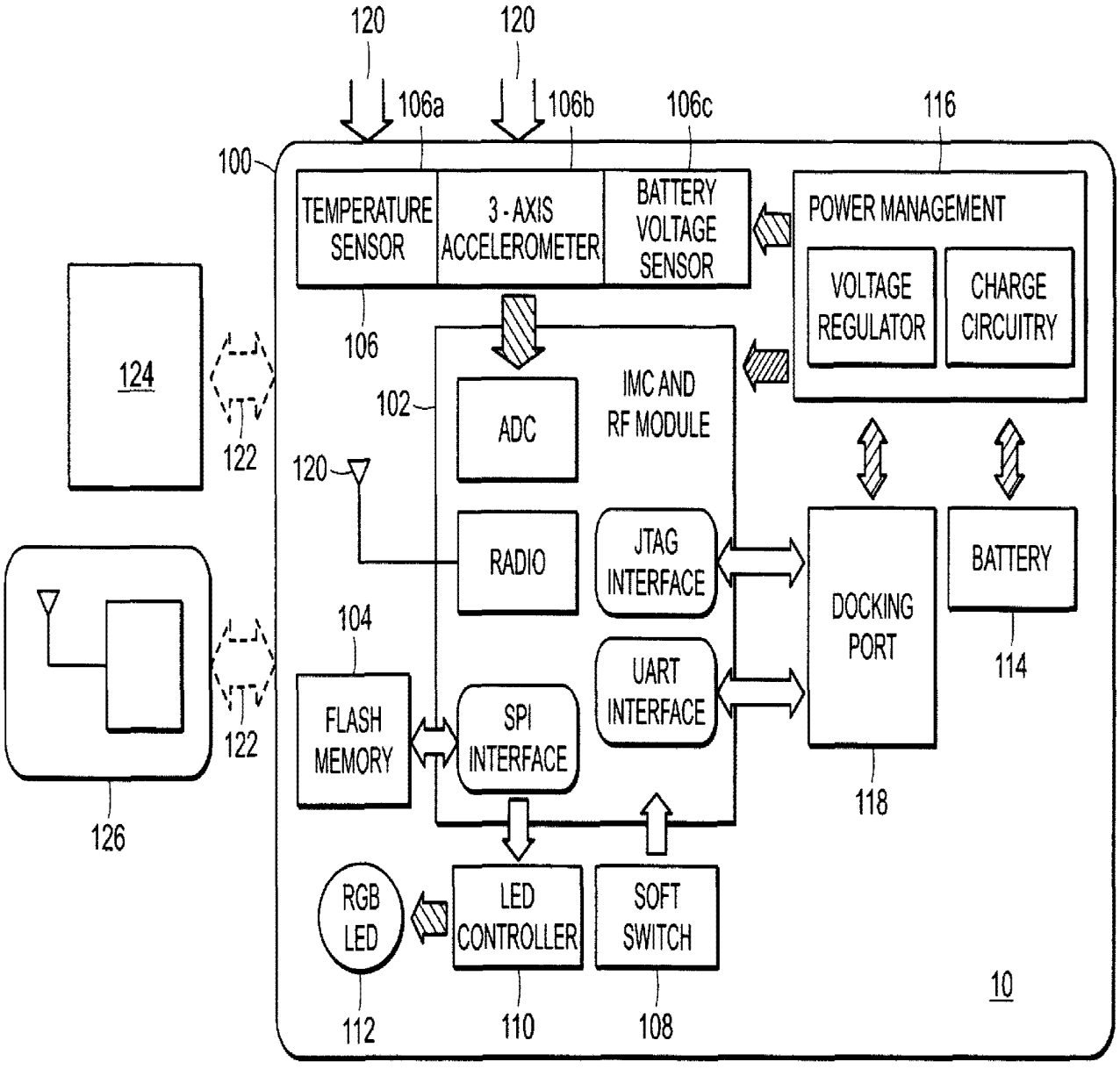


FIG. 1

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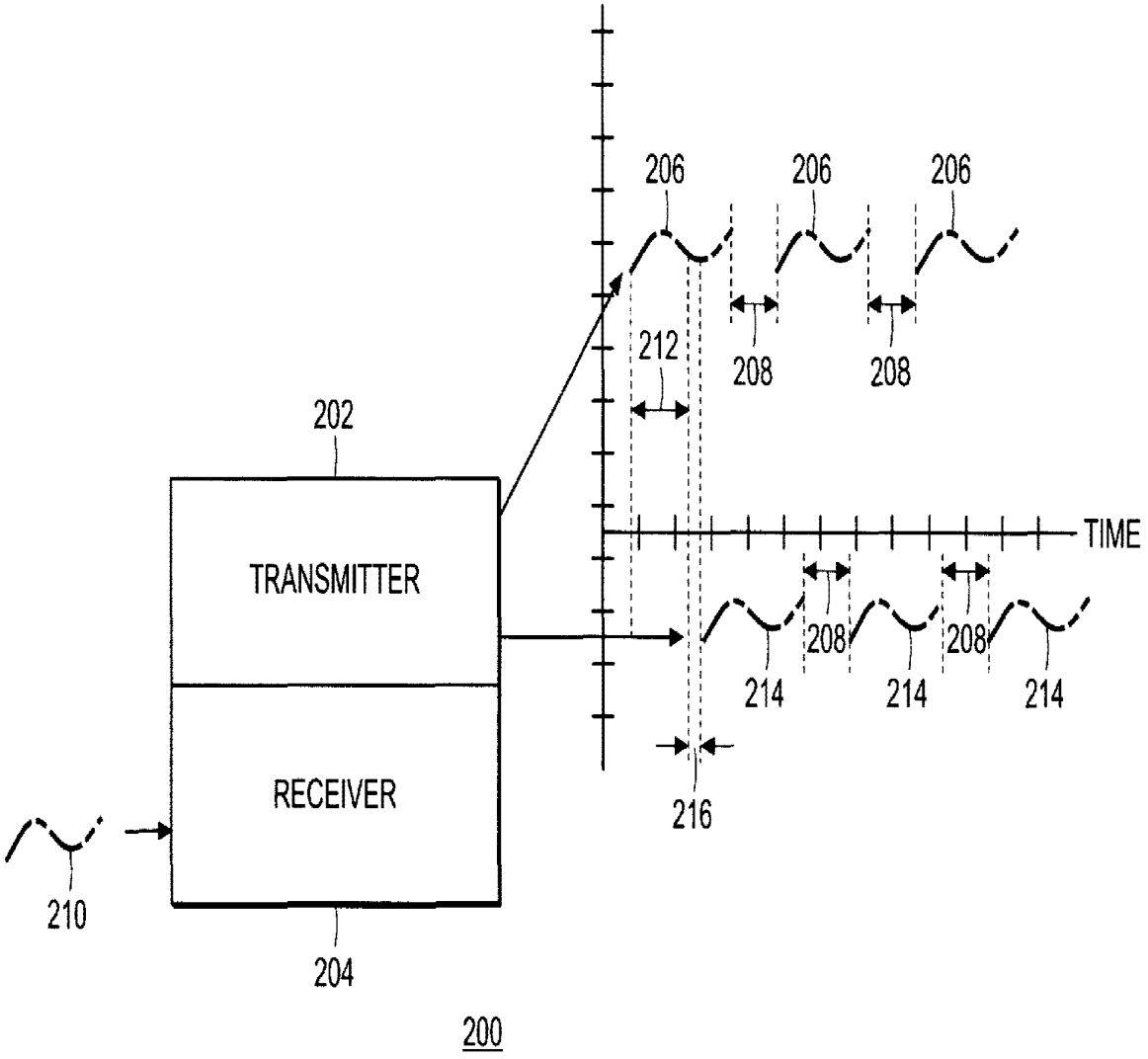


FIG. 2

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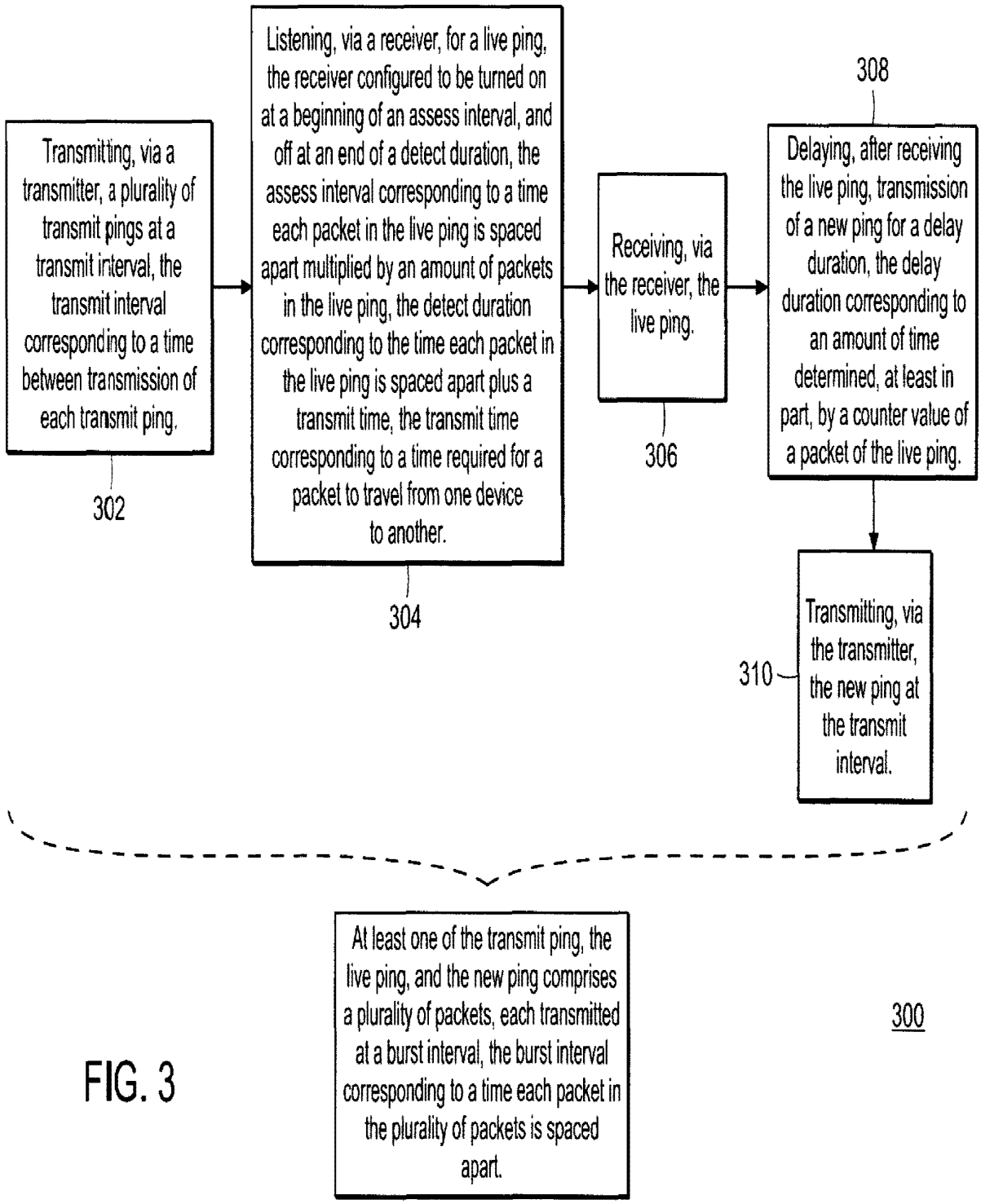


FIG. 3

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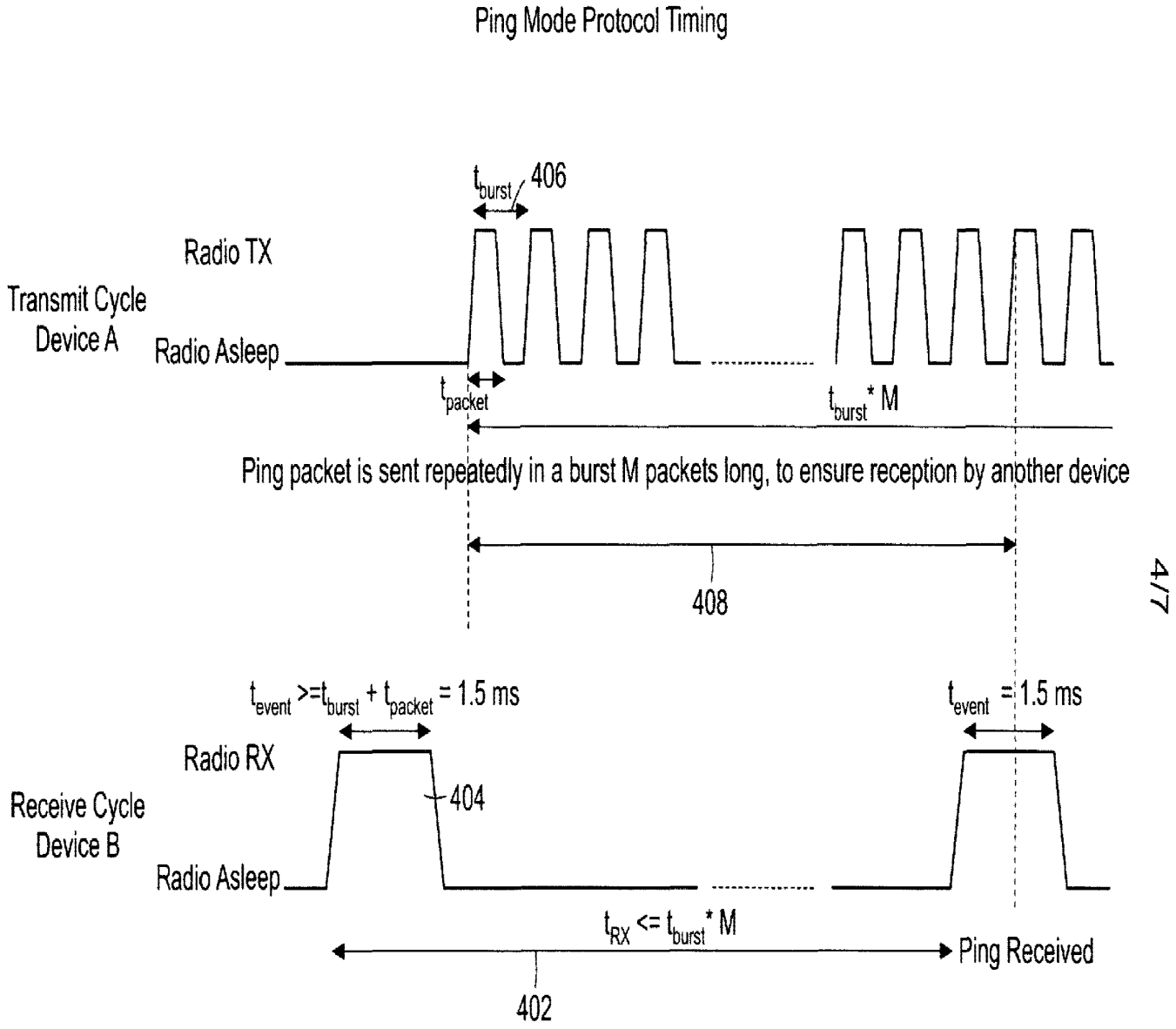


FIG. 4

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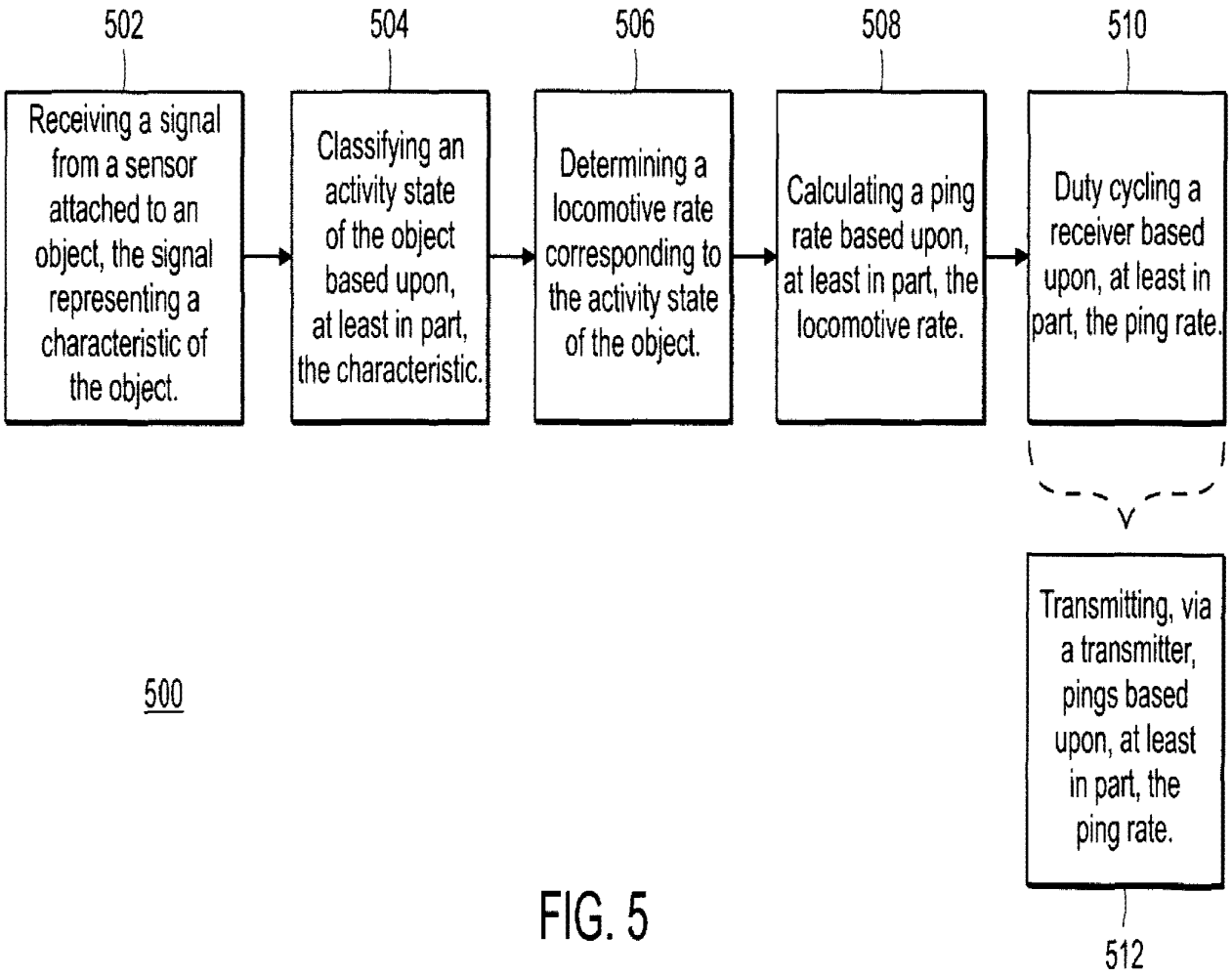


FIG. 5

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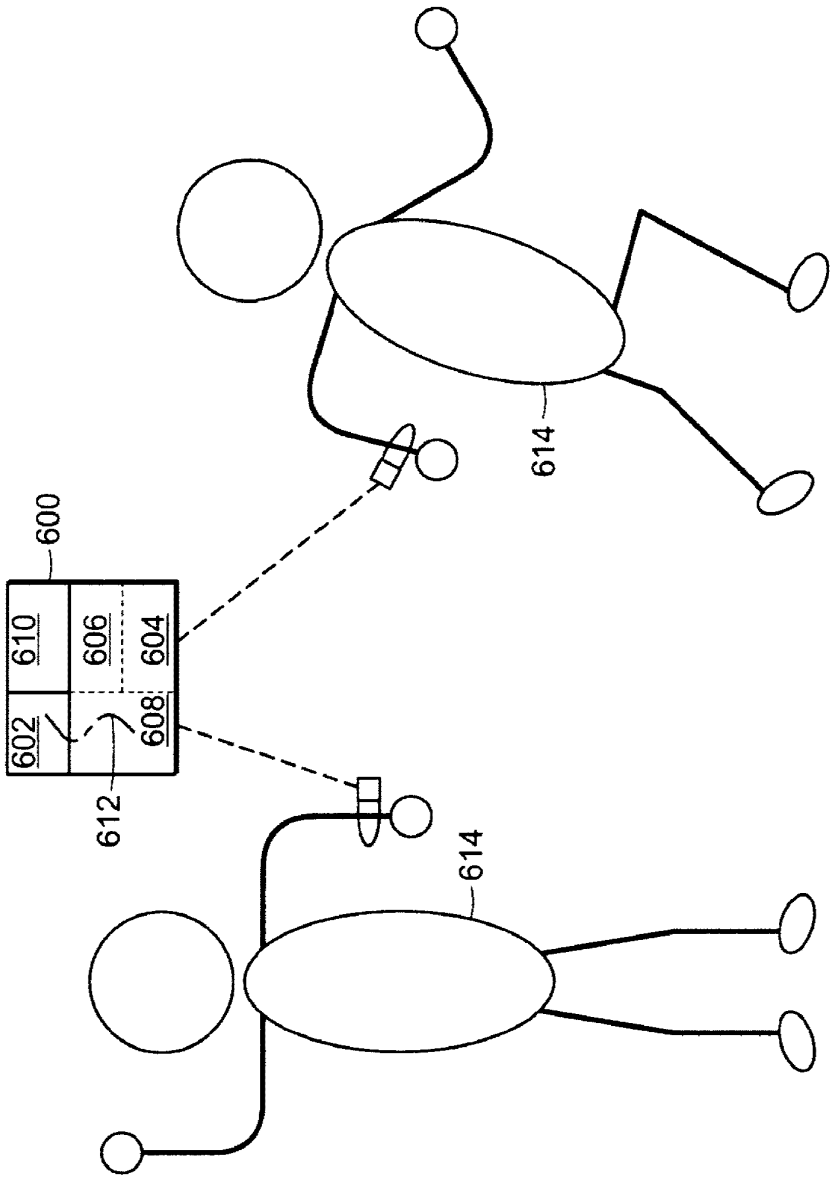


FIG. 6

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702 Activity State	704 Locomotive Rate (locomotive rate, m/s, approximated)	706 Device Range (m/ping period unit)	Minimum Period (s)	Maximum Period (s)	708 Ping Period (s/ping period unit)
Inactive (S_I)	L_I= .0001	R = 10	C_1 = B*M = 0.4	C_2 = 300	300
Low Activity (S_L)	L_L= .5				20.0
Walking (S_W)	L_W= 1				10.0
Jogging (S_J)	L_J= 1.5				6.67
Running (S_R)	L_R= 2.5				4

FIG. 7

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EFS ID:	47577852
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
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Attorney Docket Number:	111054-0001U8
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Time Stamp:	10:29:01
Application Type:	Utility under 35 USC 111(a)

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Foreign Reference	EP2332126.pdf	1411600 e7bef8c82bf50350c3263470d01a05ba7f0e bd80	no	39

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

New International Application Filed with the USPTO as a Receiving Office

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

Electronic Acknowledgement Receipt

EFS ID:	47577823
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	23-FEB-2023
Filing Date:	12-SEP-2022
Time Stamp:	10:24:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$104
RAM confirmation Number	E20232MA24577931
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	Fee Worksheet (SB06)	fee-info.pdf	38158 27dc0a9e48358611a650f59c76c6fd1038138d70	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	38158

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

Application Number:	17942197
Filing Date:	12-Sep-2022
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U8

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	104	104
		Total in USD ($)		**104**

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/942,197	09/12/2022	James A. Proctor JR.	111054-0001U8

CONFIRMATION NO. 2459

86012
VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

PUBLICATION NOTICE

OC000000137452681

Title:EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

Publication No.US-2023-0057111-A1
Publication Date:02/23/2023

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

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

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

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5541604	B1	1996-07-30	MEIER	
	2	5901303	B1	1999-05-04	CHEW	
	3	5767503	B1	1998-06-16	GLOTON	
	4	5690773	B1	1997-11-25	FIDALGO et al,	
	5	5671525	B1	1997-09-30	FIDALGO et al.	
	6	6043747	B1	2000-03-28	ALTENHOFEN	
	7	5977877	B1	1999-11-02	MCCULLOCH et al.	
	8	5745037	B1	1998-04-28	GUTHRIE et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17942197
	Filing Date	2022-09-12
	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

	9	6091342	B1	2000-07-18	JANESCH et al.	
	10	6151647	B1	2000-11-21	SARAT	
	11	7768415	B1	2010-08-03	Blackadar	
	12	7616124	B1	2009-11-10	Paessel et al.	
	13	8005465	B2	2011-08-23	Salokannel et al.	
	14	8959187	B1	2015-02-17	li et al.	
	15	8005465	B1	2011-08-23	Salokannel et al.	
	16	8780945	B1	2014-07-15	Gips et al.	
	17	10639552	B1	2020-05-05	Vock et al.	

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17942197
	Filing Date	2022-09-12
	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

	1	20080109302	A1	2008-05-08	Salokannel et al.	
	2	20040082343	A1	2004-04-29	Kim et al.	
	3	20090234728	A1	2009-09-17	Willuns et al.	

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2332126	EP	A1	2010-03-11	SNIF LABS INC		

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NON-PATENT LITERATURE DOCUMENTS Remove

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

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/David J Thibodeau Jr/	Date (YYYY-MM-DD)	2023-02-22
Name/Print	David J. Thibodeau, Jr.	Registration Number	31671

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

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

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

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

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

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

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

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

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

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

Electronic Acknowledgement Receipt

EFS ID:	47577171
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	23-FEB-2023
Filing Date:	12-SEP-2022
Time Stamp:	08:25:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	20230223_111054-0001U8_TPO_IDS_Addl_Refs.pdf	1283213 d263024f59253d7579f4bf2602d266b72252a8a1	no	6

Warnings:

Information:	
Total Files Size (in bytes):	1283213

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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PTO/AIA/26 (04-14)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 111054-0001U8

In re Application of: James A Proctor, Jr.

Application No.: 17/942,197

Filed: September 12, 2022

For: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

The applicant, Proxicom Wireless LLC, owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 11,443,344 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

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

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 31671

/David J Thibodeau Jr./ — Signature
21-March-2023 — Date

David J. Thibodeau, Jr. — Typed or printed name

Attorney for Applicant — Title
617.925.5520 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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.

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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. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to: 1) law enforcement, in the event that the system of records indicates a violation or potential violation of law; 2) a Federal, state, local, or international agency, in response to its request; 3) a contractor of the USPTO having need for the information in order to perform a contract; 4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record; 5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record; 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations; 7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals; 8) 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)); 9) the Office of Personnel Management (OPM) for personnel research purposes; and 9) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

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Additional USPTO uses of the information in this record may include disclosure to: 1) the International Bureau of the World Intellectual Property Organization, if the record is related to an international application filed under the Patent Cooperation Treaty; 2) the public i) after publication of the application pursuant to 35 U.S.C. 122(b), ii) after issuance of a patent pursuant to 35 U.S.C. 151, iii) 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, or iv) without publication of the application or patent under the specific circumstances provided for by 37 CFR 1.14(a)(1)(v)-(vii); and/or 3) the National Archives and Records Administration, for inspection of records.

Electronic Patent Application Fee Transmittal

Application Number:	17942197
Filing Date:	12-Sep-2022
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U8

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($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	104	104
STATUTORY OR TERMINAL DISCLAIMER	2814	1	170	170
		Total in USD ($)		**274**

Electronic Acknowledgement Receipt

EFS ID:	47714217
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	21-MAR-2023
Filing Date:	12-SEP-2022
Time Stamp:	09:20:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$274
RAM confirmation Number	E20233K020306301
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		20230321_111054-0001U8_TPO_Response_Non_Final.pdf	173903 a65e04f570d7582b4c67e14c76f3ca57581fcb26	yes	25
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Request for Reconsideration-After Non-Final Rejection		1	1	
	Claims		2	21	
	Applicant Arguments/Remarks Made in an Amendment		22	25	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	20230321_111054-0001U8_TPO_Terminal_Disclaimer.pdf	230629 d3d393cb17a3eb737810e788e8a5e94b29b43e33	no	2
Warnings:					
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3	Information Disclosure Statement (IDS) Form (SB08)	20230321_111054-0001U8_TPO_SIDS.pdf	1282568 165626bd0391376bd00396a4c811211951372b2f	no	4
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	40335 7e10be8a55fc0734cd37b4480a3489a19fc5109e	no	2
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2459
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	8599814	B1	2013-12-03	Vleugels et al.	
	2	9264991	B1	2016-02-16	Vleugels et al.	
	3	10873906	B1	2020-12-22	Vleugels et al.	
	4	11012934	B2	2021-05-18	Vleugels et al.	
	5	11122504	B2	2021-09-14	Vleugels et al.	
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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

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Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2459
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

CERTIFICATION STATEMENT

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

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

OR

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

See attached certification statement.

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

☒ A certification statement is not submitted herewith.

SIGNATURE

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

Signature	/David Thibodeau/	Date (YYYY-MM-DD)	2023-03-21
Name/Print	David Thibodeau	Registration Number	31671

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

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

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

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

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

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

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

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

REMARKS/ARGUMENTS

Status of the Claims

With entry of the foregoing amendments, claims 31-113 are presented for further examination.

No claim has been allowed. However claims 37-58 and 61-113 were indicated as being allowable if rewritten in independent form including all limitations of the base claim and any intervening claims.

Explanation of Amendments

Claims 39, 42, 43, 53, 108 and 112 are amended to clarify and consistently refer to "taking first further action".
Claim 60 is amended as more fully explained below.
Claim 61 is amended to consistently refer to "Bluetooth wireless protocol" as recited in the independent claim.
Claim 108 is amended to remove the extraneous question marks.

Pre-AIA Status

The Applicant thanks the Examiner for confirming the application is being examined under the "first to invent" provisions of the law as it existed prior to adoption of the America Invents Act (AIA) in 2012.

Petitioner Samsung Ex-1004, 0358

Double Patenting

Claims 31-36, 59, and 60 were rejected on the ground of non-statutory double patenting over claims 1-6, 29, 30 of issued U.S. Patent No. 11,443,344. Although the claims in this application and the issued patent are not identical, they were not considered to be patentably distinct from each other.

A terminal disclaimer in view of U.S. Patent 11,443,344 is being filed herewith.

Therefore the rejection of all claims on this basis can be withdrawn.

Claim Rejections – 35 USC 101

Claim 60 was rejected under 35 U.S.C. 101 as being directed toward a computer program, specifically software arranged to operate at the application layer on a mobile device stored on a computer readable medium.

It was suggested that the rejection could be overcome by amending the claim to recite an appropriate type of computer readable medium.

Paragraph [0038] of the application as filed explains that:

> "Disk storage can provide ***non-volatile*** storage for computer software instructions and data used to implement an embodiment of the present invention." (emphasis added).

Claim 60 has now been amended to recite "non-volatile" storage.

Petitioner Samsung Ex-1004, 0359

Therefore, the rejection of claim 60 on this basis and all claims that depend from claim 60 should now be withdrawn.

Claim Objections

Claims 37-58 and 61-113 were objected to as being dependent upon a rejected base claim.

Claims 37-58 depend either directly or indirectly from claim 31, which is allowable in light of the terminal disclaimer being filed herewith. These dependent claims should therefore be allowed.

Claims 61-113 depend either directly or indirectly from claim 60, which is now allowable in view of the amendments and the reasons stated above. These dependent claims should therefore also be allowed.

Petitioner Samsung Ex-1004, 0360

Conclusion

With entry of the foregoing amendments, all of the claims presented should be in condition for allowance.

Although no additional fee is believed due but please charge U.S. Patent Office Deposit Account Number 50-4929 as may be necessary.

March 21, 2023

Respectfully submitted,

/David J Thibodeau Jr./
David J Thibodeau, Jr.
USPTO Reg. No 31671
1(617)925-5520

Petitioner Samsung Ex-1004, 0361

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: Proctor, James et al.	
Serial No.: 17/942,197	Examiner: Harley, Jason A.
Filed: September 12, 2022	Art Unit: 2468
For: Efficient and Secure Wireless Communication Using Wireless Service Identifiers	Confirmation No.: 2459

AMENDMENT

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

Sir:

In response to the Office Action mailed December 21, 2022 please enter the enclosed amendments and consider the remarks that follow.

Amendments to the Claims are reflected in the claim listing beginning on page 2.

Our **Remarks** begin on page 22.

Petitioner Samsung Ex-1004, 0362

Amendments to the Claims:

This listing of claims replaces all prior versions of the claims:

1-30. (Cancelled)

31. (Previously Presented) A method comprising:

receiving, at a wireless device, via a short range wireless protocol, a first plurality of beacon transmissions, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the short range wireless protocol;

receiving, at the wireless device via a second wireless protocol, the stored information from one or more servers, the stored information relating to a particular entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the short range wireless protocol;

causing selection of one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with a particular wireless beacon service; and

taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.

Petitioner Samsung Ex-1004, 0363

32. (Previously Presented) The method of claim 31, wherein the receiving, at the wireless device, via a short range wireless protocol, of the first plurality of beacon transmissions occurs in a first time period, and

wherein the method further comprises, during a second time period:

receiving, at the wireless device, via a short range wireless protocol, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not accessible to the wireless device utilizing the short range wireless protocol;

causing selection of one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same particular beacon service identifier indicating that the particular received beacon transmission is associated with the same particular wireless beacon service; and

taking second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the first unique identifier and the second unique identifier are both associated with the same particular entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device.

33. (Previously Presented) The method of claim 32 wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier, and wherein

Petitioner Samsung Ex-1004, 0364

a plurality of beacon transmissions including the particular service identifier and the first unique identifier are received in the first time period, and no beacon transmissions including the same particular service identifier and the second unique identifier are received in the first time period.

34. (Previously Presented) The method of claim 33 wherein the second further action is based upon a function currently being performed on a device associated with the wireless beacon service.

35. (Previously Presented) The method of claim 34 wherein the function is related to
a current phone call,
music being played,
a video being played,
a multi-player game, or
a shared application.

36. (Previously Presented) The method of claim 32 wherein the first or the second further action is related to receiving advertising information for presentation to a user of the wireless device, based upon the first or the second unique identifier, or information derived from the first or second unique identifier.

37. (Previously Presented) The method of claim 32 wherein one or more of the first further action and the second further action includes receiving content from a server based upon information derived from either the first unique identifier or the second unique identifier.

Petitioner Samsung Ex-1004, 0365

38. (Previously Presented) The method of claim 32, wherein the first or second further action includes sending a message to another device associated with an account related to the first and the second unique identifiers.

39. (Currently Amended) The method of claim 32 wherein following the ~~performance~~ taking of the first or second further action, a server associated with an account for a user of the wireless device performs a step of sending an email message to an email address associated with the account for the user, the email message relating to the particular entity or object.

40. (Previously Presented) The method of claim 32 wherein the second further action includes preventing sending of the second unique identifier or information derived from the second unique identifier by the wireless device to at least one of the one or more servers.

41. (Previously Presented) The method of claim 31 wherein the first further action comprises: determining, based upon at least a portion of the stored information, that at least one beacon transmitter is associated with a predetermined location.

42. (Currently Amended) The method of claim 31 wherein the ~~step of~~ taking first further action further includes causing the wireless device, to:

send the first unique identifier or information derived from the first unique identifier to at least one of the one or more servers, and

receive the stored information in response.

Petitioner Samsung Ex-1004, 0366

43. (Currently Amended) The method of claim 31 wherein the stored information is received at the wireless device from at least one of the one or more servers prior to the ~~performing~~ taking of the first further action.

44. (Previously Presented) The method of claim 32 wherein the stored information is received at the wireless device from at least one of the one or more servers prior to performing one or more of the first and the second further action.

45. (Previously Presented) The method of claim 31 further comprising:

using the stored information to determine if the first unique identifier is present among the first selected one or more unique identifiers.

46. (Previously Presented) The method of claim 32 wherein all beacon transmitter devices participating in the particular wireless beacon service have the same particular beacon service identifier.

47. (Previously Presented) The method of claim 32 wherein the second further action comprises:

determining, based upon at least a portion of the stored information, that the beacon transmitter is associated with a predetermined location.

48. (Previously Presented) The method of claim 32 wherein the steps performed at the wireless device are performed as a result of an application program executing on the wireless device.

49. (Previously Presented) The method of claim 32 wherein the second further action is related to either a product tied to a location or an advertisement tied to a location.

Petitioner Samsung Ex-1004, 0367

50. (Previously Presented) The method of claim 31 wherein the first further action includes determining an address or location associated with the wireless device based at least in part upon the first unique identifier being associated with a pre-determined location, and wherein the wireless device is located indoors where a GPS signal may not be available.

51. (Previously Presented) The method of claim 32 wherein the second further action includes determining an address or location associated with the wireless device based at least in part upon the second unique identifier being associated with a pre-determined location, wherein the wireless device is located indoors where a GPS signal may not be available.

52. (Previously Presented) The method of claim 32 wherein the second further action includes allowing a user associated with the wireless device to be provided access to an object or device associated with the wireless beacon service.

53. (Currently Amended) The method of claim 32 wherein the ~~step of~~ taking second further action additionally comprises:

controlling further communications between the wireless device and at least one device or server associated with an entity or object in proximity to the wireless device.

54. (Previously Presented) The method of claim 33 further comprising:

receiving, at the wireless device, timing notification information for coordination of active times for beacon transmissions.

55. (Previously Presented) The method of claim 54 wherein the receiving, at the wireless device of the timing notification information is not directly from the beacon transmitter.

Petitioner Samsung Ex-1004, 0368

56. (Previously Presented) The method of claim 32 further comprising:

using the stored information to determine if the second unique identifier is present among the selected one or more of the unique identifiers from the second plurality of beacon transmissions.

57. (Previously Presented) The method of claim 31 wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

58. (Previously Presented) The method of claim 33 wherein the short range protocol is derived from Bluetooth.

59. (Previously Presented) A mobile wireless device comprising:

one or more radios for providing reception and transmission for each of a Bluetooth wireless protocol and a second wireless protocol;

one or more processors; and

one or more memory devices coupled to the one or more processors, the one or more memory devices storing a set of instructions that when executed by the one or more processors cause the one or more processors to perform operations including:

receiving from a beacon transmitter, using the Bluetooth wireless protocol, a first plurality of beacon transmissions during a first time period, each of the beacon transmissions including (a) a MAC address, (b) a unique identifier, the unique identifier does not directly identify a location of the beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol;

receiving from one or more servers, using the second wireless protocol, stored information related to a entity or object associated with a first unique identifier;

Petitioner Samsung Ex-1004, 0369

selecting one or more unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with the particular wireless beacon service;

taking first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers;

receiving, by the wireless device, using the Bluetooth wireless protocol, during a second time period, a second plurality of beacon transmissions, each of the second plurality of beacon transmissions comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) the beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not accessible to the wireless device utilizing the Bluetooth wireless protocol;

selecting one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same particular beacon service identifier indicating that a particular received beacon transmission is associated with the same particular wireless beacon service;

taking second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the second unique identifier is associated with the same entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device; and

wherein the MAC address received in a beacon transmission including the second unique identifier is different from the MAC address received in a beacon transmission

Petitioner Samsung Ex-1004, 0370

including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier.

60. (Currently Amended). A computer program product for installation in a non-volatile memory in a wireless device, the computer program product comprising computer program instructions that, when read from the non-volatile memory, and then executed by one or more processors in the wireless device, cause the wireless device to:

process a first plurality of beacon transmissions, received at the wireless device via a Bluetooth wireless protocol, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol;

process stored information transferred from one or more servers to the wireless device via a second wireless protocol, wherein the stored information relates to an entity or object associated with a first unique identifier, and wherein the second wireless protocol is different from the Bluetooth wireless protocol;

select one or more of the unique identifiers from the first plurality of beacon transmissions, by filtering the beacon transmissions which include a particular beacon service identifier indicating that a particular received beacon transmission is associated with a particular wireless beacon service; and

perform a first further action, the first further action relating to the stored information, if the first unique identifier is present among the selected one or more unique identifiers.

Petitioner Samsung Ex-1004, 0371

61. (Currently Amended) The computer program product of claim 60 wherein the computer program instructions, when executed by the one or more processors in the wireless device, cause the wireless device to:

during a first time period:

process the first plurality of beacon transmissions in the first time period, and

during a second time period:

process a second plurality of beacon transmissions, received at the wireless device via the Bluetooth wireless protocol, each beacon transmission comprising three fields (a) a MAC address, (b) a unique identifier, wherein the unique identifier of each respective beacon transmission does not directly identify a location of a beacon transmitter, and (c) a beacon service identifier, wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the Bluetooth wireless protocol;

select one or more of the unique identifiers from the second plurality of beacon transmissions, by filtering the beacon transmissions which include the same particular beacon service identifier indicating that the particular received beacon transmission is associated with the same particular wireless beacon service; and

perform a second further action relating to the stored information, if a second unique identifier is present among the one or more unique identifiers selected from the second plurality of beacon transmissions, wherein the first unique identifier and the second unique identifier are both associated with the same particular entity or object, and wherein the second unique identifier is not equal to the first unique identifier, and further wherein the received beacon transmissions including the first and second unique identifiers are received from a same transmitting device.

62. (Previously Presented) The computer program product of claim 61 wherein the MAC address received in a beacon transmission including the second unique identifier is

Petitioner Samsung Ex-1004, 0372

different from the MAC address received in a beacon transmission including the first unique identifier, but each such beacon transmission includes the same particular beacon service identifier, and wherein a plurality of beacon transmissions including the particular beacon service identifier and the first unique identifier are received in the first time period, and no beacon transmissions including the same service identifier and the second unique identifier are received in the first time period.

63. (Previously Presented) The computer program product of claim 62 wherein the second further action is based upon a function currently being performed on a device associated with the wireless beacon service.

64. (Previously Presented) The computer program product of claim 63 wherein the function is related to a current phone call,

music being played,

a video being played,

a multi-player game, or

a shared application.

65. (Previously Presented) The computer program product of claim 61 wherein the first or the second further action is additionally related to receiving advertising information for presentation to a user of the wireless device, based upon the first or the second unique identifiers, or based upon information derived from the first or second unique identifier.

66. (Previously Presented) The computer program product of claim 60 wherein the first further action is additionally related to receiving advertising information for presentation to a user of the wireless device, based upon the unique identifier, or based upon information derived from the first unique identifier.

Petitioner Samsung Ex-1004, 0373

67. (Previously Presented) The computer program product of claim 61 wherein one or more of the first further action and the second further action additionally includes causing the wireless device to receive content from a server based upon information derived from either the first unique identifier or the second unique identifier.

68. (Previously Presented) The computer program product of claim 62 wherein the first further action additionally includes causing the wireless device to receive content from a server based upon information derived from the first unique identifier.

69. (Previously Presented) The computer program product of claim 61, wherein the first or second further action additionally includes causing the wireless device to send a message to another device associated with an account related to the first or the second unique identifiers, or information derived from the first or the second unique identifiers.

70. (Previously Presented) The computer program product of claim 61, wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to:

after the first or second further action:

send information to a server associated with an account for a user of the wireless device, to enable the server to send a message to an email address associated with the account for the user.

71. (Previously Presented) The computer program product of claim 60, wherein the first further action additionally includes causing the wireless device to send information to a server associated with an account for a user of the wireless device, and enabling the server to send a message to an email address associated with the account for the user as a result of the first further action.

Petitioner Samsung Ex-1004, 0374

72. (Previously Presented) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to prevent sending the second unique identifier or information derived from the second unique identifier by the wireless device to at least one of the one or more servers.

73. (Previously Presented) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to determine that at least one beacon transmitter is associated with a predetermined location.

74. (Previously Presented) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to:

send the first unique identifier or information derived from the first unique identifier to at least one of the one or more servers, and

subsequently receive the stored information in response thereto.

75. (Previously Presented) The computer program product of claim 60 wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to

receive stored information at the wireless device from at least one of the one or more servers prior to performing the first further action.

76. (Previously Presented) The computer program product of claim 61 wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to:

receive stored information at the wireless device from at least one of the one or more servers prior to performing one or more of the first and the second further action.

Petitioner Samsung Ex-1004, 0375

77. (Previously Presented) The computer program product of claim 60 wherein the computer program instructions, when executed by the one or more processors in the wireless device, further cause the wireless device to:

use the stored information to determine if the first unique identifier is present among the first selected one or more unique identifiers.

78. (Previously Presented) The computer program product of claim 61 wherein all beacon transmitter devices participating in the particular wireless beacon service have the same particular beacon service identifier.

79. (Previously Presented) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to determine, based upon at least a portion of the stored information, that the beacon transmitter is associated with a predetermined location.

80. (Previously Presented) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to display a current location, based at least in part upon a predetermined location associated with the first unique identifier, or based at least in part upon information derived from the first unique identifier.

81. (Previously Presented) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to display a current location on the wireless device, based at least in part upon a predetermined location associated with the second unique identifier, or based at least in part upon information derived from the second unique identifier.

Petitioner Samsung Ex-1004, 0376

82. (Previously Presented) The computer program product of claim 61 wherein the second further action is additionally related to either a product tied to a location or to an advertisement tied to a location

83. (Previously Presented) The computer program product of claim 60 wherein the first further action additionally includes causing the wireless device to determine an address or location associated with the wireless device based at least in part upon the first unique identifier being associated with a pre-determined location, when the wireless device is located indoors where a GPS signal may not be available.

84. (Previously Presented) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to determine an address or location associated with the wireless device based at least in part upon the second unique identifier being associated with a pre-determined location, when the wireless device is located indoors where a GPS signal may not be available.

85. (Previously Presented) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to allow a user associated with the wireless device to access to an object or device associated with the wireless beacon service.

86. (Previously Presented) The computer program product of claim 61 wherein the second further action additionally includes causing the wireless device to control further communications between the wireless device and at least one other device or server associated with an entity or object in proximity to the wireless device.

Petitioner Samsung Ex-1004, 0377

87. (Previously Presented) The computer program product of claim 62 wherein the computer program instructions, when executed by the wireless device, further cause the wireless device to:

receive, at the wireless device, timing notification information for coordination of active times for beacon transmissions.

88. (Previously Presented) The computer program product of claim 87 wherein the timing notification information is not received directly from the beacon transmitter.

89. (Previously Presented) The computer program product of claim 61 wherein the computer program instructions, when executed by the wireless device, further cause the wireless device to:

use the stored information to determine if the second unique identifier is present among the selected one or more of the unique identifiers from the second plurality of beacon transmissions.

90. (Previously Presented) The computer program product of claim 60 further comprising program instructions that, when executed by the one or more processors, cause the wireless device to:

use the stored information to determine if the first unique identifier is present among the selected one or more of the unique identifiers from the first plurality of beacon transmissions.

91. (Previously Presented) The computer program product of claim 60 wherein the MAC address is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

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92. (Previously Presented) The mobile wireless device of claim 59 wherein the operations further comprise:

receiving, at the mobile wireless device, timing notification information for coordination of active times for beacon transmissions.

93. (Previously Presented) The computer program product of claim 63 wherein the receiving, at the wireless device of the timing notification information is not directly from the beacon transmitter.

94. (Previously Presented) The mobile wireless device of claim 59 wherein the operations further comprise:

using the stored information to determine if the second unique identifier is present among the selected one or more of the unique identifiers from the second plurality of beacon transmissions.

95. (Previously Presented) The mobile wireless device of claim 59 wherein each MAC address or a respective beacon transmission is a randomly generated 48 bit number matching a format of a Bluetooth BD_ADDR.

96. (Previously Presented) The mobile wireless device of claim 59 wherein the second further action is based upon a function currently being performed on a device associated with the wireless beacon service.

97. (Previously Presented) The mobile wireless device of claim 96 wherein the function is related to

a current phone call,

music being played,

a video being played,

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a multi-player game, or

a shared application.

98. (Previously Presented) The mobile wireless device of claim 59 wherein one or more of the first further action and the second further action includes receiving content from a server based upon information derived from either the first unique identifier or the second unique identifier.

99. (Previously Presented) The mobile wireless device of claim 59, wherein the first or second further action includes sending a message or causing a server to send a message to another device associated with an account related to the first and the second unique identifiers.

100. (Previously Presented) The mobile wireless device of claim 59 wherein the second further action includes preventing sending of the second unique identifier or information derived from the second unique identifier by the mobile wireless device to at least one of the one or more servers.

101. (Previously Presented) The mobile wireless device of claim 59 wherein at least one of the first further action or the second further action comprises: determining that at least one beacon transmitter is associated with a predetermined location.

102. (Previously Presented) The mobile wireless device of claim 59 wherein the operations further comprise:

using the stored information to determine if the first unique identifier is present among the first selected one or more unique identifiers.

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103. (Previously Presented) The mobile wireless device of claim 59 wherein one of the first further action and second further action additionally includes

determining an address or location associated with the wireless device based at least in part upon the first or second unique identifier or information derived from the first or second unique identifier being associated with a pre-determined location, and wherein the mobile wireless device may be located indoors where a GPS signal may not be available.

104. (Previously Presented) The mobile wireless device of claim 59 wherein the second further action includes allowing a user associated with the mobile wireless device to be provided access to an object or device associated with the wireless beacon service.

105. (Previously Presented) The mobile wireless device of claim 59 wherein the first or second further action additionally comprises:

controlling further communications between the mobile wireless device and at least one device or server associated with an entity or object in proximity to the wireless device based upon information derived from the first or second unique identifier.

106. (Previously Presented) The method of claim 31 wherein the first further action is related to receiving advertising information for presentation to a user of the wireless device, based upon the first unique identifier, or information derived from the first unique identifier.

107. (Previously Presented) The method of claim 31 wherein the first further action includes receiving content from a server based upon information derived from the first unique identifier.

108. (Currently Amended) The method of claim 31 [[??]] wherein following the ~~performance~~ taking of the first further action, a server associated with an account for a user

Petitioner Samsung Ex-1004, 0381

of the wireless device performs a step of sending an email message to an email address associated with the account for the user as a result of the first further action.

109. (Previously Presented) The method of claim 31 wherein the first further action comprises: determining that at least one beacon transmitter is associated with a predetermined location.

110. (Previously Presented) The method of claim 32 wherein the second further action comprises:

determining that the beacon transmitter is associated with a predetermined location.

111. (Previously Presented) The method of claim 31 wherein the first further action is related to either a product tied to a location or an advertisement tied to a location.

112. (Currently Amended) The method of claim 33 wherein the ~~step of~~ taking second further action additionally comprises:

controlling further communications between the wireless device and at least one device or server associated with an entity or object in proximity to the wireless device.

113. (Previously Presented) The method of claim 31 further comprising:

using the stored information to determine if the first unique identifier is present among the selected one or more of the unique identifiers from the first plurality of beacon transmissions.

Petitioner Samsung Ex-1004, 0382

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
* 17/942,197 *	17/942,197	Proctor et al.	
	Examiner	**Art Unit**	
	HARLEY, JASON A	2468	

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TERMINAL DISCLAIMER	☑ APPROVED	☐ DISAPPROVED
Date Filed: 21 March 2023	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

/LAWANA R HIXON/

Technology Center: OPLC

Telephone: (571)272-6074

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/942,197	Filing Date 09/12/2022	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $240 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	03/21/2023	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 23	Minus	** 83	= 0		x $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $192 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
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(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

/JH/	1	Petition for Inter Partes Review, dated 5/15/2020, Case No. IPR2020-00932, Target Corporation vs. Proxicom Wireless, L.L.C.
/JH/	2	Petition for Inter Partes Review, dated 5/15/2020, Case No. IPR2020-00933, Target Corporation vs. Proxicom Wireless, L.L.C.
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/JH/	5	Petition for Inter Partes Review, dated 5/8/2020, Case No. IPR2020-00903, Target Corporation vs. Proxicom Wireless, L.L.C.
/JH/	6	Petition for Inter Partes Review, dated 5/8/2020, Case No. IPR2020-00904, Target Corporation vs. Proxicom Wireless, L.L.C.
/JH/	7	Petition for Inter Partes Review, dated 6/1/2020, Case No. IPR2020-00978, Target Corporation vs. Proxicom Wireless, L.L.C.
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	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

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	Attorney Docket Number	111054-0001U8

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/JH/	39	Target's Initial Identification of Disputed Claim Terms; dated April 10, 2020; Case No. IPR2020-00932, Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-6
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All References Considered /Jason Harley/

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	Attorney Docket Number	111054-0001U8

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/JH/	49	Transcript of Telephonic Motion Hearing, dated June 3, 2020; United States District Court, Middle District of Florida, Orlando Division; pp. 1-41; Case No. IPR2020-00904; Target Corporation vs. Proxicom Wireless, L.L.C.; C.A. No. 6:19-cv-1886-RBD-LRH; pp. 1-41
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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	Attorney Docket Number	111054-0001U8

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	First Named Inventor	James A. Proctor
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	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

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Bibliographic Data

Application No: 17/942,197

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /JASON A HARLEY/ Examiner's Signature | Initials

Title: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/12/2022	370	2468	111054-0001U8
RULE			

APPLICANTS

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INVENTORS

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CONTINUING DATA

This application is a CON of 17366826 07/02/2021 PAT 11443344

17366826 is a CON of 16817896 03/13/2020 PAT 11074615

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*	C	US-20150200811-A1	07-2015	KASSLIN; Mika	H04W8/186	370/254
*	D	US-20150257104-A1	09-2015	CHOI; Won-Suk	H04W52/0229	455/41.3
*	E	US-20150296347-A1	10-2015	Roth; Denise	H04L43/08	705/326
	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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	**Art Unit**
	JASON A HARLEY	2468

CPC						
Symbol					**Type**	**Version**
G06Q	/	30	/	0261	F	2013-01-01
H04W	/	4	/	029	I	2018-02-01
H04W	/	4	/	21	I	2018-02-01
H04W	/	4	/	80	I	2018-02-01
G06Q	/	10	/	0875	I	2013-01-01
G06Q	/	20	/	202	I	2013-01-01
G06Q	/	30	/	0207	I	2013-01-01
G06Q	/	30	/	0222	I	2013-01-01
G06Q	/	30	/	0226	I	2013-01-01
G06Q	/	30	/	0242	I	2013-01-01
G06Q	/	30	/	0282	I	2013-01-01
G06Q	/	30	/	0601	I	2013-01-01
G06Q	/	30	/	0623	I	2013-01-01
H04L	/	63	/	20	I	2013-01-01
H04W	/	8	/	005	I	2013-01-01
H04W	/	12	/	02	I	2013-01-01
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H04L	/	67	/	306	I	2013-01-01
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H04W	/	76	/	11	I	2018-02-01
H04W	/	8	/	26	I	2013-01-01
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G06Q	/	20	/	3224	I	2013-01-01
G06Q	/	20	/	3278	I	2013-01-01
G06Q	/	20	/	385	I	2013-01-01
G06Q	/	20	/	4016	I	2013-01-01
G06Q	/	50	/	01	I	2013-01-01
H04W	/	4	/	023	I	2013-01-01
H04W	/	88	/	06	A	2013-01-01

/JASON A HARLEY/ Examiner, Art Unit 2468 (Assistant Examiner)	11 April 2023 (Date)	**Total Claims Allowed:** 83	
/KHALED M KASSIM/ Primary Examiner, Art Unit 2468 (Primary Examiner)	18 April 2023 (Date)	O.G. Print Claim(s) 31	O.G. Print Figure 10

U.S. Patent and Trademark Office

Part of Paper No.: 20230411

Petitioner Samsung Ex-1004, 0475

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	**Art Unit**
	JASON A HARLEY	2468

CPC							
Symbol						**Type**	**Version**
H04L	/	61	/	5038		A	2022-05-01
H04L	/	2101	/	622		A	2022-05-01

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

/JASON A HARLEY/ Examiner, Art Unit 2468	11 April 2023	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	83	
/KHALED M KASSIM/ Primary Examiner, Art Unit 2468	18 April 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	31	10

U.S. Patent and Trademark Office — Part of Paper No.: 20230411

Petitioner Samsung Ex-1004, 0476

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	**Art Unit**
	JASON A HARLEY	2468

INTERNATIONAL CLASSIFICATION					
CLAIMED					
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H04W	/	36	/	34	
H04W	/	40	/	24	
H04B	/	5	/	00	
H04W	/	4	/	029	
H04W	/	84	/	12	
H04W	/	12	/	06	
H04W	/	12	/	08	
H04L	/	9	/	06	
H04M	/	1	/	725	

NON-CLAIMED				
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US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
455	41.2

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
455	404.2	457				

/JASON A HARLEY/ Examiner, Art Unit 2468 (Assistant Examiner)	11 April 2023 (Date)	**Total Claims Allowed:** 83	
/KHALED M KASSIM/ Primary Examiner, Art Unit 2468 (Primary Examiner)	18 April 2023 (Date)	O.G. Print Claim(s) 31	O.G. Print Figure 10

U.S. Patent and Trademark Office

Part of Paper No.: 20230411

Petitioner Samsung Ex-1004, 0477

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/942,197	Proctor et al.
	Examiner	**Art Unit**
	JASON A HARLEY	2468

☐ 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
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	2		17	2	32	17	47	52	62	67	77	82	92	30	107
	3		18	3	33	18	48	53	63	68	78	83	93	31	108
	4		19	4	34	19	49	54	64	69	79	38	94	32	109
	5		20	5	35	20	50	55	65	70	80	39	95	33	110
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	7		22	7	37	22	52	57	67	72	82	41	97	35	112
	8		23	8	38	23	53	58	68	73	83	42	98	36	113
	9		24	9	39	24	54	59	69	74	84	43	99		
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	12		27	12	42	27	57	62	72	77	87	46	102		
	13		28	13	43	28	58	63	73	78	88	47	103		
	14		29	14	44	37	59	64	74	79	89	48	104		
	15		30	15	45	50	60	65	75	80	90	49	105		

/JASON A HARLEY/ Examiner, Art Unit 2468	11 April 2023	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	83	
/KHALED M KASSIM/ Primary Examiner, Art Unit 2468	18 April 2023	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	31	10

U.S. Patent and Trademark Office

Part of Paper No.: 20230411

Petitioner Samsung Ex-1004, 0478

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	154	(US-17366826-$ | US-20060114104-$ | US-20060116160-$ | US-20060125631-$ | US-20060141932-$ | US-20060153085-$ | US-20060171341-$ | US-20060193258-$ | US-20060200843-$ | US-20060217131-$ | US-20060229058-$ | US-20060234631-$ | US-20060240840-$ | US-20060245373-$ | US-20060245393-$ | US-20060245404-$ | US-20060264212-$ | US-20060268765-$ | US-20060268834-$ | US-20060270412-$ | US-20060282738-$ | US-20060287813-$ | US-20070001904-$ | US-20070002833-$ | US-20070004427-$ | US-20070004428-$ | US-20070010278-$ | US-20070015549-$ | US-20070025287-$ | US-20070026818-$ | US-20070030824-$ | US-20070032225-$ | US-20070043828-$ | US-20070049297-$ | US-20070060105-$ | US-20070060117-$ | US-20070060130-$ | US-20070061487-$ | US-20070078851-$ | US-20070081503-$ | US-20070091859-$ | US-20070094084-$ | US-20070096909-$ | US-20070100651-$ | US-20070106612-$ | US-20070117576-$ | US-20070118748-$ | US-20070121534-$ | US-20070121550-$ | US-20070133453-$ | US-20070143348-$ | US-20070161382-$ | US-20070173248-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 11:35 AM

Petitioner Samsung Ex-1004, 0479

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Petitioner Samsung Ex-1004, 0480

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Petitioner Samsung Ex-1004, 0481

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Petitioner Samsung Ex-1004, 0482

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Petitioner Samsung Ex-1004, 0483

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Petitioner Samsung Ex-1004, 0485

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Petitioner Samsung Ex-1004, 0486

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L28	57	(US-17366826-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06

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		20090197681-$ | US- 20090219132-$ | US- 20090270120-$ | US- 20090271211-$ | US- 20090281904-$ | US- 20090282130-$ | US- 20090285119-$ | US- 20090287827-$ | US- 20090288012-$ | US- 20090291909-$ | US- 20090303250-$ | US- 20090303926-$ | US- 20090307132-$ | US- 20090307133-$ | US- 20090310517-$ | US- 20090311963-$ | US- 20090313105-$ | US- 20090323647-$ | US- 20090323648-$ | US- 20090325601-$ | US- 20100020746-$ | US- 20100030638-$ | US- 20100030651-$ | US- 20100041402-$ | US- 20100049615-$ | US- 20100051685-$ | US- 20100062758-$ | US- 20100063867-$ | US- 20100096450-$ | US- 20100124196-$ | US- 20100138481-$ | US- 20100141437-$ | US- 20100201536-$ | US- 20100250673-$ | US- 20100274859-$ | US- 20100284447-$ | US- 20110039592-$ | US- 20110119733-$ | US- 20120066043-$ | US- 20120066199-$ | US- 20130217332-$ | US- 20150249637-$ | US- 20150281939-$ | US- 20160025837-$ | US- 20160093184-$ | US- 20170011425-$ | US- 20170131994-$ | US- 20190250239-$ | US- 8090359-$ | US- 8369842-$ | US- 8370955-$ | US- 8374592-$ | US- 8385896-$ | US- 8385913-$ | US- 8849698-$ | US- 9038129-$ | US- 9161164-$).DID.				02:09 PM
L29	488	(beacon	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06

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		near3(transmission or transfer$4 or transmit$5 or signal$2)) same(picture or photo or jpeg)					02:22 PM
L30	49	L29 and L21 and L22	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 02:22 PM
L31	45	(bluetooth or (wifi)) and L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/06 02:23 PM
L32	2	"20050136845"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/08 12:49 PM
L33	1	"2006005028"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:42 AM
L34	1	"20060050728"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:42 AM
L35	4841	(advertis$4) same(presentation or display) same(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:45 AM
L36	43189	(beacon near3(transmission or transfer$4 or transmit$5))	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:46 AM
L37	202	L35 and L36	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:46 AM
L38	1414	(advertis$4) same(presentation or display) same(identifier$2) same(ue or terminal or wtru or phone or computer)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:49 AM
L39	30	L38 and L36	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 09:49 AM
L40	700	email and L38	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:10 AM
L41	8	L40 and L36	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:10 AM
L42	70185	beacon same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:22 AM
L43	25	L40 and L42	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:22 AM
L44	94136	(account or profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:24 AM
L45	240	L40 and L44	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 10:24 AM
L46	2	"20080195621"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 11:34 AM
L47	58023	(advertis$4) same(location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 08:03 PM

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L48	13391	(mu or ue or terminal or wtru or phone or apparatus) near7(indoor)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/09 08:13 PM
L49	58065	(advertis$4) same(location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:01 AM
L50	13399	(mu or ue or terminal or wtru or phone or apparatus) near7(indoor)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:01 AM
L51	326	L49 and L50	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:01 AM
L52	70245	beacon same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:03 AM
L53	89	L51 and L52	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:03 AM
L54	351	(time or timing) near7(notification) same (beacon) same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 10:26 AM
L55	97	(timing) near7(notification) same (beacon) same(transmission or transfer$4 or transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 10:43 AM
L56	2	"20070201417"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 11:57 AM
L57	1	"20070043828"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 11:57 AM
L58	284	((("Proctor") near3 ("James") near3 ("A"))).INV.	(USPAT)	OR	OFF	OFF	2021/08/10 12:02 PM
L59	34	L58 and beacon	(USPAT)	OR	OFF	OFF	2021/08/10 12:03 PM
L60	1	"16/817896"	(USPAT)	OR	OFF	OFF	2021/08/10 12:06 PM
L61	1	"15271410"	(USPAT)	OR	OFF	OFF	2021/08/10 12:10 PM
L62	0	"15/271410"	(USPAT)	OR	OFF	OFF	2021/08/10 12:10 PM
L63	319526	h04l 67/306	(USPAT)	OR	OFF	OFF	2021/08/10 07:07 PM
L64	177597	h04w 4/80	(USPAT)	OR	OFF	OFF	2021/08/10 07:07 PM
L65	319522	h04l 61/6022	(USPAT)	OR	OFF	OFF	2021/08/10 07:07 PM
L66	177387	h04w 4/029	(USPAT)	OR	OFF	OFF	2021/08/10

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							07:08 PM
L67	3	"16/247626"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/08/10 09:59 PM
L68	3160	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:48 PM
L69	829	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:49 PM
L70	343	L69 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:50 PM
L71	0	(service adj idenifier) and L70	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/02 08:52 PM
L73	2	"20040023640"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 10:32 AM
L74	829	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:45 PM
L75	343	L74 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:45 PM
L76	4	(service adj identifier) and L75	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:45 PM
L77	9	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2021/12/03 01:53 PM
L78	582	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2021/12/03 01:53 PM
L79	65	(US-0156856-$ | US-0702686-$ | US-1098477-$ | US-1207654-$ | US-1296155-$ | US-17366826-$ | US-1759620-$ | US-1908235-$ | US-20050114654-$ | US-20050124359-$ | US-20050131837-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:54 PM

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		20050136845-$ | US-20050136891-$ | US-20050156026-$ | US-20050165667-$ | US-20050174975-$ | US-20050180367-$ | US-20050185615-$ | US-20050187873-$ | US-20050187959-$ | US-20050188062-$ | US-20050213553-$ | US-20050243737-$ | US-20050243781-$ | US-20050250552-$ | US-20050266868-$ | US-20050273440-$ | US-20060003785-$ | US-20060022038-$ | US-20060029024-$ | US-20060030335-$ | US-20060032901-$ | US-20060045042-$ | US-20060046709-$ | US-20060047835-$ | US-20060050728-$ | US-20060069922-$ | US-20060079284-$ | US-20060085419-$ | US-20060089134-$ | US-20060089876-$ | US-20060094447-$ | US-20060095348-$ | US-20060095349-$ | US-20060099966-$ | US-20060104200-$ | US-20060104243-$ | US-20060106850-$ | US-20060111045-$ | US-2218268-$ | US-2235002-$ | US-2506121-$ | US-2564287-$ | US-2688189-$ | US-2752347-$ | US-2766024-$ | US-2766184-$ | US-2798749-$ | US-7936736-$ | US-8090359-$ | US-8116749-$ | US-8369842-$ | US-8385896-$ | US-8385913-$ | US-9038129-$ | US-9161164-$).DID.					
L80	79	(US-7492254-$ | US-7502933-$ | US-7509131-$ | US-	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 01:54 PM

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		7515914-$ | US- 7522058-$ | US- 7545784-$ | US- 7546141-$ | US- 7580699-$ | US- 7590246-$ | US- 7620026-$ | US- 7630986-$ | US- 7647024-$ | US- 7647055-$ | US- 7661132-$ | US- 7702108-$ | US- 7711100-$ | US- 7711620-$ | US- 7714712-$ | US- 7716484-$ | US- 7729326-$ | US- 7756467-$ | US- 7773995-$ | US- 7774231-$ | US- 7775430-$ | US- 7822000-$ | US- 7826425-$ | US- 7836512-$ | US- 7848765-$ | US- 7876701-$ | US- 7877082-$ | US- 7886962-$ | US- 7904952-$ | US- 7936736-$ | US- 7942337-$ | US- 7952481-$ | US- 7962369-$ | US- 7963441-$ | US- 7965983-$ | US- 7991644-$ | US- 7991664-$ | US- 8014755-$ | US- 8024272-$ | US- 8073795-$ | US- 8089405-$ | US- 8090359-$ | US- 8112794-$ | US- 8116749-$ | US- 8121917-$ | US- 8160495-$ | US- 8185133-$ | US- 8204039-$ | US- 8205240-$ | US- 8229458-$ | US- 8233841-$ | US- 8254338-$ | US- 8275359-$ | US- 8295819-$ | US- 8321913-$ | US- 8332521-$ | US- 8364171-$ | US- 8369842-$ | US-				

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		8374592-$ | US-8385896-$ | US-8385913-$ | US-8478300-$ | US-8543500-$ | US-8559968-$ | US-8576846-$ | US-8688570-$ | US-8787575-$ | US-8825538-$ | US-9038129-$ | US-9137012-$ | US-9161164-$ | US-9373091-$ | US-9646319-$ | US-9659285-$ | US-9734198-$ | US-9805347-$).DID.					
L81	399008	h04w 4/02	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L82	395522	h04w 8/26	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L83	651491	h04l 41/12	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L84	650389	h04l 67/18	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/03 02:40 PM
L85	829	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:03 PM
L86	343	L85 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:03 PM
L87	6	(service adj (identifier or id)) and L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:03 PM
L88	26	((service or beacon) adj (identifier or id)) and L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:10 PM
L89	1274	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2 or parameter$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:14 PM
L90	127	((service or beacon) adj (identifier or id)) and L89	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:15 PM
L91	538	L89 and (mac adj	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05

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		address)					01:18 PM
L92	37	((service or beacon) adj (identifier or id)) and L91	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:18 PM
L93	5104	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(field$2 or parameter$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:24 PM
L94	1800	L93 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:24 PM
L95	200	((service or beacon) adj (identifier or id)) and L94	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:25 PM
L96	962	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(mac adj address$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:27 PM
L97	2967	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(service)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:28 PM
L98	4384	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:28 PM
L99	98	L98 and L97 and L96	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/05 01:29 PM
L100	2	"20180234959"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/06 10:39 AM
L101	1	"20180167883"	(US-PGPUB; USPAT)	OR	OFF	OFF	2021/12/06 10:48 AM
L102	9	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2022/04/17 09:08 PM
L103	586	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/04/17 09:08 PM

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L104	598	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/12/09 10:08 AM
L105	598	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2022/12/09 10:08 AM
L106	1950	L93 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L107	11	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L108	105525	(account or profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L109	20366	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(service or number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:08 AM
L110	258	(beacon near3(transmission or transfer$4 or transmit$5)) same(picture or photo or jpeg)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L111	20366	(beacon near3(transmission or transfer$4 or transmit$5 or signal$2)) same(service or number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L112	47582	(beacon near3(transmission or transfer$4 or transmit$5))	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L113	62714	(advertis$4) same(location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L114	371	L74 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L115	29	((service or beacon) adj (identifier or id)) and L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L116	572	L89 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L117	117	L98 and L97 and L96	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L118	685038	h04w 4/02	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L119	1239579	h04l 41/12	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:18 AM
L120	1237235	h04l 67/18	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM

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L121	646433	h04l 67/306	(USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM
L122	646429	h04l 61/6022	(USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM
L123	4	"16/247626"	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM
L124	105525	(account or profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/12/09 10:19 AM
L125	11	((("PROXICOM") near3 ("WIRELESS") near3 ("LLC"))).AS,AANM.	(USPAT)	OR	OFF	OFF	2023/04/11 09:13 AM
L126	599	((("Proctor") near3 ("James") near3 ("A"))).INV.	(US-PGPUB; USPAT; USOCR)	OR	OFF	OFF	2023/04/11 09:13 AM
L127	133	L13 and L17 and L15	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:13 AM
L128	45	(bluetooth or (wifi)) and L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:13 AM
L129	335	L49 and L50	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:14 AM
L130	3654	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) same(contain$4 or includ$4 or hav$4 or compris$5) same(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:14 AM
L131	6	(service adj identifier) and L75	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:14 AM
L132	120	L98 and L97 and L96	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:15 AM
L133	107	((service or beacon) adj (identifier or id)) and L89	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:15 AM
L134	898	(beacon near2 (transmission or transfer$5 or data or message or packet$2)) near7(contain$4 or includ$4 or hav$4 or compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:15 AM
L135	37	L58 and beacon	(USPAT)	OR	OFF	OFF	2023/04/11 09:16 AM
L136	109139	(account or profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:17 AM
L137	586	L89 and (mac adj address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:17 AM
L138	17	L31 AND ((455/457 OR 455/404.2).ccls. OR (H04M1/725 OR	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:47 AM

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		H04W12/06 OR H04W12/08 OR H04W4/20 OR H04L9/06).ipc.)					

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	254	(beacon near3(transmission OR transfer$4 OR transmit$5)) SAME (picture OR photo OR jpeg)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N2	19507	(beacon near3(transmission OR transfer$4 OR transmit$5 OR signal$2)) SAME (service OR number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N3	45	(bluetooth OR (wifi)) AND L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N4	60436	(advertis$4) SAME (location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:09 PM
N5	340	(time OR timing) near7(notification) SAME (beacon) SAME (transmission OR transfer$4 OR transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:10 PM
N6	71	L58 AND beacon	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:10 PM
N7	4926	(beacon near2 (transmission OR transfer$5 OR data OR message OR packet$2)) SAME (contain$4 OR includ$4 OR hav$4 OR compris$5) SAME (number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:10 PM
N8	28	((service OR beacon) ADJ (identifier OR id)) AND L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM
N9	5344	(beacon near2 (transmission OR transfer$5 OR data OR message OR packet$2)) SAME (contain$4 OR includ$4 OR hav$4 OR compris$5) SAME (field$2 OR parameter$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM

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N10	45	(bluetooth OR (wifi)) AND L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM
N11	6	(service ADJ (identifier OR id)) AND L86	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:14 PM
N12	28	((service OR beacon) ADJ (identifier OR id)) AND L91	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:15 PM
N13	3085	(beacon near2 (transmission OR transfer$5 OR data OR message OR packet$2)) SAME (contain$4 OR includ$4 OR hav$4 OR compris$5) SAME (service)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:15 PM
N14	94	(timing) near7(notification) SAME (beacon) SAME (transmission OR transfer$4 OR transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:17 PM
N15	128	L13 AND L17 AND L15	(US-PGPUB; USPAT)	OR	OFF	OFF	2022/04/17 09:29 PM
N16	133	L13 AND L17 AND L15	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:42 AM
N17	20798	(beacon near3(transmission OR transfer$4 OR transmit$5 OR signal$2)) SAME (service OR number)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:42 AM
N18	63722	(advertis$4) SAME (location)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:42 AM
N19	133	L13 AND L17 AND L15	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:42 AM
N20	76	L58 AND beacon	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:42 AM
N21	898	(beacon near2 (transmission OR transfer$5 OR data OR message OR packet$2)) near7(contain$4 OR includ$4 OR hav$4 OR compris$5) near7(field$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:43 AM
N22	3012	(beacon near3(transmission OR transfer$4 OR transmit$5 OR signal$2)) SAME (mac ADJ address)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 09:43 AM
N23	45	(bluetooth OR (wifi))	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11

Petitioner Samsung Ex-1004, 0500

		AND L30					09:50 AM
N24	45	(bluetooth OR (wifi)) AND L30	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:20 AM
N25	76	L58 AND beacon	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:20 AM
N26	107	((service OR beacon) ADJ (identifier OR id)) AND L89	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:20 AM
N27	5300	(advertis$4) SAME (presentation OR display) SAME (identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:21 AM
N28	109139	(account OR profile) near7(identifier$2)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:21 AM
N29	373	(time OR timing) near7(notification) SAME (beacon) SAME (transmission OR transfer$4 OR transmit$5)	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:21 AM
N30	193	((service OR beacon) ADJ (identifier OR id)) AND L94	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:21 AM
N31	193	((service OR beacon) ADJ (identifier OR id)) AND L94	(US-PGPUB; USPAT)	OR	OFF	OFF	2023/04/11 11:21 AM

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

86012 7590 04/24/2023

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

EXAMINER
HARLEY, JASON A

ART UNIT	PAPER NUMBER
2468	

DATE MAILED: 04/24/2023

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/942,197	09/12/2022	James A. Proctor JR.	111054-0001U8	2459

TITLE OF INVENTION: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0.00	$0.00	$480	07/24/2023

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 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted 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. 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.

Petitioner Samsung Ex-1004, 0502

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 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. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

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

86012 7590 04/24/2023

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

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.
17/942,197	09/12/2022	James A. Proctor JR.	111054-0001U8	2459

TITLE OF INVENTION: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0.00	$0.00	$480	07/24/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
HARLEY, JASON A	2468	370-329000

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/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

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

1 _____
2 _____
3 _____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document 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)

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

❑ Electronic Payment via Patent Center or 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

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

❑ Applicant asserting small entity status. See 37 CFR 1.27

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

❑ Applicant changing to regular undiscounted fee status.

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

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Petitioner Samsung Ex-1004, 0503

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/942,197	09/12/2022	James A. Proctor JR.	111054-0001U8	2459

86012 7590 04/24/2023

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

EXAMINER	
HARLEY, JASON A	
ART UNIT	PAPER NUMBER
2468	

DATE MAILED: 04/24/2023

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.

Petitioner Samsung Ex-1004, 0504

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. 17/942,197	Applicant(s) Proctor et al.	
	Examiner JASON A HARLEY	Art Unit 2468	AIA (FITF) Status No

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

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

1. ☑ This communication is responsive to 3/21/23.
   ☐ 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 31-113 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

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

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

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

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

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

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

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 2/16/23,2/23/23,3/21/23.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. 2.
5. ☑ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/JASON A HARLEY/ Examiner, Art Unit 2468	/KHALED M KASSIM/ Primary Examiner, Art Unit 2468

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Allowable Subject Matter

2. Claims 31-113 are allowed. The prior art disclose receiving at a wireless device via a short range wireless protocol, a first plurality of beacon transmissions each beacon comprising three fields. The prior art fail to show a beacon service identifier wherein the beacon service identifier of each respective beacon transmission identifies that the unique identifier is relevant to stored information associated with a wireless beacon service, wherein the stored information is not otherwise accessible to the wireless device utilizing the short range wireless protocol, in combination with the other limitations in the independent claims.

Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON A HARLEY whose telephone number is (571)270-5435. The examiner can normally be reached 7:30-300 6:30-8:30.

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, Asad M Nawaz can be reached on (571) 272-3988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON A HARLEY/
Examiner, Art Unit 2468

/KHALED M KASSIM/
Primary Examiner, Art Unit 2468

PTO/SB/08a (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17942197
Filing Date	2022-09-12
First Named Inventor	James A. Proctor
Art Unit	2468
Examiner Name	HARLEY, JASON A
Attorney Docket Number	111054-0001U8

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17942197
	Filing Date	2022-09-12
	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

/JH/	1	U.S. Appl. No. 60/758,011, filed Jan. 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals for identification, synchronization or acquisition in an ad hoc wireless network, 26 pages.
/JH/	2	U.S. Appl. No. 60/758,011, filed Jan. 11, 2006.
/JH/	3	U.S. Appl. No. 60/758,012, filed Jan. 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals in a cognitive radio network, 24 pages.
/JH/	4	U.S. Appl. No. 60/758,012, filed Jan. 11, 2006.
/JH/	5	U.S. Appl. No. 60/845,051, filed Sep. 15, 2006 by Junyi Li for Beacons in a mixed wireless communication system, 30 pages.
/JH/	6	U.S. Appl. No. 60/845,052, filed Sep. 15, 2006 by Aleksandar Jovicic for Beacons in a mixed wireless communication system, 29 pages.
/JH/	7	U.S. Appl. No. 60/845,052, filed Sep. 15, 2006.
/JH/	8	U.S. Appl. No. 60/863,304, filed Oct. 27, 2006 by Rajiv Laroia for Power Allocation Scheme, 15 pages.
/JH/	9	U.S. Provisional Application No. 60/758,010 filed on January 11, 2006 by Rajiv Laroia for Methods and apparatus for facilitating identification, synchronization or acquisition using beacon signals, 30 pages.
/JH/	10	U.S. Provisional Application No. 60/758,011 filed on January 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals for identification, synchronization or acquisition in an ad hoc wireless network, 26 pages.
/JH/	11	U.S. Provisional Application No. 60/758,012 filed on January 11, 2006 by Rajiv Laroia for Methods and apparatus for using beacon signals in a cognitive radio network, 24 pages.

All Reference Considered /Jason Harley/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17942197
	Filing Date	2022-09-12
	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

/JH/	12	U.S. Provisional Application No. 60/845,051 filed on September 15, 2006 by Junyi Li for Beacons in a mixed wireless communication system, 30 pages.
/JH/	13	U.S. Provisional Application No. 60/845,052 filed on September 15, 2006 by Aleksandar Jovicic for Beacons in a mixed wireless communication system, 29 pages.
/JH/	14	U.S. Provisional Application No. 61/054,162 filed on May 18, 2008 by Mark Braverman for System And Method For Electronic Payment
/JH/	15	U.S. Provisional Application No. 61/122,240 filed on December 12, 2008 by Rajiv Patel for System And Method For Electronic Payment
/JH/	16	Using Blouetooth, MC909X User Guide, Symbol Technologies, Inc., pp. 1-66 (2005)
/JH/	17	Using MC9094 Phone, MC909X User Guide, Symbol Technologies, Inc., pp. 1-20 (2005)
/JH/	18	Wang, et al., "Peer2Me - Rapid Application Framework for Mobile Peer-to-Peer Applications", Department of Compute and Information Science
/JH/	19	Wang, F., et al., "Bridging Physical and Virtual Worlds: Complex Event Processing for RFID Data Streams," University of California, Los Angeles Computer Science Department, Springer-Verlag Berlin Heidelberg 2006, pp. 588-607
/JH/	20	Want, R., et al., "Bridging Physical and Virtual Worlds with Electronic Tags," Xerox PARC, CHI '99 15-20 May 1999, PP- 370-377
/JH/	21	Wauters, R., "TC50: Gift Card Auction Site Rackup Aims to Shake Up Market" [online], Sep. 14, 2009. Retrieved from the Internet URL: http://techcrunch.com/2009/09/14/tc50-gift-card-auction-site-rackup-aims-- to-shake-up-market/, one page.
/JH/	22	WaveWorks Portable Shopping System Integration Guide, Integration Services Group, Pittsburgh, Pennsylvania, pp. 1-185

All Reference Considered /Jason Harley/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17942197
	Filing Date	2022-09-12
	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

/JH/	23	Wei, G., et al., "HiPEC: A Hybrid P2P Model for Electronic Commerce," Zhejiang Gongshang University College of Computer & Information Engineering, pp 1-5 (2008)
/JH/	24	Weis et al. "Security and privacy aspects of low-cost radio frequency identification systems". In: Security in pervasive Computing. Springer, 201-212 (2004)
/JH/	25	Weis et al., Security and Privacy Aspects of Low-Cost Radio Frequency Identification Systems, International Journal of Security and Networks, Volume 5 Issue 2/3, March 2010, 12 pages.
/JH/	26	Wg, Hid, "Device Identification Specification", V12r00, 1-20 (2006) NEED PUBLICATION DETAILS
/JH/	27	Yang, H., et al., "Indoor Localization Systems - Tracking objects and personnel with sensors, wireless networks and RFID," Measurement+ Control, Vol. 42/1, Feb. 2009, pp. 18-23
/JH/	28	Zhang, Y., et al., "Progress in WWW Research and Development," 1oth Asia-PacificWeb Conference, APWeb 2008, Shenyang, China, April 26-28, 2008 Proceedings, pp. 331-341
/JH/	29	Zhou, Y., et al., "A Map Registration Localization Approach based on Mobile Beacons for Wireless Sensor Networks," Communications Research Centre Canada, 2011 Crown, 5 pp.

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

EXAMINER SIGNATURE

Examiner Signature	/Jason Harley/	Date Considered	4/11/23

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

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

All Reference Considered /Jason Harley/

EFS Web 2.1.18

Enter Jason Harley 4/11/23

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re The Application of: Proctor, James et al.	
Serial No.: 17/942,197	Examiner: Harley, Jason A.
Filed: September 12, 2022	Art Unit: 2468
For: Efficient and Secure Wireless Communication Using Wireless Service Identifiers	Confirmation No.: 2459

AMENDMENT

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

Sir:

In response to the Office Action mailed December 21, 2022 please enter the enclosed amendments and consider the remarks that follow.

Amendments to the Claims are reflected in the claim listing beginning on page 2.

Our **Remarks** begin on page 22.

Petitioner Samsung Ex-1004, 0513

Electronic Acknowledgement Receipt

EFS ID:	47984718
Application Number:	17942197
International Application Number:	
Confirmation Number:	2459
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Customer Number:	86012
Filer:	David J. Thibodeau/Elisabeth Smith
Filer Authorized By:	David J. Thibodeau
Attorney Docket Number:	111054-0001U8
Receipt Date:	11-MAY-2023
Filing Date:	12-SEP-2022
Time Stamp:	08:03:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$480
RAM confirmation Number	E20235A904567100
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)	20230511_111054-0001U8_TPO_Issue_Fee_Transmittal.pdf	807731 65a88f494227ef24b68dca8f07b7742b1ee78f1a	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38131 1b053061eeaa10766511054b3ea23ea9920d3958	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	845862		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Electronic Patent Application Fee Transmittal

Application Number:	17942197
Filing Date:	12-Sep-2022
Title of Invention:	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
First Named Inventor/Applicant Name:	James A. Proctor
Filer:	David J. Thibodeau/Elisabeth Smith
Attorney Docket Number:	111054-0001U8

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	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**480**

PART B - FEE(S) TRANSMITTAL

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By mail, send to: Mail Stop ISSUE FEE
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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 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. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

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

86012 7590 04/24/2023

VLP Law Group LLP
555 Bryant Street
Suite 820
Palo Alto, CA 94301

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.

Elisabeth Smith	(Typed or printed name)
/Elisabeth Smith/	(Signature)
May 11, 2023	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/942,197	09/12/2022	James A. Proctor JR.	111054-0001U8	2459

TITLE OF INVENTION: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0.00	$0.00	$480	07/24/2023

EXAMINER	ART UNIT	CLASS-SUBCLASS
HARLEY, JASON A	2468	370-329000

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/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

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

1 David J. Thibodeau, Jr
2 VLP Law Group LLP
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: Proxicom Wireless LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Indialantic, FL

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)

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

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

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

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature /David J Thibodeau/ Date 11-May-2023

David J. Thibodeau Registration No. 31671

Typed or printed name

Petitioner Samsung Ex-1004, 0518

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17942197
	Filing Date	2022-09-12
	First Named Inventor	James A. Proctor
	Art Unit	2468
	Examiner Name	HARLEY, JASON A
	Attorney Docket Number	111054-0001U8

/JH/	94	20080045236	A1	2008-02-21	NAHON et al.	
/JH/	95	20080051033	A1	2008-02-28	HYMES CHARLES MARTIN	
	96	20080051059	A1	2008-02-28	FISHER MICHELLE	
	97	20080052109	A1	2008-02-28	BOYS MARK A	
	98	20080056215	A1	2008-03-06	KOPIKARE et al.	
	99	20080070593	A1	2008-03-20	ALTMAN et al.	
	100	20080071874	A1	2008-03-20	ROODMAN et al.	
Change(s) applied to document, /P.H./ 5/2/2023	101	20080080397	A1	2008-04-03	~~SAMSUNG ELECTRONICS CO LTD~~ Niranjan et al.	
	102	20080089519	A1	2008-04-17	EKBERG JAN-ERIK	
	103	20080097851	A1	2008-04-24	BEMMEL et al.	
/JH/	104	20080097879	A1	2008-04-24	SADOWSKI et al.	

EFS Web 2.1.18

All References Considered /Jason Harley/

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/942,197	06/27/2023	11687971	111054-0001U8	2459

86012 7590 06/07/2023

VLP Law Group LLP
555 Bryant Street
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Palo Alto, CA 94301

ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at https://patentcenter.uspto.gov/. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

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

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

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

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

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

Petitioner Samsung Ex-1004, 0520

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

James A. Proctor JR., Indialantic, FL;
James Arthur Proctor III, Indialantic, FL;

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

Proxicom Wireless LLC, Indialantic, FL;

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Petitioner Samsung Ex-1004, 0521

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APPLICATION NO.	ISSUE DATE	PATENT NO.
17/942,197	27-JUN-23	11687971

VLP Law Group LLP
555 Bryant Street Suite 820
Palo Alto, CA 94301

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Your electronic patent grant (eGrant) is now available, which can be accessed via Patent Center at https://patentcenter.uspto.gov

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

PTO/AIA/82A (07-13)
Approved for use through 09/30/2025. OMB 0651-0035
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Application Number	17/942,197
Filing Date	2022-09-12
First Named Inventor	Proctor, James A Jr.
Title	EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS
Art Unit	2468
Examiner Name	Harley, Jason A
Attorney Docket Number	SCT-016

SIGNATURE of Applicant or Patent Practitioner

Signature	/Thomas Cecil/	Date (Optional)	
Name	Thomas Cecil	Registration Number	77,598
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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

☐ *Total of _____ forms are submitted.

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

Application Number	Filing Date

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☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 175089

OR

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

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

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

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

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

Secure Communication Technologies, LLC

☐ Inventor or Joint Inventor (title not required below)

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

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

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

SIGNATURE of Applicant for Patent

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

Signature	/Eric Albritton/	Date (Optional)	
Name	Eric Albritton		
Title	Manager, Secure Communication Technologies, LLC		

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

☐ Total of forms are submitted.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0035. Public burden for this form is estimated to average 3 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** If filing this completed form by mail, send to: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

First Named Inventor/Patent Owner: Secure Communications Technologies, LLC

Application No./Patent No.: 11,687,971 Filed/Issue Date: 2023-06-27

Titled: EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

Secure Communications Technologies, LLC, a Limited Liability Company

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached*.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Proxicom Wireless, LLC To: Secure Communication Technologies, LLC

   The document was recorded in the United States Patent and Trademark Office at

   Reel 067063, Frame 0085, or for which a copy thereof is attached*.

2. From: _____ To: _____

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STATEMENT UNDER 37 CFR 3.73(c)

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☐ *As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Thomas Cecil/	2024-11-29
Signature	Date
Thomas Cecil	77,598
Printed or Typed Name	Title or Registration Number

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/942,197	**11/29/2024 04:34:24 PM Z ET**	**3414-0001U8**

Title of Invention

EFFICIENT AND SECURE COMMUNICATION USING WIRELESS SERVICE IDENTIFIERS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	11687971
CONFIRMATION #	2459	FILED BY	Thomas Cecil
PATENT CENTER #	68168815	FILING DATE	09/12/2022
CUSTOMER #	86012	FIRST NAMED INVENTOR	James A. Proctor JR.
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
SCT-016 POA.pdf	2	Power of Attorney	347 KB
SCT-016US - 373c Statement.pdf	3	Assignee showing of ownership per 37 CFR 3.73	240 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
SCT-016 POA.pdf	11549B274DA953A59DEA4F3B5588E4A162E7D1B7566856BA4 2B01F8EEBE3F1CC7895EAEEB2152949D6019810E9F550C478 AF639276E5A57F9DEFE193E5BA55FC
SCT-016US - 373c Statement.pdf	726D8A6B7CAEC095FB0108CC13C9A753A599369C3E4929BF 39A6165D87AF03817295DB7B91F384D83B6B0D20B02E75DA1

DEB20E330F05B65493936AB30518891

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for 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.

AO 120 (Rev. 08/10)

TO:	**Mail Stop 8** **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:24 CV 484	7/3/2024	Eastern District of Texas

PLAINTIFF	DEFENDANT
SECURE COMMUNICATION TECHNOLOGIES LLC	SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	11,334,918	5/17/2022	Secure Communication Technologies, LLC
2	11,443,344	9/13/2022	Secure Communication Technologies, LLC
3	11,687,971	6/27/2023	Secure Communication Technologies, LLC
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**