AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	

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 FOR THE 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
23-cv-00060	2/17/2023	FOR THE EASTERN DISTRICT OF TEXAS

PLAINTIFF	DEFENDANT
Touchstream Technologies, Inc.	Altice USA, Inc.; Cequel Communications, LLC; CSC Holdings, LLC; and Friendship Cable of Texas, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,356,251	1/15/2013	Touchstream Technologies, Inc.
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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
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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**

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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, Marshall Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:22-cv-367	3/13/2023	Eastern District of Texas, Marshall Division

PLAINTIFF	DEFENDANT
Seungman Kim	Samsung Electronics Co., Ltd., Samsung Electronics America, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 11,553,072	1/10/2023	Seungman Kim
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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
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Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Continued from page 1:

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
6. 10,419,805	11/14/2017	Multimedia Technologies Pte. Ltd.
7. 9,215,393	12/15/2015	Multimedia Technologies Pte. Ltd.
8. 9,426,527	08/23/2016	Multimedia Technologies Pte. Ltd.
9. 9,077,928	7/7/2015	Multimedia Technologies Pte. Ltd.
10. 9,185,325	11/10/2015	Multimedia Technologies Pte. Ltd.

AO 120 (Rev. 08/10)

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:23-cv-124	3/24/2023	Eastern District of Texas - Marshall Division

PLAINTIFF	DEFENDANT
Multimedia Technologies Pte. Ltd.	Vizio Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,055,255	6/9/2015	Multimedia Technologies Pte. Ltd.
2	9,232,168	1/5/2016	Multimedia Technologies Pte. Ltd.
3	9,247,174	1/26/2016	Multimedia Technologies Pte. Ltd.
4	9,510,040	11/29/2016	Multimedia Technologies Pte. Ltd.
5	9,578,384	2/21/2017	Multimedia Technologies Pte. Ltd.

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
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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 Western District of Texas on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:23-cv-249	DATE FILED 4/5/2023	U.S. DISTRICT COURT Western District of Texas
PLAINTIFF Ozmo Licensing LLC		DEFENDANT TCL Electronics Holdings Ltd. and TCL Industries Holdings Co., Ltd.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,264,991	2/16/2016	Ozmo Licensing LLC
2	10,873,906	12/22/2020	Ozmo Licensing LLC
3	8,599,814	12/3/2013	Ozmo Licensing LLC
4	11,012,934	5/18/2021	Ozmo Licensing LLC
5	11,122,504	9/14/2021	Ozmo Licensing LLC

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:23-cv-249	4/5/2023	Western District of Texas

PLAINTIFF	DEFENDANT
Ozmo Licensing LLC	TCL Electronics Holdings Ltd. and TCL Industries Holdings Co., Ltd.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,264,991	2/16/2016	Ozmo Licensing LLC
2	10,873,906	12/22/2020	Ozmo Licensing LLC
3	8,599,814	12/3/2013	Ozmo Licensing LLC
4	11,012,934	5/18/2021	Ozmo Licensing LLC
5	11,122,504	9/14/2021	Ozmo Licensing LLC

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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 for the Western 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
5:23-cv-387	3/29/2023	for the Western District of Texas

PLAINTIFF	DEFENDANT
RFC Lenders of Texas, LLC	Global-View.net

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,430,471	9/30/2008	RFC Lenders of Texas, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
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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 FOR THE DISTRICT OF DELAWARE on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
TBD	4/3/2023	FOR THE DISTRICT OF DELAWARE

PLAINTIFF	DEFENDANT
INGENUS PHARMACEUTICALS, LLC, and LEIUTIS PHARMACEUTICALS LLP	ACCORD HEALTHCARE, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,993,952	5/4/2021	Leiutis Pharmaceuticals Pvt. Ltd.
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
23-cv-00060	2/17/2023	FOR THE EASTERN DISTRICT OF TEXAS

PLAINTIFF	DEFENDANT
Touchstream Technologies, Inc.	Altice USA, Inc.; Cequel Communications, LLC; CSC Holdings, LLC; and Friendship Cable of Texas, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,356,251	1/15/2013	Touchstream Technologies, Inc.
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:22-cv-367	3/13/2023	Eastern District of Texas, Marshall Division

PLAINTIFF	DEFENDANT
Seungman Kim	Samsung Electronics Co., Ltd., Samsung Electronics America, Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 11,553,072	1/10/2023	Seungman Kim
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
6. 10,419,805	11/14/2017	Multimedia Technologies Pte. Ltd.
7. 9,215,393	12/15/2015	Multimedia Technologies Pte. Ltd.
8. 9,426,527	08/23/2016	Multimedia Technologies Pte. Ltd.
9. 9,077,928	7/7/2015	Multimedia Technologies Pte. Ltd.
10. 9,185,325	11/10/2015	Multimedia Technologies Pte. Ltd.

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:23-cv-124	3/24/2023	Eastern District of Texas - Marshall Division

PLAINTIFF	DEFENDANT
Multimedia Technologies Pte. Ltd.	Vizio Inc.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,055,255	6/9/2015	Multimedia Technologies Pte. Ltd.
2	9,232,168	1/5/2016	Multimedia Technologies Pte. Ltd.
3	9,247,174	1/26/2016	Multimedia Technologies Pte. Ltd.
4	9,510,040	11/29/2016	Multimedia Technologies Pte. Ltd.
5	9,578,384	2/21/2017	Multimedia Technologies Pte. Ltd.

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:23-cv-249	DATE FILED 4/5/2023	U.S. DISTRICT COURT Western District of Texas
PLAINTIFF Ozmo Licensing LLC		DEFENDANT TCL Electronics Holdings Ltd. and TCL Industries Holdings Co., Ltd.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,264,991	2/16/2016	Ozmo Licensing LLC
2	10,873,906	12/22/2020	Ozmo Licensing LLC
3	8,599,814	12/3/2013	Ozmo Licensing LLC
4	11,012,934	5/18/2021	Ozmo Licensing LLC
5	11,122,504	9/14/2021	Ozmo Licensing LLC

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:23-cv-249	4/5/2023	Western District of Texas

PLAINTIFF	DEFENDANT
Ozmo Licensing LLC	TCL Electronics Holdings Ltd. and TCL Industries Holdings Co., Ltd.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,264,991	2/16/2016	Ozmo Licensing LLC
2	10,873,906	12/22/2020	Ozmo Licensing LLC
3	8,599,814	12/3/2013	Ozmo Licensing LLC
4	11,012,934	5/18/2021	Ozmo Licensing LLC
5	11,122,504	9/14/2021	Ozmo Licensing LLC

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
5:23-cv-387	3/29/2023	for the Western District of Texas

PLAINTIFF	DEFENDANT
RFC Lenders of Texas, LLC	Global-View.net

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	7,430,471	9/30/2008	RFC Lenders of Texas, LLC
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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 FOR THE DISTRICT OF DELAWARE on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
TBD	4/3/2023	FOR THE DISTRICT OF DELAWARE

PLAINTIFF	DEFENDANT
INGENUS PHARMACEUTICALS, LLC, and LEIUTIS PHARMACEUTICALS LLP	ACCORD HEALTHCARE, INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	10,993,952	5/4/2021	Leiutis Pharmaceuticals Pvt. Ltd.
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Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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 Western District of Texas, Waco Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:22-cv-642	6/21/2022	Western District of Texas, Waco Division

PLAINTIFF	DEFENDANT
OZMO LICENSING LLC	DELL TECHNOLOGIES INC. and DELL INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 9,264,991	2/16/2016	Ozmo Licensing LLC
2	US 10,873,906	12/22/2020	Ozmo Licensing LLC
3	US 8,599,814	12/3/2013	Ozmo Licensing LLC
4	US 11,012,934	5/18/2021	Ozmo Licensing LLC
5	SEE ATTACHED		

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

PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
5 US 11,122,504	9/14/2021	Ozmo Licensing LLC
6 US 11,252,659	2/15/2022	Ozmo Licensing LLC

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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 Western District of Texas, Waco Division on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:22-cv-642	6/21/2022	Western District of Texas, Waco Division

PLAINTIFF	DEFENDANT
OZMO LICENSING LLC	DELL TECHNOLOGIES INC. and DELL INC.

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	US 9,264,991	2/16/2016	Ozmo Licensing LLC
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4	US 11,012,934	5/18/2021	Ozmo Licensing LLC
5	SEE ATTACHED		

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
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PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
5 US 11,122,504	9/14/2021	Ozmo Licensing LLC
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AO 120 (Rev. 08/10)

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Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:21-cv-1225	11/24/2021	Western District of Texas, Waco Division

PLAINTIFF	DEFENDANT
OZMO LICENSING LLC	ACER INC. and ACER AMERICA CORPORATION

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	9,264,991	2/16/2016	Ozmo Licensing LLC
2	10,873,906	12/22/2020	Ozmo Licensing LLC
3	8,599,814	12/3/2013	Ozmo Licensing LLC
4	11,012,934	5/18/2021	Ozmo Licensing LLC
5	11,122,504	9/14/2021	Ozmo Licensing LLC

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
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DECISION/JUDGEMENT

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Copy 2---Upon filing document adding patent(s), mail this copy to Director Copy 4---Case file copy

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 8,599,814 B1
APPLICATION NO.	: 13/560917
DATED	: December 3, 2013
INVENTOR(S)	: Katelijn Vleugels and Roel Peeters

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

In Column 17 on Line 21, please replace “to destination nodes” with “to or from destination nodes”

In Column 17 on Line 51, please replace “second” with “first”

Signed and Sealed this
Thirtieth Day of July, 2019

Andrei Iancu
Director of the United States Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.	: 8,599,814
Application No.	: 13/560,917
First Named Inventor	: Katelijn Vleugels
Filed	: July 27, 2012
TC/A.U.	: 2466
Examiner	: Jean F. Voltaire
Docket No.	: 108437.000005
Customer No.	: 145584
Confirmation No.	: 4050

REQUEST FOR CERTIFICATE OF CORRECTION

Director of the United States Patent
and Trademark Office
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Pursuant to 35 U.S.C. § 255 and 37 C.F.R. § 1.323, Patentee hereby requests the following correction to claim 19 in U.S. Patent No. 8,599,814:

- Column 17, line 21 "...messages to be sent, or data to be received, to or from destination nodes..."
- Column 17, line 51 "...the electronic device using the ~~second~~ first wireless network..."

Co-filed herewith is a PTO/SB/44 form indicating the corrections to be made.

A certificate of correction is appropriate because both errors are (1) of a clerical nature, (2) of a typographical nature, or (3) a mistake of minor character.

The first correction is a clear omission of a preposition. The plain language of the claim already indicates that "messages" are "sent" "or data" is "received" to or from the destination

node. The omission of the words "or from" is clearly a minor error of a clerical or typographical error. The requested change will not (a) add new matter or (b) require reexamination.

The second correction is also appropriate. Based on the plain language of claim 19, the last "second wireless network protocol" clearly should have been "first wireless network protocol" because the claim states that destination node is "not accessible using a second wireless network protocol used by the electronic device." Thus, the language is clearly a clerical or typographical error. The "first" and "second" were accidently mixed up.

This requested change will not (a) add new matter or (b) require reexamination. No reexamination is necessary because claim 19 was allowed for different reasons. *See* Notice of Allowance, p. 3, attached. The correction is entirely consistent with the reasons for allowance and would not require reexamination because the change will not affect the point of novelty identified by the Office.

These minor errors were made by the Patentee. No new matter has been introduced.

If any the fee is due associated with this filing, the Office is authorized to charge it to the undersigned's Deposit Account No. 504232.

Respectfully submitted,

Date: July 3, 2019

By: /Brian A. Tollefson/

Brian A. Tollefson
Registration No. 46,338
Prince Lobel Tye, LLP
One International Place
Suite 3700
Boston, MA 02110
T: (617) 456-8099
btollefson@princelobel.com

3239401.v1

PTO/SB/44 (09-07)
Approved for use through 01/31/2020. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,599,814

APPLICATION NO.: 13/560,917

ISSUE DATE : December 3, 2013

INVENTOR(S) : Katelijn Vleugels, Roel Peeters

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In column 17 on line 21, of the claims, please replace "to destination nodes" with "to or from destination nodes"

In column 17 on line 51, of the claims, please replace "second" with "first"

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):
Prince Lobel Tye LLP
One International Place, Suite 3700
Boston, MA 02110

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

83664 7590 08/05/2013
Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

EXAMINER
VOLTAIRE, JEAN F

ART UNIT	PAPER NUMBER
2466	

DATE MAILED: 08/05/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

TITLE OF INVENTION: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$0	$0	$890	11/05/2013

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

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

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

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

83664 7590 08/05/2013
Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

TITLE OF INVENTION: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$0	$0	$890	11/05/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
VOLTAIRE, JEAN F	2466	370-338000

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

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

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

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

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

1 _____

2 _____

3 _____

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

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

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

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

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

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see form 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: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

83664 7590 08/05/2013

Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

EXAMINER	
VOLTAIRE, JEAN F	

ART UNIT	PAPER NUMBER
2466	

DATE MAILED: 08/05/2013

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

The Patent Term Adjustment to date is 30 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 30 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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. 13/560,917	Applicant(s) VLEUGELS ET AL.	
	Examiner JEAN F. VOLTAIRE	Art Unit 2466	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to *amendment filed on 7 May 2013*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-24, 26-30 as renumbered by 1-29*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

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

   * Certified copies not received: _____.

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

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

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

Attachment(s)

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

/JEAN F VOLTAIRE/ Examiner, Art Unit 2466	/Faruk Hamza/ Supervisory Patent Examiner, Art Unit 2466

Notice of Allowability

Reason for Allowance

1. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of **claim 1** is the inclusion of the limitation "the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network" in conjunction with all structures performing corresponding functions of claim 1.

The primary reason for the allowance of **claim 14** is the inclusion of the limitation "the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent, but not entirely consistent, with the first wireless network protocol, and wherein the first wireless protocol is an 802.11x wireless protocol and the second wireless network protocol is a modification of the 802.11x wireless protocol of the first wireless network but can be maintained with the 802.11x wireless protocol in the common wireless space wherein at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network" in conjunction with all structures performing corresponding functions of claim 14.

The primary reason for the allowance of **claim 19** is the inclusion of the limitation "the first wireless network protocol and the second wireless network protocol being for use over wireless networks in a common wireless space, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol in the common wireless space are partially consistent with the first wireless network protocol such that at least a first wireless network connection using the first wireless network protocol and a second wireless network connection using the second wireless network protocol can have their connection maintained, at times, simultaneously with each other in the common wireless space" in conjunction with all structures performing corresponding functions of claim 19.

The primary reason for the allowance of **claim 28** is the inclusion of the limitation "the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are consistent with the first wireless network protocol, but the first wireless network and the second wireless network are distinct in that at least one node of the second wireless network is not a node in the first wireless network and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network" in conjunction with all structures performing corresponding functions of claim 28.

Eng et al. (US-PAT-NO: 6,771,933, hereinafter Eng) cited prior art on record discloses maintaining network connection between a first wireless network (WLAN) and

a second wireless network (WPAN/Bluetooth), and data generated by Bluetooth devices is transmitted by WLAN radio.

Although Eng teaches communication between the first wireless network protocol and the second wireless network protocol but he/she is silent as to the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network.

Quinn (PGPUB: 2006/0015621), Lipasti (PGPUB: 2002/0039357), Rune (PGPUB: 2003/0152110), and Beckers (PGPUB: 2007/0093198) all cited prior arts on record do not teach the above limitation individually or in combination.

Consequently, Eng, Quinn, Lipasti, Rune and Beckers individually and as a whole do not teach the claim limitation above.

Claims 2-13, 15-18, 20-24, 26, 27, 29, and 30 depending on **claims 1, 14, 19, and 28** respectively, therefore, are considered allowable on the basis as the independent claims as well as for the further limitations set forth.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEAN F VOLTAIRE whose telephone number is (571)272-3953. The examiner can normally be reached on Monday-Friday, Alternate Friday, 8:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Faruk HAMZA can be reached on (571) 272-7969. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

/JEAN F VOLTAIRE/

Examiner, Art Unit 2466

/Faruk Hamza/

Supervisory Patent Examiner, Art Unit 2466

Electronic Patent Application Fee Transmittal

Application Number:	13560917
Filing Date:	27-Jul-2012
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Filer:	Brian A. Tollefson/Kimberly Minnix
Attorney Docket Number:	0097725-001US4

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
CERTIFICATE OF CORRECTION	1811	1	150	150

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**150**

Electronic Acknowledgement Receipt	
EFS ID:	36488860
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	145584
Filer:	Brian A. Tollefson/Kimberly Minnix
Filer Authorized By:	Brian A. Tollefson
Attorney Docket Number:	0097725-001US4
Receipt Date:	03-JUL-2019
Filing Date:	27-JUL-2012
Time Stamp:	10:40:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$150
RAM confirmation Number	070319INTEFSW00010036504232
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	Request_COC.pdf	798611 de456e4e3f2ff53b5f5815c06f2cad2fe9c4deb2	no	15
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30860 6874c83400e01ab6a705f10ba86e3aa304874046	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	829471		

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4

CONFIRMATION NO. 4050

145584
Prince Lobel Tye LLP
One International Place
Suite 3700
Boston, MA 02110

POA ACCEPTANCE LETTER

OC000000109031590

Date Mailed: 06/20/2019

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/15/2019.

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

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

/hsarwari/

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4

CONFIRMATION NO. 4050

POWER OF ATTORNEY NOTICE

83664
Davis Wright Tremaine LLP - SF
IP Docketing Dept.
Davis Wright Tremaine LLP
920 Fifth Ave., Suite 3300
Seattle, WA 98104-1610

OC000000109031570

Date Mailed: 06/20/2019

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/15/2019.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

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

/hsarwari/

PTO/SB/80 (11-08)
Approved for use through 11/30/2020. OMB 0651-0035
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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: 145584

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: 145584

OR

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

Assignee Name and Address:

Sonic Wave LLC
300 S. Watters Road, Suite 318
Allen, TX 75013

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		Date	June 15, 2019
Name	Christian Dubuc	Telephone	972-322-2948
Title	MEMBER		

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

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Sonic Wave LLC

Application No./Patent No.: 8599814 Filed/Issue Date: July 27, 2012

Titled: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Sonic Wave LLC (Name of Assignee) , a corporation (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. [X] the assignee of the entire right, title, and interest in;

2. [ ] an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or

3. [ ] an assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made) the patent application/patent identified above by virtue of either:

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.

OR

B. [X] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: VLEUGELS, et al. To: OZMO, INC.
The document was recorded in the United States Patent and Trademark Office at
Reel 028662 , Frame 0707 , or for which a copy thereof is attached.

2. From: OZMO, INC. To: OMEGA SUB HOLDINGS, LLC
The document was recorded in the United States Patent and Trademark Office at
Reel 030191 , Frame 0653 , or for which a copy thereof is attached.

3. From: OMEGA SUB HOLDINGS, LLC To: OMEGA SUB HOLDINGS, INC.
The document was recorded in the United States Patent and Trademark Office at
Reel 030209 , Frame 0350 , or for which a copy thereof is attached.

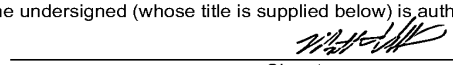
4. From: OMEGA SUB HOLDINGS, INC. To: SONIC WAVE LLC
The document was recorded in the United States Patent and Trademark Office at
0492 , Frame 0072 049214 , or for which a copy thereof is attached.

[ ] Additional documents in the chain of title are listed on a supplemental sheet(s).

[ ] As required by 37 CFR 3.73(b)(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.



Signature — June 15, 2019 (Date)

Matthew D. Vella, Reg No. 50,204 (Printed or Typed Name) — Attorney for Applicant (Title)

Electronic Acknowledgement Receipt

EFS ID:	36310964
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	83664
Filer:	Matthew Vella
Filer Authorized By:	
Attorney Docket Number:	0097725-001US4
Receipt Date:	15-JUN-2019
Filing Date:	27-JUL-2012
Time Stamp:	16:51:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	2019_06_13_Pre_AIA_PoA.pdf	948057 fe8c4e52408cda658cd0aa7a00882f4b944b feec	no	1

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	13560917_3_73b.pdf	69059 e58a2217ecc628b07907e5d6ac03e04b3ad8943e	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	1017116	

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4

Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 08/24/2015 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

X Applicant changing to regular undiscounted fee status.

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

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/Philip H. Albert/
Name:	Philip H. Albert
Registration Number:	35819

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	12/03/2013	8599814	0097725-001US4	4050

83664 7590 11/13/2013

Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 30 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

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

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

Katelijn Vleugels, San Carlos, CA;
Roel Peeters, San Carlos, CA;

PART B - FEE(S) TRANSMITTAL

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

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

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

83664 7590 08/05/2013
Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

TITLE OF INVENTION: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$0	$0	$890	11/05/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
VOLTAIRE, JEAN F	2466	370-338000

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

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

1 Davis Wright Tremaine LLP
2 Philip H. Albert
3

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

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

(A) NAME OF ASSIGNEE: Omega Sub Holdings, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Scottsdale, AZ

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

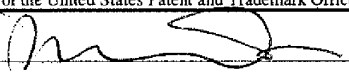
4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 04-0258 (enclose an extra copy of this form).

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29	NOTE: Absent a valid certification of Micro Entity Status (see form 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: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature  Date 11/1/2013

Typed or printed name Philip H. Albert Registration No. 35,819

Electronic Patent Application Fee Transmittal

Application Number:	13560917
Filing Date:	27-Jul-2012
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Filer:	Philip H. Albert/Paula Cunningham
Attorney Docket Number:	0097725-001US4

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

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	890	890
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**890**

Electronic Acknowledgement Receipt	
EFS ID:	17297448
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	83664
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	0097725-001US4
Receipt Date:	01-NOV-2013
Filing Date:	27-JUL-2012
Time Stamp:	18:44:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$890
RAM confirmation Number	5678
Deposit Account	040258
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Issue_Fee_Transmittal_0097725-001US4.pdf	83028 3ba8518b21d134d4ae66c072e8bc3fc99fb9d257	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30695 86915f28b3191dc3bc2fb7b1858b329a80e4383b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	113723		

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

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13/560,917
	Filing Date	July 27, 2012
	First Named Inventor	Katelijn Vleugels et al.
	Art Unit	2466
	Examiner Name	Jean F. Voltaire
	Attorney Docket Number	0097725-001US4

U.S. PATENTS

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

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	2004/0252674	A1	12-16-2004	Soininen et al.	
	2.	2005/0036484	A1	02-17-2005	Barker, Andrew	
	3.	2005/0058112	A1	03-17-2005	Lahey et al.	
	4.	2005/0238046	A1	10-27-2005	Hassan et al.	
	5.	2006/0063560	A1	03-23-2006	Herle, Sudhindra	

FOREIGN PATENT DOCUMENTS

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

NON-PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	6.	Non-Final Office Action for U.S. Application No. 12/892,825, date July 30, 2013 (available in PAIR), 19 pages.	

EXAMINER SIGNATURE

Examiner Signature	/Jean Voltaire/		Date Considered	08/16/2013	

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

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.V./

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

83664 7590 08/29/2013

Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

EXAMINER	
VOLTAIRE, JEAN F	

ART UNIT	PAPER NUMBER
2466	

NOTIFICATION DATE	DELIVERY MODE
08/29/2013	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):

patentdocket@dwt.com

Notice of Allowability	Application No. 13/560,917	Applicant(s) VLEUGELS ET AL.	
	Examiner JEAN F. VOLTAIRE	Art Unit 2466	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to *request for considering the IDS filed on 30 July 2013*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-24, 26-30 as renumbered by 1-29*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

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

   * Certified copies not received: _____.

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

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

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

Attachment(s)

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

/JEAN F VOLTAIRE/ Examiner, Art Unit 2466	/Faruk Hamza/ Supervisory Patent Examiner, Art Unit 2466

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 30 July 2013 was filed after the mailing date of the Allowance on 8/5/2013. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Conclusion

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEAN F VOLTAIRE whose telephone number is (571)272-3953. The examiner can normally be reached on Monday-Friday, Alternate Friday, 8:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Faruk HAMZA can be reached on (571) 272-7969. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEAN F VOLTAIRE/

Examiner, Art Unit 2466

/Faruk Hamza/

Supervisory Patent Examiner, Art Unit 2466

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

83664 7590 08/05/2013
Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

EXAMINER	
VOLTAIRE, JEAN F	
ART UNIT	PAPER NUMBER
2466	

DATE MAILED: 08/05/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

TITLE OF INVENTION: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$0	$0	$890	11/05/2013

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

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

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

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

83664 7590 08/05/2013
Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

TITLE OF INVENTION: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$890	$0	$0	$890	11/05/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
VOLTAIRE, JEAN F	2466	370-338000

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

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

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

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

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

1 _____
2 _____
3 _____

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

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

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

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

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

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

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see form 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: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	0097725-001US4	4050

83664 7590 08/05/2013

Davis Wright Tremaine LLP - SF
505 Montgomery Street
Suite 800
San Francisco, CA 94111

EXAMINER	
VOLTAIRE, JEAN F	
ART UNIT	**PAPER NUMBER**
2466	

DATE MAILED: 08/05/2013

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

The Patent Term Adjustment to date is 30 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 30 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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. 13/560,917	Applicant(s) VLEUGELS ET AL.	
	Examiner JEAN F. VOLTAIRE	Art Unit 2466	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to *amendment filed on 7 May 2013*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-24, 26-30 as renumbered by 1-29*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

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

   * Certified copies not received: _____.

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

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

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

Attachment(s)

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

/JEAN F VOLTAIRE/ Examiner, Art Unit 2466	/Faruk Hamza/ Supervisory Patent Examiner, Art Unit 2466

Notice of Allowability

Reason for Allowance

1. The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of **claim 1** is the inclusion of the limitation "the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network" in conjunction with all structures performing corresponding functions of claim 1.

The primary reason for the allowance of **claim 14** is the inclusion of the limitation "the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent, but not entirely consistent, with the first wireless network protocol, and wherein the first wireless protocol is an 802.11x wireless protocol and the second wireless network protocol is a modification of the 802.11x wireless protocol of the first wireless network but can be maintained with the 802.11x wireless protocol in the common wireless space wherein at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network" in conjunction with all structures performing corresponding functions of claim 14.

The primary reason for the allowance of **claim 19** is the inclusion of the limitation "the first wireless network protocol and the second wireless network protocol being for use over wireless networks in a common wireless space, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol in the common wireless space are partially consistent with the first wireless network protocol such that at least a first wireless network connection using the first wireless network protocol and a second wireless network connection using the second wireless network protocol can have their connection maintained, at times, simultaneously with each other in the common wireless space" in conjunction with all structures performing corresponding functions of claim 19.

The primary reason for the allowance of **claim 28** is the inclusion of the limitation "the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are consistent with the first wireless network protocol, but the first wireless network and the second wireless network are distinct in that at least one node of the second wireless network is not a node in the first wireless network and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network" in conjunction with all structures performing corresponding functions of claim 28.

Eng et al. (US-PAT-NO: 6,771,933, hereinafter Eng) cited prior art on record discloses maintaining network connection between a first wireless network (WLAN) and

a second wireless network (WPAN/Bluetooth), and data generated by Bluetooth devices is transmitted by WLAN radio.

Although Eng teaches communication between the first wireless network protocol and the second wireless network protocol but he/she is silent as to the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network.

Quinn (PGPUB: 2006/0015621), Lipasti (PGPUB: 2002/0039357), Rune (PGPUB: 2003/0152110), and Beckers (PGPUB: 2007/0093198) all cited prior arts on record do not teach the above limitation individually or in combination.

Consequently, Eng, Quinn, Lipasti, Rune and Beckers individually and as a whole do not teach the claim limitation above.

Claims 2-13, 15-18, 20-24, 26, 27, 29, and 30 depending on **claims 1, 14, 19, and 28** respectively, therefore, are considered allowable on the basis as the independent claims as well as for the further limitations set forth.

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

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEAN F VOLTAIRE whose telephone number is (571)272-3953. The examiner can normally be reached on Monday-Friday, Alternate Friday, 8:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Faruk HAMZA can be reached on (571) 272-7969. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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

/JEAN F VOLTAIRE/

Examiner, Art Unit 2466

/Faruk Hamza/

Supervisory Patent Examiner, Art Unit 2466

Notice of References Cited	Application/Control No. 13/560,917	Applicant(s)/Patent Under Reexamination VLEUGELS ET AL.	
	Examiner JEAN F. VOLTAIRE	Art Unit 2466	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,771,933	08-2004	Eng et al.	455/41.2
*	B	US-2006/0015621	01-2006	Quinn, Liam B.	709/227
*	C	US-2003/0152110	08-2003	Rune, Johan	370/509
*	D	US-2007/0093198	04-2007	Beckers, Fabien	455/001
*	E	US-2002/0039357	04-2002	Lipasti et al.	370/338
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	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.

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

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

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13/560,917
	Filing Date	July 27, 2012
	First Named Inventor	Katelijn Vleugels
	Art Unit	2466
	Examiner Name	Jean F Voltaire
	Attorney Docket Number	89863-001440US-846870

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	6,141,763		10-2000	Smith, et al.	
	2.	7,190,972		03-2007	Hollister, et al.	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	3.	2003/0119527	A1	06-2003	Labun, et al.	
	4.	2005/0119025	A1	06-2005	Mohindra, et al.	
	5.	2005/0192044	A1	09-2005	Travis	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
	6.							

NON-PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	7.	Office Action mailed October 10, 2012 in U.S. Patent Application No. 12/892,825, 18 pages.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.V./

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

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13/560,917
	Filing Date	July 27, 2012
	First Named Inventor	Katelijn Vleugels
	Art Unit	2466
	Examiner Name	Jean F Voltaire
	Attorney Docket Number	89863-001440US-846870

EXAMINER SIGNATURE			
Examiner Signature	/Jean Voltaire/	Date Considered 07/25/2013	

*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.

64781009

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.V./

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on July 27, 2012.

KILPATRICK TOWNSEND & STOCKTON LLP

By Paula Cunningham
Paula Cunningham

PATENT
Atty. Docket No.: 89863-001440US-846870

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katelijn Vleugels et al.

Application No.: TBA

Filed:

For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Customer No.: 20350

Confirmation No.: TBA

Examiner: Not Yet Assigned

Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97 and §1.98

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

Commissioner:

The purpose of this Invention Disclosure Statement is to bring to the Examiner's attention textual differences between the present application and a co-pending application (the "parent application"). The present application is a continuation of U.S. Patent Application No. 12/892,825, filed September 28, 2010 (hereinafter, the "parent application"), which is a divisional application of U.S. Patent Application No. 11/422,945, filed June 8, 2006, which is a continuation of U.S. Patent Application No. 11/376,729, filed March 14, 2006. Each of those prior filed nonprovisional applications incorporated by reference herein in their entirety for all purposes each preceding nonprovisional application as well as U.S. Provisional Patent Application No. 60/661,763, filed on March 14, 2005, U.S. Patent Application No. 11/376,753,

filed March 14, 2006 (hereinafter referred to as "Vleugels I"). Vleugels I also incorporated by reference in its entirety for all purposes U.S. Provisional Patent Application No. 60/661,746 ("the '746 provisional application").

Applicant asserts that material copied into the present application from Vleugels I and the '746 provisional application (see, Section A, below) does not constitute new matter and Applicant still enjoys the priority claims set forth in the present application. Applicant further asserts that grammatical and reference differences (see, Section B, below) do not constitute new matter. If the Examiner disagrees, the Examiner is invited to issue a new matter objection.

A. Insertions from Applications Incorporated by Reference in Earlier Applications

In the present application, ¶¶ [0063]-[0095] and Figs. 8-12 were not present in their current form in the text and figures of the parent application but were in incorporated-by-reference applications. Specifically, Figs. 8-9 of the present application correspond to Figs. 1-2 of Vleugels I and Figs. 10-12 of the present application correspond to Figs. 10-12 of the '746 provisional application. As for the text, ¶¶ [0063]-[0064] of the present application correspond to ¶¶[0008]-[0009] of Vleugels I, ¶ [0065] of the present application corresponds to ¶[0024] of Vleugels I, ¶¶ [0066]-[0071] of the present application correspond to ¶¶[0041]-[0046] of Vleugels I, ¶¶ [0072]-[0077] of the present application correspond to ¶¶[0048]-[0053] of Vleugels I, ¶ [0078] of the present application corresponds to ¶[0027] of Vleugels I, and ¶¶ [0079]-[0095] of the present application correspond to page 17, line 13 through page 20, line 22 of the '746 provisional application.

B. Grammatical and Reference Differences

Since the USPTO prefers that continuations not be filed with preliminary amendments to submit minor changes, grammatical and reference corrections were made to the continuation as filed. The differences include:

1) In Fig. 8, a box labeled "PER" was changed to "PER3" to be consistent with the text at ¶ [0073].

2) In Fig. 9, the AP is now labeled with "110" to be consistent with ¶ [0076].

3) In various places in the text, for readability, punctuation is added or revised, abbreviations are quoted and capitals are replaced with lowercase.

4) In ¶ [0006], "802.11xn" is replaced by "802.11n" as that was clearly intended.

5) ¶ [0013] was changed to read: "In some embodiments, the WLAN standard is the 802.11x standard. In such an embodiment, the wireless circuit is an 802.11x-compliant wireless circuit,..."

6) ¶ [0029] was changed to read: "Fig. 3 illustrates a wireless personal ~~are~~ area network" and "It is understood that the present disclosure equally applies to the ad-hoc or any other mode."

7) ¶ [0031] was changed to read: "WPAN 10 is shown as including ~~comprises~~ one or more..."

8) ¶ [0033] was changed as follows: "both the wireless circuit at the other end as well as the PS-STA are ~~both~~ 802.11x-compliant" (the word "both" was redundant) and "WPAN 5" changed to "WPAN 10" to be consistent with Fig. 3 and the rest of the description that uses "10" to refer to WPAN 10 and "5" to refer to integrated network 5.

9) ¶ [0037] was changed to read: "Fig. 5 illustrates some of the components disposed in a PS-STA 11, in accordance with one embodiment. PS-STA 11 typically includes, in part, a battery 16, a sensor or stimulus unit 17, a clock or crystal 18, a wireless circuit 19 and an

antenna 20." so as to be consistent with Fig. 5 and so that reference numerals in the figures appear in the text and vice versa.

10) The Abstract was shortened to 150 words or less to comply with the limits on Abstracts put in place since that Abstract was first used.

C. Conclusion

No inference should be made that any specific added text or figure is essential to support any particular claim in the present application.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,

Date: 7/27/2012

Philip H. Albert
Reg. No. 35,819

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Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 415-576-0200 Fax: 415-576-0300
PHA:psc
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Substitute for form 1449-PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	TBD
				Filing Date	Herewith
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned
Sheet	1	of	3	Attorney Docket Number	89863-001440US-846870

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	US-6,141,763	10-31-2000	Smith et al.	
	2	US-6,272,140	08-07-2001	LaRowe, Jr. et al.	
	3	US-6,505,253	01-07-2003	Chiu et al.	
	4	US-6,751,455	06-14-2004	Acampora	
	5	US-6,768,896	07-27-2004	Tjalldin et al.	
	6	US-6,771,933	08-2004	Eng et al.	
	7	US-6,842,460	01-11-2005	Olkkonen et al.	
	8	US-6,879,574	04-12-2005	Naghian et al.	
	9	US-7,003,102	02-21-2006	Kiko	
	10	US-7,039,358	05-02-2006	Shellhammer et al.	
	11	US-7,088,687	08-08-2006	Ayyagari et al.	
	12	US-7,095,748	08-22-2006	Vij et al.	
	13	US-7,190,972	03-13-2007	Hollister et al.	
	14	US-7,333,829	02-19-2008	Malone et al.	
	15	US-7,463,907	12-09-2008	Smith et al.	
	16	US-7,590,101	09-15-2009	Forand et al.	
	17	US-7,664,081	02-16-2010	Luoma et al.	
	18	US-7,733,885	06-08-2010	Ayyagari et al.	
	19	US-7,826,408	11-02-2010	Vleugels et al.	
	20	US-2002-0039357	04-2002	Lipasti et al.	
	21	US-2003-0119527	06-26-2003	Labun et al.	
	22	US-2003-0152110	08-2003	Rune	
	23	US-2004-0076136	04-22-2004	Beach	
	24	US-2004-0157551	08-12-2004	Gainey et al.	
	25	US-2004-0170120	09-02-2004	Reunamaki et al.	
	26	US-2004-0259544	12-23-2004	Amos	
	27	US-2004-0259552	12-23-2004	Ihori et al.	
	28	US-2005-0025104	02-03-2005	Fischer et al.	

Examiner Signature	/Jean Voltaire/	Date Considered	07/25/2013

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 3

Complete if Known	
Application Number	TBD
Filing Date	Herewith
First Named Inventor	Vleugels, Katelijn
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	89863-001440US-846870

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	29	US-2005-0068965	03-31-2005	Lin et al.	
	30	US-2005-0086393	04-2005	Meng et al.	
	31	US-2005-0099275	05-12-2005	Kamdar et al.	
	32	US-2005-0101260	05-12-2005	Hunt et al.	
	33	US-2005-0119025	06-02-2005	Mohindra et al.	
	34	US-2005-0176473	08-11-2005	Melpignano	
	35	US-2005-0192044	09-01-2005	Travis	
	36	US-2005-0286474	12-29-2005	van Zelst et al.	
	37	US-2006-0015621	01-2006	Quinn	
	38	US-2006-0146868	07-06-2006	Ginzburg	
	39	US-2006-0165035	07-27-2006	Chandra et al.	
	40	US-2006-0203841	09-14-2006	Fischer	
	41	US-2006-0215601	09-28-2006	Vleugels et al.	
	42	US-2007-0093198	04-2007	Beckers	
	43	US-2008-0144493	06-19-2008	Yeh	
	44	US-2008-0291858	11-27-2008	Kandala et al.	
	45	US-2009-0086619	04-02-2009	Santhoff et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		Country Code[3]	Number[4]	Kind Code[5] (if known)				
	46	WO	97/048198	A2	12-18-1997	Streamix Corporation		
	47	WO	03/065654	A1	08-07-2003	Koninklijke Philips Electronics N.V.		
	48	WO	06/099588	A2	09-21-2006	H-Stream Wireless		
	49	EP	1207654	A2	05-22-2002	Symbol Technologies, Inc.		

Examiner Signature	/Jean Voltaire/	Date Considered	07/25/2013

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

64440422v1

Substitute for form 1449-PTO				Complete if Known	
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				Filing Date	Herewith
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned
Sheet	3	of	3	Attorney Docket Number	89863-001440US-846870

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No.[1]	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, page(s), volume-issue number(s), publisher, city and-or country where published.	T[6]
	50	International Search Report and Written Opinion corresponding to the PCT application No. PCT/US06/09786, dated September 25, 2007, 9 pages total.	☐
	51	The State Intellectual Property Office of the People's Republic of China, First Office Action for Application No. 200680013461.6, dated May 12, 2010, 24 pages total.	☒
	52	Office Action for US Application No.11/422,945, dated November 21, 2008.	☐
	53	Office Action for US Application No.11/422,945, dated October 22, 2009.	☐
	54	Notice of Allowance for US Application No.11/422,945, dated June 23, 2010.	☐

Examiner Signature	/Jean Voltaire/	Date Considered	07/25/2013

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

64440422v1

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on July 27, 2012.

KILPATRICK TOWNSEND & STOCKTON LLP

By: Paula Cunningham
Paula Cunningham

PATENT
Atty. Docket No.: 89863-001440US-846870

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katelijn Vleugels et al.

Application No.: TBA

Filed:

For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Customer No.: 20350

Confirmation No.: TBA

Examiner: Not Yet Assigned

Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97 and §1.98

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

Commissioner:

The references cited on attached form PTO/SB/08A are being called to the attention of the Examiner. In accordance with 37 CFR §1.98(d), copies of the references can be found in Application No. 11/422,945, filed June 8, 2006, now U.S. Patent No. 7,826,408 (Attorney Docket No. 89863-713437) and Application No. 12/892,825, filed September 28, 2010 (Attorney Docket No. 89863-792770). It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR §1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no

representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Date: 7/29/2012

Respectfully submitted,

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64440422v1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13560917	VLEUGELS ET AL.
	Examiner	**Art Unit**
	JEAN F VOLTAIRE	2466

CPC		
Symbol	**Type**	**Version**

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

/JEAN F VOLTAIRE/ Examiner.Art Unit 2466	7/25/13	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	29	
/FARUK HAMZA/ Supervisory Patent Examiner.Art Unit 2466	07/26/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1, 14, 19	4

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13560917	VLEUGELS ET AL.
	Examiner	**Art Unit**
	JEAN F VOLTAIRE	2466

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
370	338	H	0	4	W	40 / 00 (2009.01.01)						
CROSS REFERENCE(S)												
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)											

/JEAN F VOLTAIRE/ Examiner.Art Unit 2466	7/25/13	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	29	
/FARUK HAMZA/ Supervisory Patent Examiner.Art Unit 2466	07/26/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1, 14, 19	4

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13560917	VLEUGELS ET AL.
	Examiner	**Art Unit**
	JEAN F VOLTAIRE	2466

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
2	2	18	18												
3	3	19	19												
4	4	20	20												
5	5	21	21												
6	6	22	22												
7	7	23	23												
8	8	24	24												
9	9		25												
10	10	25	26												
11	11	26	27												
12	12	27	28												
13	13	28	29												
14	14	29	30												
15	15														
16	16														

/JEAN F VOLTAIRE/ Examiner.Art Unit 2466	7/25/13	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	29	
/FARUK HAMZA/ Supervisory Patent Examiner.Art Unit 2466	07/26/2013	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1, 14, 19	4

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13560917	VLEUGELS ET AL.
	Examiner	Art Unit
	JEAN F VOLTAIRE	2466

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

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

CLAIM		DATE								
Final	Original	11/10/2012	07/25/2013							
1	1	✓	=							
2	2	✓	=							
3	3	✓	=							
4	4	✓	=							
5	5	✓	=							
6	6	✓	=							
7	7	✓	=							
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	25	✓	-							
25	26	✓	=							
26	27	✓	=							
27	28	✓	=							
28	29	✓	=							
29	30	✓	=							

EAST Search History

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	network-enabled ADJ hub ADJ communications ADJ antennae ADJ impinge ADJ overlay ADJ protocol	US-PGPUB; UPAD	OR	ON	2013/07/25 19:14
L2	0	communications ADJ antennae ADJ impinge ADJ overlay ADJ protocol	US-PGPUB; UPAD	OR	ON	2013/07/25 19:14
L3	0	network-enabled ADJ antennae ADJ impinge ADJ overlay ADJ protocol	US-PGPUB; UPAD	OR	ON	2013/07/25 19:14
L4	0	network-enabled ADJ antennae ADJ impinge ADJ overlay ADJ protocol ADJ radio ADJ circuit	US-PGPUB; UPAD	OR	ON	2013/07/25 19:15
L5	0	network-enabled WITH antennae WITH impinge WITH overlay WITH protocol WITH radio ADJ circuit	US-PGPUB; UPAD	OR	ON	2013/07/25 19:15
L6	0	network-enabled WITH antennae WITH impinge WITH overlay WITH protocol	US-PGPUB; UPAD	OR	ON	2013/07/25 19:15
L7	0	network-enabled WITH antennae WITH overlay WITH protocol	US-PGPUB; UPAD	OR	ON	2013/07/25 19:16
L8	0	antennae WITH overlay WITH protocol	US-PGPUB; UPAD	OR	ON	2013/07/25 19:16
L9	4	antenna WITH overlay WITH protocol	US-PGPUB; UPAD	OR	ON	2013/07/25 19:16
L10	0	antenna WITH overlay WITH protocol WITH impinge	US-PGPUB; UPAD	OR	ON	2013/07/25 19:16
L11	0	antenna WITH overlay WITH protocol WITH consistent	US-PGPUB; UPAD	OR	ON	2013/07/25 19:17
L12	0	antenna WITH overlay WITH protocol WITH partially	US-PGPUB; UPAD	OR	ON	2013/07/25 19:17
S12	52495	Cheng-Wen Tang	USPAT; UPAD	OR	ON	2012/06/11 13:09
S187	0	telephone with photo	UPAD	OR	ON	2012/07/18 11:02

7/25/2013 7:20:07 PM
C:\Users\jvoltaire\Documents\EAST\Workspaces\13560917.wsp

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	("6252944").PN.	USPAT; USOCR	OR	OFF	2012/06/01 13:55
S2	79430	("379").CLAS.	USPAT; USOCR	OR	OFF	2012/06/01 14:00
S3	248	(379/68).CCLS.	USPAT; USOCR	OR	OFF	2012/06/01 14:01
S4	257	379/68.ccls.	US-PGPUB; USPAT	OR	ON	2012/06/01 14:05
S8	27369	?DSL	US-PGPUB; USPAT	OR	ON	2012/06/01 15:07
S13	4968554	access point	US-PGPUB; USPAT	OR	ON	2012/06/12 11:03
S14	1648377	digital divice$	US-PGPUB; USPAT	OR	ON	2012/06/12 13:57
S15	157	digital and divice$	US-PGPUB; USPAT	OR	ON	2012/06/12 14:47
S16	4013602	digital devices	US-PGPUB; USPAT	OR	ON	2012/06/13 09:52
S17	2216446	disconnection management frame	US-PGPUB; USPAT	OR	ON	2012/06/13 10:00
S18	264728	(detect$3, select$3, choos$3) with (module)	US-PGPUB; USPAT	OR	ON	2012/06/13 11:11
S19	69534	(detect$3, select$3, choos$3) near (module)	US-PGPUB; USPAT	OR	ON	2012/06/13 11:12
S20	920610	(detect$3, select$3, choos$3) and (module)	US-PGPUB; USPAT	OR	ON	2012/06/13 11:20
S21	570959	camera$1	US-PGPUB; USPAT	OR	ON	2012/06/19 15:36
S22	351076	S21 and detect$3	US-PGPUB; USPAT	OR	ON	2012/06/19 15:38
S23	119956	S22 and check$4	US-PGPUB; USPAT	OR	ON	2012/06/19 15:39
S24	4010	S23 and wlan	US-PGPUB;	OR	ON	2012/06/19 15:39

			USPAT			
S25	1874	S24 and access adj point	US-PGPUB; USPAT	OR	ON	2012/06/19 15:40
S26	1767	S25 and connect$3	US-PGPUB; USPAT	OR	ON	2012/06/19 15:41
S27	66	S26 and reconnect$3	US-PGPUB; USPAT	OR	ON	2012/06/19 15:44
S28	37	S27 and disconnect$3	US-PGPUB; USPAT	OR	ON	2012/06/19 15:48
S29	570959	camera$1	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S30	351076	S29 and detect$3	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S31	119956	S30 and check$4	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S32	4010	S31 and wlan	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S33	1874	S32 and access adj point	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S34	1767	S33 and connect$3	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S35	66	S34 and reconnect$3	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S36	37	S35 and disconnect$3	US-PGPUB; USPAT	OR	ON	2012/06/20 08:41
S38	42	S35 and frame	US-PGPUB; USPAT	OR	ON	2012/06/20 08:58
S39	2	"20060208088"	US-PGPUB; USPAT	OR	ON	2012/06/20 15:12
S40	1	"20080279164"	US-PGPUB; USPAT	OR	ON	2012/06/20 15:35
S41	819779	TRANS$6 SAME (MANAGEMENT FRAME)	US-PGPUB; USPAT	OR	ON	2012/06/25 10:44
S42	27637	(TRANS$6 AND RECEI$6) NEAR(MANAGEMENT FRAME)	US-PGPUB; USPAT	OR	ON	2012/06/25 10:45
S43	1	"20060085271".PN.	US-PGPUB	OR	ON	2012/06/25 11:44
S44	2223441	disconnection management frame	US-PGPUB; USPAT	OR	ON	2012/06/25 15:52

S45	2227000	disconnection or reconnection management frame	US-PGPUB; USPAT	OR	ON	2012/06/25 15:53
S46	1605094	ssid near management frame	US-PGPUB; USPAT	OR	ON	2012/06/25 15:53
S47	4269002	S46 near access point	US-PGPUB; USPAT	OR	ON	2012/06/25 15:54
S48	1047	S46 adj AP	US-PGPUB; USPAT	OR	ON	2012/06/25 15:55
S50	2719277	S48 same physical location	US-PGPUB; USPAT	OR	ON	2012/06/25 15:56
S53	2	S48 near obtaining	US-PGPUB; USPAT	OR	ON	2012/06/25 15:58
S54	333462	S48 near geography tag	US-PGPUB; USPAT	OR	ON	2012/06/25 16:37
S55	2	S48 with obtaining	US-PGPUB; USPAT	OR	ON	2012/06/25 16:38
S56	11	S48 same obtaining	US-PGPUB; USPAT	OR	ON	2012/06/25 16:38
S57	10923	(370/338).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/06/25 17:29
S58	7901	S57 and S44	US-PGPUB; USPAT	OR	ON	2012/06/25 17:30
S59	185	transmit$4 adj management adj frame	US-PGPUB; USPAT	OR	ON	2012/06/26 07:54
S60	4269939	S59 with access point	US-PGPUB; USPAT	OR	ON	2012/06/26 07:55
S61	4269939	S59 near Access point	US-PGPUB; USPAT	OR	ON	2012/06/26 07:55
S62	4269939	S59 with access point	US-PGPUB; USPAT	OR	ON	2012/06/26 07:56
S63	4269939	S59 same access point	US-PGPUB; USPAT	OR	ON	2012/06/26 07:56
S64	4269939	S59 adj access point	US-PGPUB; USPAT	OR	ON	2012/06/26 07:56
S65	809458	receiv$4 near frame management	US-PGPUB; USPAT	OR	ON	2012/06/26 07:59
S66	4	receiv$4 near S59	US-PGPUB; USPAT	OR	ON	2012/06/26 08:00

S68	185	transmit$4 adj management adj frame	US-PGPUB; USPAT	OR	ON	2012/06/26 10:56
S69	5156698	S68 adj service set id	US-PGPUB; USPAT	OR	ON	2012/06/26 10:56
S71	4	S68 with ssid	US-PGPUB; USPAT	OR	ON	2012/06/26 10:57
S72	2169148	reconnection management frame	US-PGPUB; USPAT	OR	ON	2012/06/26 11:32
S73	61	S72 adj ssid	US-PGPUB; USPAT	OR	ON	2012/06/26 11:32
S74	2163158	S73 near deconnection management frame	US-PGPUB; USPAT	OR	ON	2012/06/26 11:32
S75	1	"20110044308"	US-PGPUB; USPAT	OR	ON	2012/06/26 13:21
S76	2	"20040063471"	US-PGPUB; USPAT	OR	ON	2012/06/26 13:28
S77	139177	(detect$4, transmit$4, receiv$4) same module with connect$4	US-PGPUB; USPAT	OR	ON	2012/06/26 15:46
S78	5374615	(detect$4, transmit$4, receiv$4) adj module with (connect$4) service set identification	US-PGPUB; USPAT	OR	ON	2012/06/26 15:47
S79	1286838	reconnect$4 probe request	US-PGPUB; USPAT	OR	ON	2012/06/26 15:56
S80	1065	S79 with ssid	US-PGPUB; USPAT	OR	ON	2012/06/26 15:56
S81	1100088	S80 with detecting module	US-PGPUB; USPAT	OR	ON	2012/06/26 15:58
S82	1100275	S80 and detecting module	US-PGPUB; USPAT	OR	ON	2012/06/26 15:58
S83	5509743	(detect$4, select$4) module with management frame same probe request	US-PGPUB; USPAT	OR	ON	2012/06/27 13:05
S87	7276	(detect$4 or select$4 or check$4) near (AP or (access adj point))	US-PGPUB; USPAT	OR	ON	2012/06/27 13:58
S88	5039	S87 and wireless and (transmit$4 or send$4)	US-PGPUB; USPAT	OR	ON	2012/06/27 13:59
S89	2	S88 and (disconnect$4 adj frame)	US-PGPUB; USPAT	OR	ON	2012/06/27 13:59
S90	1	S88 and (disconnect$4 adj frame) and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 14:12

S91	14601	"20080306"	US-PGPUB; USPAT	OR	ON	2012/06/27 14:13
S92	13643	"20070816"	US-PGPUB; USPAT	OR	ON	2012/06/27 14:13
S95	1	S88 and (disconnect$4 adj management adj frame) and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 14:57
S96	0	S88 and (disconnect$4 adj receiv$4 adj frame) and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 15:00
S98	1	S88 and (disconnect$4 adj management) and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 15:01
S99	163	S88 and (obtain$4 or receiv$4) adj frame and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 15:04
S100	523	S88 and (obtain$4 or receiv$4) same frame and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 15:05
S101	462	S88 and (obtain$4 or receiv$4) with frame and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 15:05
S102	302	S88 and (obtain$4 or receiv$4) near frame and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 15:05
S103	6708	S88 and (obtain$4 or receiv$4) or frame and ssid	US-PGPUB; USPAT	OR	ON	2012/06/27 15:05
S104	3	"7478755"	US-PGPUB; USPAT	OR	ON	2012/06/27 16:20
S105	1	10/626,792	US-PGPUB; USPAT	OR	ON	2012/06/28 11:50
S106	1	"20100220182"	US-PGPUB; USPAT	OR	ON	2012/06/28 17:16
S107	1	"20040127298"	US-PGPUB; USPAT	OR	ON	2012/06/28 17:19
S108	80506	(physical adj location) or (geography adj tag) or ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 13:03
S109	76628	(physical adj location) or (geography adj tag) or ssid near3 (access adj point)	US-PGPUB; USPAT	OR	ON	2012/06/29 13:04
S110	29	S109 near3 (wireless adj station)	US-PGPUB; USPAT	OR	ON	2012/06/29 13:04
S113	3	"7478755"	US-PGPUB; USPAT	OR	ON	2012/06/29 15:54
S114	70	"5724346"	US-PGPUB; USPAT	OR	ON	2012/06/29 16:21

S115	16	"529525"	US-PGPUB; USPAT	OR	ON	2012/06/29 16:24
S116	1	"10405694"	US-PGPUB; USPAT	OR	ON	2012/06/29 16:26
S117	2	S109 near wireless adj station	US-PGPUB; USPAT	OR	ON	2012/06/29 16:50
S118	460	S109 near wireless	US-PGPUB; USPAT	OR	ON	2012/06/29 16:52
S119	850	S109 near3 wireless	US-PGPUB; USPAT	OR	ON	2012/06/29 16:52
S120	331	S109 adj wireless	US-PGPUB; USPAT	OR	ON	2012/06/29 16:52
S121	2	S109 adj wireless adj station	US-PGPUB; USPAT	OR	ON	2012/06/29 16:52
S122	765	S109 near (access adj point)	US-PGPUB; USPAT	OR	ON	2012/06/29 16:53
S123	911	S109 near3 (access adj point)	US-PGPUB; USPAT	OR	ON	2012/06/29 16:53
S124	542	S109 near ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 16:54
S125	0	S109 adj ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 16:54
S126	931	S109 same ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 16:54
S127	899	S109 with ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 16:54
S128	80506	S109 or ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 16:54
S129	0	obtain$4 adj probe adj request adj ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 17:27
S130	36	probe adj request adj ssid	US-PGPUB; USPAT	OR	ON	2012/06/29 17:28
S131	4	"7113742"	US-PGPUB; USPAT	OR	ON	2012/06/29 18:33
S132	0	disconnection adj frame near deauthentication adj frame	US-PGPUB; USPAT	OR	ON	2012/07/02 07:43
S133	1	(disconnection adj frame) near (deauthentication adj frame)	US-PGPUB; USPAT	OR	ON	2012/07/02 07:44

S134	1	"12790354"	US-PGPUB; USPAT	OR	ON	2012/07/02 08:45
S135	0	(reconnection adj frame) near (probe adj request)	US-PGPUB; USPAT	OR	ON	2012/07/02 11:36
S136	45	(management adj frame) near (probe adj request)	US-PGPUB; USPAT	OR	ON	2012/07/02 11:37
S137	3	"7478755"	US-PGPUB; USPAT	OR	ON	2012/07/03 11:48
S138	70	"5724346"	US-PGPUB; USPAT	OR	ON	2012/07/03 11:49
S139	1	"20100061326"	US-PGPUB; USPAT	OR	ON	2012/07/03 11:50
S140	1	"20090300188"	US-PGPUB; USPAT	OR	ON	2012/07/03 11:51
S141	1	"20100202426"	US-PGPUB; USPAT	OR	ON	2012/07/03 11:52
S142	1	"12892813"	US-PGPUB; USPAT	OR	ON	2012/07/03 11:53
S143	36	(detect$3 or search$3 or receiv$3) near (signatures adj packets)	US-PGPUB; USPAT	OR	ON	2012/07/03 12:48
S144	1	"12838360"	US-PGPUB; USPAT	OR	ON	2012/07/03 15:13
S145	1	"20100202426"	US-PGPUB; USPAT	OR	ON	2012/07/03 16:24
S146	94	(reconnect$3 or associat$3) near (probe adj request)	US-PGPUB; USPAT	OR	ON	2012/07/03 16:32
S147	5	S146 near frame	US-PGPUB; USPAT	OR	ON	2012/07/03 16:32
S148	1	S146 near (management adj frame)	US-PGPUB; USPAT	OR	ON	2012/07/03 16:41
S149	1	S146 near ssid	US-PGPUB; USPAT	OR	ON	2012/07/03 16:42
S150	1609038	S146 same management frame	US-PGPUB; USPAT	OR	ON	2012/07/03 16:44
S151	0	S146 adj management adj frame	US-PGPUB; USPAT	OR	ON	2012/07/03 16:44
S152	0	S146 adj ssid	US-PGPUB; USPAT	OR	ON	2012/07/03 16:45

S153	2	S146 with ssid	US-PGPUB; USPAT	OR	ON	2012/07/03 16:45
S154	0	S146 near (deconnect$3 adj disassociat$3)	US-PGPUB; USPAT	OR	ON	2012/07/03 17:02
S155	0	S146 near deconnection	US-PGPUB; USPAT	OR	ON	2012/07/03 17:02
S156	0	S146 near (frame adj ssid)	US-PGPUB; USPAT	OR	ON	2012/07/03 17:03
S157	5	S146 near frame	US-PGPUB; USPAT	OR	ON	2012/07/03 17:03
S158	0	S146 near management	US-PGPUB; USPAT	OR	ON	2012/07/03 17:03
S159	1	"20100128662"	US-PGPUB; USPAT	OR	ON	2012/07/10 15:15
S160	45	(network adj test$3) same signatures	US-PGPUB; USPAT	OR	ON	2012/07/10 17:53
S161	0	(boyer-moore) adj string adj (quick adj search adj algorithm)	US-PGPUB; USPAT	OR	ON	2012/07/11 11:34
S162	0	(boyer-moore) adj (quick adj search adj algorithm)	US-PGPUB; USPAT	OR	ON	2012/07/11 11:34
S163	1	(boyer adj moore) same (quick adj search adj algorithm)	US-PGPUB; USPAT	OR	ON	2012/07/11 11:34
S164	1	(boyer or moore) same (quick adj search adj algorithm)	US-PGPUB; USPAT	OR	ON	2012/07/11 11:36
S165	1496	(boyer or moore) same (quick or search or algorithm)	US-PGPUB; USPAT	OR	ON	2012/07/11 11:36
S166	117	(boyer or moore) adj (quick or search or algorithm)	US-PGPUB; USPAT	OR	ON	2012/07/11 11:36
S167	0	S166 adj signature	US-PGPUB; USPAT	OR	ON	2012/07/11 11:37
S168	0	S166 near signature	US-PGPUB; USPAT	OR	ON	2012/07/11 11:37
S169	9	S166 same signature	US-PGPUB; USPAT	OR	ON	2012/07/11 11:37
S170	0	"10626792"	US-PGPUB; USPAT	OR	ON	2012/07/11 14:47
S171	1	10/626,792	US-PGPUB; USPAT	OR	ON	2012/07/11 14:47

S172	20	"6,717,917"	US-PGPUB; USPAT	OR	ON	2012/07/13 08:39
S173	9	2007/0115833	US-PGPUB; USPAT	OR	ON	2012/07/13 08:48
S174	1	"12266783"	US-PGPUB; USPAT	OR	ON	2012/07/13 08:53
S175	1	"12763832"	US-PGPUB; USPAT	OR	ON	2012/07/13 09:16
S176	1	"11061102"	US-PGPUB; USPAT	OR	ON	2012/07/13 09:21
S177	1	(boyer adj moore) same (network adj test$4)	US-PGPUB; USPAT	OR	ON	2012/07/13 09:23
S178	0	(boyer adj moore) near (network adj test$4)	US-PGPUB; USPAT	OR	ON	2012/07/13 09:24
S179	0	(boyer adj moore) near network	US-PGPUB; USPAT	OR	ON	2012/07/13 09:24
S180	13	(boyer adj moore) same network	US-PGPUB; USPAT	OR	ON	2012/07/13 09:24
S181	1	("6587871").PN.	US-PGPUB; USPAT	OR	OFF	2012/07/18 09:43
S182	20	("5633916" | "5675507" | "5687220" | "5712901" | "5737395" | "5740231" | "5742668" | "5742905" | "5875448" | "5884262" | "5926525" | "5943398" | "5946386" | "5991365" | "5995936" | "6052442" | "6151572" | "6154757" | "6169789" | "6215858").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/07/18 09:45
S183	24	("6587871").URPN.	USPAT	OR	ON	2012/07/18 09:48
S184	9923	(telephone or phone) same (voice and activation)	US-PGPUB; USPAT	OR	ON	2012/07/18 10:35
S185	1	WO-0045572-$.did.	DERWENT	OR	ON	2012/07/18 10:51
S186	2405	telephone with photo	US-PGPUB; USPAT	OR	ON	2012/07/18 11:20
S188	47	(RPR OR OAM) same (frame with egress)	US-PGPUB; USPAT	OR	ON	2012/07/18 13:07
S189	25	S188 and map$3	US-PGPUB; USPAT	OR	ON	2012/07/18 13:08
S190	21	solicit$3 same rerout$3	US-PGPUB; USPAT	OR	ON	2012/07/18 13:11
S191	102	beacon near trigger	US-	OR	ON	2012/07/18

			PGPUB; USPAT			13:12
S192	11644	(370/230-235).ccls.	US-PGPUB; USPAT	OR	ON	2012/07/18 13:13
S193	3924275	inventor David "H." Roberts	US-PGPUB; USPAT	OR	ON	2012/07/18 13:14
S194	13	"7464166"	US-PGPUB; USPAT	OR	ON	2012/07/18 13:16
S195	1603892	David "H." Roberts	US-PGPUB; USPAT	OR	ON	2012/07/18 13:25
S196	3404	David near2 Roberts	US-PGPUB; USPAT	OR	ON	2012/07/18 14:16
S197	11593	(370/338).ccls.	US-PGPUB; USPAT	OR	ON	2012/11/05 16:31
S198	11611	(370/338).ccls.	US-PGPUB; USPAT	OR	ON	2012/11/06 09:48
S199	20400	(370/328-329).ccls.	US-PGPUB; USPAT	OR	ON	2012/11/06 09:48
S200	2185	(370/469).ccls.	US-PGPUB; USPAT	OR	ON	2012/11/06 09:49
S201	820	(hub$1 switch$1 router$1 gateway$1)same((WLAN WPAN(wireless personal near2(network))))same((overlay near2(protocol))(different distinct near2(protocol$1)))same(dual simultaneous near2(session$1 connect$4))	US-PGPUB; USPAT	OR	ON	2012/11/06 09:57
S202	0	S201 and (firest near2(network))same(secondnear2(network))	US-PGPUB; USPAT	OR	ON	2012/11/06 09:59
S203	163	S201 and (first near2(network))same(secondnear2(network))	US-PGPUB; USPAT	OR	ON	2012/11/06 09:59
S204	820	(hub$1 switch$1 router$1 gateway$1)same((WLAN WPAN(wireless personal near2(network))))same((overlay near2(protocol))(different distinct near2(protocol$1 technolog$3)))same(dual simultaneous near2(session$1 connect$4))	US-PGPUB; USPAT	OR	ON	2012/11/06 10:00
S205	832	(hub$1 switch$1 router$1 gateway$1)same((WLAN WPAN PAN(wireless personal near2(network))))same((overlay near2(protocol))(different distinct near2(protocol$1 technolog$3)))same(dual simultaneous near2(session$1 connect$4))	US-PGPUB; USPAT	OR	ON	2012/11/06 10:01
S206	406	(hub$1 switch$1 router$1 gateway$1)same((WLAN WPAN PAN(wireless personal near2(network))))same((overlay near2(protocol))(different distinct near2(protocol$1	US-PGPUB; USPAT	OR	ON	2012/11/06 10:02

		technolog$3)))and(simultaneous near2(session$1 connect$4))				
S207	85	S206 and (first near2(network))same(second near2(network))	US-PGPUB; USPAT	OR	ON	2012/11/06 10:03
S209	2417	S198 and S199	US-PGPUB; USPAT	OR	ON	2012/11/06 10:04
S210	47	S209 and S200	US-PGPUB; USPAT	OR	ON	2012/11/06 10:04
S212	39	"6771933"	US-PGPUB; USPAT	OR	ON	2012/11/06 11:02
S213	1	"20060015621"	US-PGPUB; USPAT	OR	ON	2012/11/06 11:04
S214	1	"20050086393"	US-PGPUB; USPAT	OR	ON	2012/11/06 11:05
S215	1	"20020039357"	US-PGPUB; USPAT	OR	ON	2012/11/06 11:05
S216	2	"20070093198"	US-PGPUB; USPAT	OR	ON	2012/11/06 11:06
S217	1	("20030152110").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/08 09:32
S218	1	("20020039357").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/08 14:43
S219	1	(12/982695).APP.	US-PGPUB; USPAT	OR	OFF	2012/11/08 19:28
S220	1	("20070093198").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/09 10:24
S221	1	("20050086393").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/09 10:26
S222	1	("20070093198").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/09 14:01
S223	1	(13/249059).APP.	US-PGPUB; USPAT	OR	OFF	2012/11/10 13:02
S225	0	(13/481410).APP.	US-PGPUB; USPAT	OR	OFF	2012/11/10 17:59
S227	2	WLAN WITH WPAN WITH overlay	US-PGPUB; USPAT	OR	ON	2013/07/10 12:15
S228	7	WLAN SAME WPAN SAME overlay	US-PGPUB; USPAT	OR	ON	2013/07/10 12:20
S229	1	first near(network) SAME second	US-	OR	ON	2013/07/10

		near(network) SAME overlay SAME antenna$	PGPUB; USPAT			12:45
S230	12770	370/338.ccls.	US-PGPUB; USPAT	OR	ON	2013/07/15 13:26
S233	8	370/338.ccls. AND overlay near2 (protocol) AND antenna$	US-PGPUB; USPAT	OR	ON	2013/07/15 13:28
S234	2	"8165102"	US-PGPUB; USPAT	OR	ON	2013/07/16 13:39
S235	0	first near2(network) SAME second near2(network) SAME overlay near2 (protocol) SAME antenna$	US-PGPUB; USPAT	OR	ON	2013/07/16 14:32
S236	14	first near2(network) AND second near2(network) AND overlay near2 (protocol) AND antenna$	US-PGPUB; USPAT	OR	ON	2013/07/16 14:32
S237	1	"20060015621"	US-PGPUB; USPAT	OR	ON	2013/07/16 15:39
S238	2	"20060159016"	US-PGPUB; USPAT	OR	ON	2013/07/16 18:46
S239	2	"20080119183"	US-PGPUB; USPAT	OR	ON	2013/07/16 18:47

7/25/2013 7:19:39 PM
C:\Users\jvoltaire\Documents\EAST\Workspaces\13560917.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13560917	VLEUGELS ET AL.
	Examiner	Art Unit
	JEAN F VOLTAIRE	2466

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
370	338, 509, 349, 401	11/10/2012	J.V.
455	1, 41.2, 426, 562	11/10/2012	J.V.

SEARCH NOTES		
Search Notes	Date	Examiner
370/338 combined with key words of claims invention like overlay, gateway, session, protocol, simultaneous, distinct, WLAN, WPAN, router, switch, connect, hub, network, first, second,overlay, etc...	11/10/2012	J.V.
East, IP.COM, Google.com/patents, google.com, eMPEP, PALM.	11/10/2012	J.V.
Consulted with Primary Examiner Jae Y. LEE	11/10/2012	J.V.
Non Patent Literature (NPL) search in IP.COM, IEEE.ORG, 3GPP.ORG, Google/patent, etc...	07/24/2013	J.V.

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	See Interference Search History Printout	07/25/2013	J.V.

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on July 27, 2012.

KILPATRICK TOWNSEND & STOCKTON LLP

By Paula Cunningham
Paula Cunningham

PATENT
Atty. Docket No.: 89863-001440US-846870

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katelijn Vleugels et al.

Application No.: TBA

Filed:

For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Customer No.: 20350

Confirmation No.: TBA

Examiner: Not Yet Assigned

Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97 and §1.98

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

Commissioner:

The purpose of this Invention Disclosure Statement is to bring to the Examiner's attention textual differences between the present application and a co-pending application (the "parent application"). The present application is a continuation of U.S. Patent Application No. 12/892,825, filed September 28, 2010 (hereinafter, the "parent application"), which is a divisional application of U.S. Patent Application No. 11/422,945, filed June 8, 2006, which is a continuation of U.S. Patent Application No. 11/376,729, filed March 14, 2006. Each of those prior filed nonprovisional applications incorporated by reference herein in their entirety for all purposes each preceding nonprovisional application as well as U.S. Provisional Patent Application No. 60/661,763, filed on March 14, 2005, U.S. Patent Application No. 11/376,753,

filed March 14, 2006 (hereinafter referred to as "Vleugels I"). Vleugels I also incorporated by reference in its entirety for all purposes U.S. Provisional Patent Application No. 60/661,746 ("the '746 provisional application").

Applicant asserts that material copied into the present application from Vleugels I and the '746 provisional application (see, Section A, below) does not constitute new matter and Applicant still enjoys the priority claims set forth in the present application. Applicant further asserts that grammatical and reference differences (see, Section B, below) do not constitute new matter. If the Examiner disagrees, the Examiner is invited to issue a new matter objection.

A. Insertions from Applications Incorporated by Reference in Earlier Applications

In the present application, ¶¶ [0063]-[0095] and Figs. 8-12 were not present in their current form in the text and figures of the parent application but were in incorporated-by-reference applications. Specifically, Figs. 8-9 of the present application correspond to Figs. 1-2 of Vleugels I and Figs. 10-12 of the present application correspond to Figs. 10-12 of the '746 provisional application. As for the text, ¶¶ [0063]-[0064] of the present application correspond to ¶¶[0008]-[0009] of Vleugels I, ¶ [0065] of the present application corresponds to ¶[0024] of Vleugels I, ¶¶ [0066]-[0071] of the present application correspond to ¶¶[0041]-[0046] of Vleugels I, ¶¶ [0072]-[0077] of the present application correspond to ¶¶[0048]-[0053] of Vleugels I, ¶ [0078] of the present application corresponds to ¶[0027] of Vleugels I, and ¶¶ [0079]-[0095] of the present application correspond to page 17, line 13 through page 20, line 22 of the '746 provisional application.

B. Grammatical and Reference Differences

Since the USPTO prefers that continuations not be filed with preliminary amendments to submit minor changes, grammatical and reference corrections were made to the continuation as filed. The differences include:

1) In Fig. 8, a box labeled "PER" was changed to "PER3" to be consistent with the text at ¶ [0073].

2) In Fig. 9, the AP is now labeled with "110" to be consistent with ¶ [0076].

3) In various places in the text, for readability, punctuation is added or revised, abbreviations are quoted and capitals are replaced with lowercase.

4) In ¶ [0006], "802.11xn" is replaced by "802.11n" as that was clearly intended.

5) ¶ [0013] was changed to read: "In some embodiments, the WLAN standard is the 802.11x standard. In such an embodiment, the wireless circuit is an 802.11x-compliant wireless circuit,..."

6) ¶ [0029] was changed to read: "Fig. 3 illustrates a wireless personal ~~are~~ area network" and "It is understood that the present disclosure equally applies to the ad-hoc or any other mode."

7) ¶ [0031] was changed to read: "WPAN 10 is shown as including ~~comprises~~ one or more..."

8) ¶ [0033] was changed as follows: "both the wireless circuit at the other end as well as the PS-STA are ~~both~~ 802.11x-compliant" (the word "both" was redundant) and "WPAN 5" changed to "WPAN 10" to be consistent with Fig. 3 and the rest of the description that uses "10" to refer to WPAN 10 and "5" to refer to integrated network 5.

9) ¶ [0037] was changed to read: "Fig. 5 illustrates some of the components disposed in a PS-STA 11, in accordance with one embodiment. PS-STA 11 typically includes, in part, a battery 16, a sensor or stimulus unit 17, a clock or crystal 18, a wireless circuit 19 and an

antenna 20." so as to be consistent with Fig. 5 and so that reference numerals in the figures appear in the text and vice versa.

10) The Abstract was shortened to 150 words or less to comply with the limits on Abstracts put in place since that Abstract was first used.

C. Conclusion

No inference should be made that any specific added text or figure is essential to support any particular claim in the present application.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,

Date: 7/27/2012

Philip H. Albert
Reg. No. 35,819

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PHA:psc
64440415v1

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Not for submission under 37 CFR 1.99)

Application Number	13/560,917
Filing Date	July 27, 2012
First Named Inventor	Katelijn Vleugels et al.
Art Unit	2466
Examiner Name	Jean F. Voltaire
Attorney Docket Number	0097725-001US4

U.S. PATENTS

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

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	2004/0252674	A1	12-16-2004	Soininen et al.	
	2.	2005/0036484	A1	02-17-2005	Barker, Andrew	
	3.	2005/0058112	A1	03-17-2005	Lahey et al.	
	4.	2005/0238046	A1	10-27-2005	Hassan et al.	
	5.	2006/0063560	A1	03-23-2006	Herle, Sudhindra	

FOREIGN PATENT DOCUMENTS

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

NON-PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	6.	Non-Final Office Action for U.S. Application No. 12/892,825, date July 30, 2013 (available in PAIR), 19 pages.	

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.

Electronic Acknowledgement Receipt

EFS ID:	16459266
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	83664
Filer:	Philip H. Albert/Alexandra C. Mende
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	0097725-001US4
Receipt Date:	30-JUL-2013
Filing Date:	27-JUL-2012
Time Stamp:	19:24:56
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		IDS_0097725-001US4.pdf	718405 8a49743f161072d932152cbec7c8b32016f2 9453	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Form (SB08)	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	718405	

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

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on 7-30-2013

KILPATRICK TOWNSEND & STOCKTON LLP

By: Alexandra C. Meade

PATENT
Attorney Docket No.: 0097725-001US4

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 4050
Katelijn Vleugels et al.	Examiner: Jean F. Voltaire
Application No.: 13/560,917	Technology Center/Art Unit: 2466
Filed: July 27, 2012	
For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE	INFORMATION DISCLOSURE STATEMENT
Customer No.: 83664	

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

Commissioner:

The references cited on attached form PTO/SB/08A are being called to the attention of the Examiner. Copies of the references in compliance with the requirements of 37 CFR § 1.98(a)(2) are enclosed.

Some of the references cited in this IDS were cited in an Office Action in related U.S. Patent Application No. 12/892,825 filed on September 28, 2010. A copy of this Office Action is available on PAIR and is believed to be readily accessible to the Examiner.

It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR § 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

I hereby certify 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 § 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

This IDS is being filed before the mailing date of the final Office Action or Notice of Allowance. Applicant believes that no fee is required for submission of this statement. However, if any additional fees are due for the submission of this Information Disclosure Statement, please deduct those fees from Deposit Account No. 04-0258. Respectfully submitted,

Date: 7/30/2013

Philip H. Albert
Reg. No. 35,819

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Tel: (415) 276-6500
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PHA/acm

Attachments

PTO/SB/26 (08-11)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 0097725-001US4

In re Application of: Katelijn Vleugels

Application No.: 13/560,917

Filed: July 27, 2012

For: Apparatus and Method for Integrating Short-Range Wireless Personal Area Networks for a Wireless Local Area Network Infrastructure

The owner*, Omega Sub Holdings, Inc., 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. 8,165,102 B1 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner 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.

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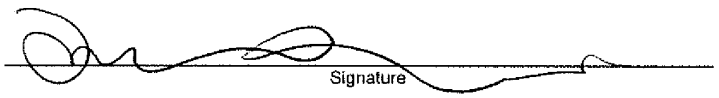
Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 35,819



Signature — July 26, 2013 (Date)

Philip H. Albert
Typed or printed name

415-276-6500
Telephone Number

☐ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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Electronic Acknowledgement Receipt

EFS ID:	16426909
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	83664
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	0097725-001US4
Receipt Date:	26-JUL-2013
Filing Date:	27-JUL-2012
Time Stamp:	13:43:47
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	Terminal Disclaimer Filed	2013-07-26_Executed_Terminal_Disclaimer_0097725-001US4.pdf	103449 e7e3ac63abd320b02c50dbddf43c78a453d58e92	no	2

Warnings:	
Information:	

Total Files Size (in bytes):	103449

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New International Application Filed with the USPTO as a Receiving Office
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Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/560,917	VLEUGELS ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 7/26/13	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
Lawana Hixon

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	0099725-001US4

CONFIRMATION NO. 4050

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POA ACCEPTANCE LETTER

OC000000061009143

Date Mailed: 05/10/2013

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/30/2013.

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

/ddinh/

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	0099725-001US4

CONFIRMATION NO. 4050

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POWER OF ATTORNEY NOTICE

OC000000061009118

Date Mailed: 05/10/2013

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/30/2013.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/ddinh/

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Katelijn Vleugels et al.	Confirmation No.: 4050
Application No.: 13/560,917	Examiner: Jean F Voltaire
Filed: July 27, 2012	Technology Center/Art Unit: 2466
For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE	SUPPLEMENTAL AMENDMENT
Customer No.: 83664	

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

Commissioner:

In response to the Office Action mailed December 6, 2012 and an Examiner Interview held April 29, 2013, please enter the following amendments and remarks:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 10 of this paper.

Amendments to the Claims:

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

Listing of Claims:

1. (Currently Amended) A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability;

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining wireless network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first wireless network connection using a first wireless network protocol and a second wireless network connection using a second wireless network protocol, that can be maintained, at times, simultaneously with each other in a common wireless space, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network; and

data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in one of the first and second wireless networks and the destination node is a node in the other of the first and second wireless networks.

2. (Currently Amended) The network-enabled hub of claim 1, further comprising a routing module for receiving a poll request that contains information required to unambiguously identify a station that is a node in the second wireless network, wherein the routing module coordinates retrieval of information from the station.

3. (Currently Amended) The network-enabled hub of claim 1, wherein the first wireless network connection provides a link via an access point of a wireless local area network ("LAN") and the second wireless network connection provides a link to a personal area network ("PAN") serving PAN devices, such that network nodes that have access to the wireless LAN can address packets to PAN devices that are nodes on the PAN.

4. (Currently Amended) The network-enabled hub of claim 1, wherein the first wireless network protocol is an 802.11x wireless protocol and the second wireless network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol of the first wireless network but can be maintained in a common wireless space as the 802.11x wireless protocol.

5. (Original) The network-enabled hub of claim 1, wherein the network-enabled hub includes logic to coordinate a mutually agreeable inactivity period between the network-enabled hub and wireless personal area network ("WPAN") devices such that the WPAN devices can enter a sleep mode and occasionally wake up to transmit or receive data and/or control signals, with the network-enabled hub and WPAN devices synchronized so that the network-enabled hub is able to communicate with WPAN devices when WPAN devices wake up.

6. (Currently Amended) The network-enabled hub of claim 1, further comprising the wireless radio circuit interfaced to the logic for processing data, wherein the wireless radio circuit supports communications on both the first wireless network and the second wireless network.

7. (Original) The network-enabled hub of claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to transmit on more than one radio band.

8. (Currently Amended) The network-enabled hub of claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to alternate connectivity between the first wireless network connection and the second wireless network connection.

9. (Original) The network-enabled hub of claim 1, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.

10. (Currently Amended) The network-enabled hub of claim 1, wherein the first wireless network connection is for a wireless network having a first operating range and the second wireless network is for a wireless network having a second operating range, where the first operating range is larger than the second operating range.

11. (Currently Amended) The network-enabled hub of claim 1, wherein the data forwarding logic further comprises logic for uniquely identifying the destination node from data received from the originating node such that the network-enabled hub can use that data to transmit data into the second wireless network.

12. (Original) The network-enabled hub of claim 11, wherein the data identifying the destination node is a network address of the destination node.

13. (Original) The network-enabled hub of claim 11, wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node.

14. (Currently Amended) A computing device having therein a network-enabled hub, comprising hardware and software, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability, the radio circuit configured to handle 802.11x packet transmissions, and wherein the wireless radio circuit supports communications on both a wireless local area network ("WLAN") and wireless personal area network ("WPAN");

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining wireless network connections with nodes of the WLAN and WPAN external to the network-enabled hub, maintaining at least a first wireless

network connection using a first wireless network protocol, of the WLAN, and a second wireless network connection using a second wireless network protocol, of the WPAN, that can be maintained, at times, simultaneously with each other in a common wireless space, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent, but not entirely consistent, with the first wireless network protocol, and wherein the first wireless network protocol is an 802.11x wireless protocol and the second wireless network protocol is a modification of the 802.11x wireless protocol of the first wireless network but can be maintained ~~in a common wireless space as~~ with the 802.11x wireless protocol in the common wireless space wherein at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network; and

logic for data forwarding between an originating node that is a node in of one of the first and second wireless networks and a destination node that is a node in of the other of the first and second wireless networks;

at least one software module forming a software platform that allows the wireless radio circuit to connect to both the WLAN and the WPAN, and coordinate retrieval of information from the station; and

an operating system that enables operation of the network-enabled hub and execution of user-written application-specific application software for the network-enabled hub,

wherein the first wireless network connection provides a link via an access point of the WLAN and the second wireless network connection provides a link to the WPAN serving PAN devices, such that network nodes that have access to the WLAN can address packets to WPAN devices that are nodes on the WPAN and packets can be conveyed from a WPAN device, through the network-enabled hub, to the access point and from there to a destination over the Internet from the access point, and wherein the WPAN device's access to the Internet is via the network-enabled hub.

15. (Original) The computing device of claim 14, wherein the WPAN devices are IP addressable.

16. (Original) The computing device of claim 14, wherein the WPAN devices are a computer accessory, a telephone accessory, a wearable device, a wireless headset, a wireless mouse, a wireless keyboard, a wireless recorder, or a wireless telephone.

17. (Original) The computing device of claim 14, wherein the computing device is a component of a portable computing device, a mobile computing device, a communications device with computing capability, a laptop computer, a desktop computer, a handheld computing device, a pager, or a cellular telephone.

18. (Currently Amended) The computing device of claim 14, wherein the logic for data forwarding further comprises logic for uniquely identifying the destination node from data in a data packet received from the originating node and transmit data into the second wireless network using that unique identification of the destination node.

19. (Currently Amended) An electronic device having an ability to communicate wirelessly and configured to support functions requiring messages to be sent, or data to be received, to destination nodes not directly accessible by wireless communication circuits of the electronic device, the electronic device comprising:

a processor;

a memory;

control logic for generating a message based on inputs to the electronic device, wherein the message comprises data that depends on the inputs received and uniquely identifies a destination node on a network that is accessible using a first wireless network protocol but not accessible using a second wireless network protocol used by the electronic device, the first wireless network protocol and the second wireless network protocol being for use over wireless networks in a common wireless space, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol in the common wireless space are partially consistent with the first wireless network protocol such that at least a first wireless network connection using the first wireless network protocol and a second wireless network connection using the second wireless

network protocol can have their connections maintained, at times, simultaneously with each other in the common wireless space;

datapath logic for generating addressing information of an address of a network-enabled hub accessible directly by the electronic device using the second wireless network protocol, the address being of a network-enabled hub capable of sending messages to the destination node using the second wireless network protocol;

a wireless radio circuit that can send and receive data wirelessly between the electronic device and the network-enabled hub;

an interface between the processor and the wireless radio circuit for sending and receiving data wirelessly and processing that data.

20. (Original) The electronic device of claim 19, wherein the data identifying the destination node is a network address of the destination node.

21. (Original) The electronic device of claim 19, wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node.

22. (Original) The electronic device of claim 19, wherein the electronic device is a remote control for a home entertainment accessory.

23. (Original) The electronic device of claim 19, further comprising a battery for powering the electronic device and further wherein the electronic device is configured to wirelessly communicate with a network-enabled hub that is powered such that wireless communication power is not a constraint on the network-enabled hub.

24. (Currently Amended) The electronic device of claim 19, wherein the first wireless network protocol provides a link via an access point of a wireless local area network ("LAN") and the second wireless network protocol provides a link to a personal area network ("PAN") serving PAN devices including the electronic device.

25. (Cancelled).

26. (Currently Amended) The electronic device of claim 19, wherein the first wireless network protocol is an 802.11x wireless protocol and the second wireless network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol but can be maintained in **[[a]]**the common wireless space **[[as]]**with the 802.11x wireless protocol.

27. (Original) The electronic device of claim 19, further comprising logic for entering a sleep mode and synchronizing sleep periods with the network-enabled hub.

28. (Currently Amended) A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability;

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining wireless network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first wireless network connection using a first wireless network protocol and a second wireless network connection using a second wireless network protocol, that can be maintained, at times, simultaneously with each other in a common wireless space, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are consistent with the first wireless network protocol, but the first wireless network and the second wireless network are distinct in that at least one node of the second wireless network is not a node in the first wireless network and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network; and

data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in of one of the first and second wireless

networks and the destination node is a node in the other of the first and second wireless networks.

29. (Original) The network-enabled hub of claim 28, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.

30. (Currently Amended) The network-enabled hub of claim 28, wherein the first wireless network connection is for a wireless network having a first operating range and the second wireless network is for a wireless network having a second operating range, where the first operating range is larger than the second operating range.

REMARKS/ARGUMENTS

Claims 1-30 were pending. In this Amendment, a Supplemental Amendment following a previous Amendment and Examiner Interview, claim 25 is cancelled, no claims are added and claims 1-4, 6, 8, 10-11, 14, 18-19, 24, 26, 28, and 30 are amended. After entry of this amendment, claims 1-24 and 26-30 will be pending. Applicant submits that the amendments to the claims are supported by the specification as originally filed and therefore introduce no new matter.

In the prior Amendment, Applicant believes that the outstanding rejections under 35 USC §101 were sufficiently addressed. In this Supplemental Amendment, Applicant believes that amendments to claims 3 and 24 overcome the outstanding objection to those claims.

Various explanations and arguments as to the allowability of the claims under 35 USC §103(a) in view of the cited references presented in the prior Amendment are maintained but are not repeated here. Those references included U.S. Patent No. 6,771,933 to Eng, et al. (hereinafter "Eng"), U.S. Patent Publication No. 2006/0015621 naming Quinn (hereinafter "Quinn"), U.S. Patent Publication 2002/0039357 naming Lipasti et al. (hereinafter "Lipasti"), U.S. Patent Publication 2003/0152110 naming Rune (hereinafter "Rune"), and U.S. Patent Publication No. 2007/0093198 naming Beckers (hereinafter "Beckers").

Applicant thanks the Examiner and Supervising Examiner Lee for their time taken for a telephonic interview on April 29, 2013 with the undersigned. During that interview, Applicant explained some of the uses of the technology described in the specification, how various claims have language to cover that technology and how the claims were different from the cited references. In particular, there was a discussion of Eng and what Eng teaches and how those teaching might work.

Applicant submits that the cited references do not disclose or suggest all of the elements of any claim, as amended, and therefore, the amended claims are allowable over the cited references. Applicant need not reach the issues of whether the cited references are prior art with respect to the present application or whether the cited references are properly combinable.

Claim 1, as amended, is allowable over the cited references, as it recites at least one element not disclosed or suggested in the references. For example, claim 1 recites "logic for

initiating and maintaining wireless network connections with nodes of a wireless network" and "wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol and at least some of the communications using the second wireless network protocol impinge on at least some antennae used for the first wireless network."

As best understood, Eng does not use the claimed first wireless network protocol and second wireless network protocol. Eng is directed to Bluetooth or WLAN communications. Where both are present, they appear to be in separate spaces not in common. For example, if Eng's Fig. 4 is construed to have 802.11 communications between WLAN Aps 423, 424 and integrated module 421, and WPAN devices are using Bluetooth protocols, it may well be that they are in separate spaces, separated at least by a distance over which optical fibers 110 and 111 span. By contrast, if Eng did contemplate using 802.11 protocols and Bluetooth protocols in a common space, one might expect Eng to mention the fact that wireless communications those two protocols appear to each other to be interfering noise. Eng does not appear to mention this problem or suggest at any solutions.

Quinn does not make up for what Eng lacks, as Quinn only mentions 802.11, Ultrawide band, cellular and Bluetooth protocols, which are not overlay protcols. Thus, Quinn does not make up for what Eng lacks. As with Eng, if Quinn did contemplate using 802.11 protocols and Bluetooth protocols in a common space, one might expect a mention the fact that wireless communications those two protocols appear to each other to be interfering noise and perhaps mention possible solutions.

Additionally, the remaining references do not appear to make up for what Quinn and Eng lack.

Therefore, claim 1, and claims 2-13 dependent therefrom are also allowable and the rejection should be withdrawn. The dependent claims also include elements that are not disclosed or suggested in the cited references.

As for claim 14, Eng, Quinn and Lipasti lack at least the second wireless network protocol that is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent, but not

entirely consistent, with the first wireless network protocol, for reasons explained above, and Lipasti does not appear to make up for what those references lack, at least because Lipasti is unrelated to overlay network protocols.

Therefore, claim 14, and claims 15-18 dependent therefrom are also allowable and the rejection should be withdrawn. The dependent claims also include elements that are not disclosed or suggested in the cited references.

As for the remaining claims (claims 19-24, and 26-30), as amended, Applicant submits that those claims are allowable at least for reasons similar to the allowability of claims 1-18, as well as other limitations not found in the cited references.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. Further, the Commissioner is hereby authorized to charge any additional fees or credit any overpayment in connection with this paper to Deposit Account No. 20-1430. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-276-6500.

Respectfully submitted,

Date: May 7, 2013

Philip H. Albert
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EFS ID:	15717514
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	83664
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	0099725-001US4
Receipt Date:	07-MAY-2013
Filing Date:	27-JUL-2012
Time Stamp:	19:12:55
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		Supplemental_Amendment_0097725-001US4.pdf	418410 954c8e8ec5562c1570538cd1e44ddd1f3aaec196	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Supplemental Response or Supplemental Amendment	1	1
	Claims	2	9
	Applicant Arguments/Remarks Made in an Amendment	10	12
Warnings:			
Information:			
	Total Files Size (in bytes):	418410	

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.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/560,917	07/27/2012	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 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			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 05/07/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 29	Minus	** 30	= 0	X $40 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $210 =	0	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	0	OR	TOTAL ADD'L FEE	

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ 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 number found in the appropriate box in column 1.

Legal Instrument Examiner:
/RUTH GRADEN/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	89863-001440US-846870	4050

20350 7590 05/02/2013

KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
VOLTAIRE, JEAN F	
ART UNIT	**PAPER NUMBER**
2466	

NOTIFICATION DATE	DELIVERY MODE
05/02/2013	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):

ipefiling@kilpatricktownsend.com
jlhice@kilpatrick.foundationip.com
mcollins@kilpatricktownsend.com

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	13/560,917	VLEUGELS ET AL.	
	Examiner	Art Unit	
	JEAN F. VOLTAIRE	2466	

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

(1) *JEAN F. VOLTAIRE*.

(2) *JAE Y. LEE*.

(3) *PHILIP H. ALBERT, Reg. No. 35,819*.

(4)_____.

Date of Interview: *29 April 2013*.

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

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

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

Claim(s) discussed: *19 and 25*.

Identification of prior art discussed: *Eng (US 6,771,933)*.

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

Applicant and Examiner discussed about the rejection of claims 19 and 25. Examiner explained (detailed) to the Applicant how the teaching of Eng was interpreted to find the two wireless networks with destination node addressing. Examiner referred to Fig. 4 and col 6, lines 26-41 and col 7, lines 24-39 to explain how the WPANs devices from the second wireless network were communicated with WLANs from the first wireless networks via a Main Unit. We also discussed about the second wireless network protocol being an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol. This limitation was broadly interpreted by the Examiner and the Applicant clarified the definition of overlay protocol and the term "using the second wireless network protocol are partially consistent with the first wireless network protocol" and Applicant agreed to amend the claims by adding further limitations to overcome current prior arts rejections. However, it would require further search and considerations in further prosecution..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

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

☐ Attachment

/JEAN F VOLTAIRE/ Examiner, Art Unit 2466	/JAE Y LEE/ Primary Examiner, Art Unit 2466

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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(c).

I hereby appoint:

☒ Practitioners associated with Customer Number: **83664**

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

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

☒ The address associated with Customer Number: **83664**

OR

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

Assignee Name and Address:

Omega Sub Holdings, Inc.
31 Kildare Street
Dublin 2, Ireland

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Gerry Maguire	Date	10 APRIL 2013
Name	Gerry Maguire	Telephone	
Title	~~Director~~ PRESIDENT		

ATTY REF. NO.: 0099725-001US4

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031,
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner OMEGA SUB HOLDINGS, LLC

Application No./Patent No.: 13/560,917 Filed/Issue Date: July 27, 2012

Titled: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

OMEGA SUB HOLDINGS, INC. (Name of Assignee) Delaware Corporation (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; or
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 ownership 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 therefore 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: Katelijn Vleugels and Roel Peeters To: Ozmo, Inc.
   The document was recorded in the United States Patent and Trademark Office at Reel 028662, Frame 0707, or for which a copy thereof is attached.
2. From: Ozmo, Inc. To: Omega Sub Holdings, LLC
   The document was recorded in the United States Patent and Trademark Office at Reel 030191, Frame 0653, or for which a copy thereof is attached.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031,
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

3. From: Omega Sub Holdings, LLC To: Omega Sub Holdings, Inc.
The document was recorded in the United States Patent and Trademark Office at Reel 030209, Frame 0350, or for which a copy thereof is attached.

4. From:_____ To:_____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

5. From:_____ To:_____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☒ 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.

/Philip H. Albert/	April 30, 2013
Signature	Date
Philip H. Albert	(415) 276-6500
Printed or Typed Name	Telephone Number
Attorney 35,819	
Title	

DWT 21642960v1 0097725-001US4

Electronic Acknowledgement Receipt

EFS ID:	15650914
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	20350
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	89863-001440US-846870
Receipt Date:	30-APR-2013
Filing Date:	27-JUL-2012
Time Stamp:	14:43:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Omega_Subholdings_Inc_POA.pdf	484679 a817b88bf3fb8a47d12d671f52261c68b98bbacb	no	1

Warnings:	
Information:	

2	Assignee showing of ownership per 37 CFR 3.73.	Statement_Under_373c_00977 25-001US4.pdf	142153 87f47c796a7174b7c1f93413302405f4e2ed2510	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	626832

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	89863-001440US-846870

CONFIRMATION NO. 4050

20350
KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

MISCELLANEOUS NOTICE

OC000000060663192

Date Mailed: 04/25/2013

A communication which cannot be delivered in electronic form has been mailed to the applicant.

Doc Code: N572

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

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	89863-001440US-846870

CONFIRMATION NO. 4050

OC000000060663192

20350
KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

Cc: DAVIS WRIGHT TREMAINE LLP - SF
505 MONTGOMERY STREET
SUITE 800
SAN FRANCISCO, CA 94111

Date Mailed: 0424/2013

DENIAL OF REQUEST FOR POWER OF ATTORNEY

The request for Power of Attorney filed 04/18/2013 is acknowledged. However, the request cannot be granted at this time for the reason stated below.

- ☐ The Power of Attorney you provided did not comply with the new Power of Attorney rules that became effective on June 25, 2004. See 37 CFR 1.32.
- ☐ The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.
- ☒ The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73(c) has not been received.
- ☐ The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
- ☐ The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
- ☐ The signature(s) of _____ , a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor(s).
- ☐ The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent and Trademark Office.
- ☐ Only one Customer Number can be designated for the Power of Attorney in an application. The Customer Number that was captured is the first Customer Number provided on the Power of Attorney document.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

- ☐ A request under 37 CFR 1.48 to add an inventor was granted in this application, however, no power of attorney consistent with the power of attorney granted by the originally named inventive entity has been received. Thus, the addition of the inventor has resulted in the loss of power of attorney in the application. See 37 CFR 1.32(e).

- ☐ The power of attorney has not been accepted because the party who is giving power of attorney has not been identified. Power of attorney may only be signed by the applicant for patent (37 CFR 1.42) or the patent owner. A patent owner who was not the applicant must appoint any power of attorney in compliance with 37 CFR 3.71 and 3.73. See 37 CFR 1.32(b)(4).

- ☐ The power of attorney from the inventors has not been accepted because it is a copy from a prior national application for which benefit is claimed and the continuing application names an inventor who was not named as an inventor in the prior application.

- ☐ The power of attorney from the inventors has not been accepted because the power of attorney must be signed by the applicant for patent. See 37 CFR 1.32(b)(4).

Any inquiries regarding this notice should be directed to the Application Assistance Unit at 571-272-4200.

Application Assistance Unit
571-272-4200

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE

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(c).

I hereby appoint:

☒ Practitioners associated with Customer Number: 83664

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 assignments documents attached to this form in accordance with 37 CFR 3.73(c).

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

☒ The address associated with Customer Number: 83664

OR

☐

Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address: Solve Media, Inc.
200 S. Broad Street, Suite 415
Philadelphia, PA 19102

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record
The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	[signature]	Date	3/11/2013
Name	Todd Lieberman	Telephone	~~(215) [illegible]~~
Title	President and Co-Founder		215-500-6913

Electronic Acknowledgement Receipt

EFS ID:	15552587
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	20350
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	89863-001440US-846870
Receipt Date:	18-APR-2013
Filing Date:	27-JUL-2012
Time Stamp:	13:38:05
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	Assignee showing of ownership per 37 CFR 3.73.	Statement_Under_373c_00977 25-001US4.pdf	142151 ce34fb222ec311bbbe1a7d0f4886b840045 97ef0	no	2

Warnings:	
Information:	

2	Power of Attorney	Solve_Media_POA_0097727.pdf	299862 408bf0386f65cc63a313b2d0332aef5233a07d96	no	1

Warnings:	
Information:	
Total Files Size (in bytes):	442013

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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.

ATTY REF. NO.: 0099725-001US4

PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner OMEGA SUB HOLDINGS, LLC

Application No./Patent No.: 13/560,917 Filed/Issue Date: July 27, 2012

Titled: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

OMEGA SUB HOLDINGS, INC. (Name of Assignee) Delaware Corporation (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; or
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 ownership 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 therefore 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: Katelijn Vleugels and Roel Peeters To: Ozmo, Inc.
   The document was recorded in the United States Patent and Trademark Office at Reel 028662, Frame 0707, or for which a copy thereof is attached.
2. From: Ozmo, Inc. To: Omega Sub Holdings, LLC
   The document was recorded in the United States Patent and Trademark Office at Reel 030191, Frame 0653, or for which a copy thereof is attached.

PTO/AIA/96 (08-12)
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STATEMENT UNDER 37 CFR 3.73(c)

3. From: Omega Sub Holdings, LLC To: Omega Sub Holdings, Inc.
The document was recorded in the United States Patent and Trademark Office at Reel 030209, Frame 0350, or for which a copy thereof is attached.

4. From:_____ To:_____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

5. From:_____ To:_____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☒ 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.

/Philip H. Albert/	April 17, 2013
Signature	Date
Philip H. Albert	(415) 276-6500
Printed or Typed Name	Telephone Number
Attorney 35,819	
Title	

DWT 21642960v1 0097725-001US4

PTO/AIA/80 (07-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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(c).

I hereby appoint:

☒ Practitioners associated with Customer Number: **83664**

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

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

☒ The address associated with Customer Number: **83664**

OR

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

Assignee Name and Address:

Omega Sub Holdings, Inc.
31 Kildare Street
Dublin 2, Ireland

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SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	[signature]	Date	10 APRIL 2013
Name	Gerry Maguire	Telephone	
Title	~~Director~~ PRESIDENT		

DWT 21524502v1 0097725-000XX0

Electronic Acknowledgement Receipt

EFS ID:	15552656
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	20350
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	89863-001440US-846870
Receipt Date:	18-APR-2013
Filing Date:	27-JUL-2012
Time Stamp:	13:42:12
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	Assignee showing of ownership per 37 CFR 3.73.	Statement_Under_373c_00977 25-001US4.pdf	142151 ce34fb222ec311bbbe1a7d0f4886b840045 97ef0	no	2

Warnings:	
Information:	

2	Power of Attorney	Omega_Subholdings_Inc_POA.pdf	484679 a817b88bf3fb8a47d12d671f52261c68b98bbacb	no	1

Warnings:	
Information:	
Total Files Size (in bytes):	626830

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New Applications Under 35 U.S.C. 111
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ATTY REF. NO.: 0099725-001US4

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner OMEGA SUB HOLDINGS, LLC

Application No./Patent No.: 13/560,917 Filed/Issue Date: July 27, 2012

Titled: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

OMEGA SUB HOLDINGS, INC. (Name of Assignee) Delaware Corporation (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

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1. ☒ The assignee of the entire right, title, and interest; or
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:

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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:

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B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

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STATEMENT UNDER 37 CFR 3.73(c)

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4. From:_____ To:_____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

5. From:_____ To:_____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

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The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Philip H. Albert/	April 17, 2013
Signature	Date
Philip H. Albert	(415) 276-6500
Printed or Typed Name	Telephone Number
Attorney 35,819	
Title	

DWT 21642960v1 0097725-001US4

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/560,917	VLEUGELS ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☐ APPROVED	☒ DISAPPROVED
Date Filed : 06 MAR 2013	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

ATTORNEY NOT ON RECORD IN THE FILE, FP 14.29.01. THE TD MUST BE RESUBMITTED AT NO ADDITIONAL COST TO APPLICANT.

JAB

U.S. Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	
Katelijn Vleugels et al.	Confirmation No.: 4050
Application No.: 13/560,917	Examiner: Jean F Voltaire
Filed: July 27, 2012	Technology Center/Art Unit: 2466
For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE	AMENDMENT
Customer No.: 83664	

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

Commissioner:

In response to the Office Action mailed December 6, 2012, please enter the following amendments and remarks:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

Amendments to the Claims:

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

Listing of Claims:

1. (Original) A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability;

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first network connection using a first network protocol and a second network connection using a second network protocol, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent with the first network protocol; and

data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in one of the first and second networks and the destination node is a node in the other of the first and second networks.

2. (Original) The network-enabled hub of claim 1, further comprising a routing module for receiving a poll request that contains information required to unambiguously identify a station that is a node in the second network, wherein the routing module coordinates retrieval of information from the station.

3. (Currently Amended) The network-enabled hub of claim 1, wherein the first network connection provides a link via an access point of a wireless local area network ("LAN") and the second network connection provides a link to a personal area network ("PAN") serving

PAN devices, such that network nodes that have access to the wireless LAN can address packets to PAN devices that are nodes on the PAN.

4. (Original) The network-enabled hub of claim 1, wherein the first network protocol is an 802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol of the first network but can be maintained in a common wireless space as the 802.11x wireless protocol.

5. (Original) The network-enabled hub of claim 1, wherein the network-enabled hub includes logic to coordinate a mutually agreeable inactivity period between the network-enabled hub and wireless personal area network ("WPAN") devices such that the WPAN devices can enter a sleep mode and occasionally wake up to transmit or receive data and/or control signals, with the network-enabled hub and WPAN devices synchronized so that the network-enabled hub is able to communicate with WPAN devices when WPAN devices wake up.

6. (Original) The network-enabled hub of claim 1, further comprising the wireless radio circuit interfaced to the logic for processing data, wherein the wireless radio circuit supports communications on both the first network and the second network.

7. (Original) The network-enabled hub of claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to transmit on more than one radio band.

8. (Original) The network-enabled hub of claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to alternate connectivity between the first network connection and the second network connection.

9. (Original) The network-enabled hub of claim 1, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.

10. (Original) The network-enabled hub of claim 1, wherein the first network connection is for a network having a first operating range and the second network is for a

network having a second operating range, where the first operating range is larger than the second operating range.

11. (Original) The network-enabled hub of claim 1, wherein the data forwarding logic further comprises logic for uniquely identifying the destination node from data received from the originating node such that the network-enabled hub can use that data to transmit data into the second network.

12. (Original) The network-enabled hub of claim 11, wherein the data identifying the destination node is a network address of the destination node.

13. (Original) The network-enabled hub of claim 11, wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node.

14. (Original) A computing device having therein a network-enabled hub, comprising hardware and software, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability, the radio circuit configured to handle 802.11x packet transmissions, and wherein the wireless radio circuit supports communications on both a wireless local area network ("WLAN") and wireless personal area network ("WPAN");

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining network connections with nodes of the WLAN and WPAN external to the network-enabled hub, maintaining at least a first network connection using a first network protocol, of the WLAN, and a second network connection using a second network protocol, of the WPAN, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, but not entirely consistent, with the

first network protocol, and wherein the first network protocol is an 802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol of the first network but can be maintained in a common wireless space as the 802.11x wireless protocol;

logic for data forwarding between an originating node that is a node in of one of the first and second networks and a destination node that is a node in of the other of the first and second networks;

at least one software module forming a software platform that allows the wireless radio circuit to connect to both the WLAN and the WPAN, and coordinate retrieval of information from the station; and

an operating system that enables operation of the network-enabled hub and execution of user-written application-specific application software for the network-enabled hub,

wherein the first network connection provides a link via an access point of the WLAN and the second network connection provides a link to the WPAN serving PAN devices, such that network nodes that have access to the WLAN can address packets to WPAN devices that are nodes on the WPAN and packets can be conveyed from a WPAN device, through the network-enabled hub, to the access point and from there to a destination over the Internet from the access point, and wherein the WPAN device's access to the Internet is via the network-enabled hub.

15. (Original) The computing device of claim 14, wherein the WPAN devices are IP addressable.

16. (Original) The computing device of claim 14, wherein the WPAN devices are a computer accessory, a telephone accessory, a wearable device, a wireless headset, a wireless mouse, a wireless keyboard, a wireless recorder, or a wireless telephone.

17. (Original) The computing device of claim 14, wherein the computing device is a component of a portable computing device, a mobile computing device, a communications device with computing capability, a laptop computer, a desktop computer, a handheld computing device, a pager, or a cellular telephone.

18. (Original) The computing device of claim 14, wherein the logic for data forwarding further comprises logic for uniquely identifying the destination node from data in a data packet received from the originating node and transmit data into the second network using that unique identification of the destination node.

19. (Original) An electronic device having an ability to communicate wirelessly and configured to support functions requiring messages to be sent, or data to be received, to destination nodes not directly accessible by wireless communication circuits of the electronic device, the electronic device comprising:

a processor;

a memory;

control logic for generating a message based on inputs to the electronic device, wherein the message comprises data that depends on the inputs received and uniquely identifies a destination node on a network that is accessible using a first wireless network protocol but not accessible using a second wireless network protocol used by the electronic device;

datapath logic for generating addressing information of an address of a network-enabled hub accessible directly by the electronic device using the second wireless network protocol, the address being of a network-enabled hub capable of sending messages to the destination node using the second wireless network protocol;

a wireless radio circuit that can send and receive data wirelessly between the electronic device and the network-enabled hub;

an interface between the processor and the wireless radio circuit for sending and receiving data wirelessly and processing that data.

20. (Original) The electronic device of claim 19, wherein the data identifying the destination node is a network address of the destination node.

21. (Original) The electronic device of claim 19, wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node.

22. (Original) The electronic device of claim 19, wherein the electronic device is a remote control for a home entertainment accessory.

23. (Original) The electronic device of claim 19, further comprising a battery for powering the electronic device and further wherein the electronic device is configured to wirelessly communicate with a network-enabled hub that is powered such that wireless communication power is not a constraint on the network-enabled hub.

24. (Currently Amended) The electronic device of claim 19, wherein the first wireless network protocol provides a link via an access point of a wireless local area network ("LAN") and the second wireless network protocol provides a link to a personal area network ("PAN") serving PAN devices including the electronic device.

25. (Original) The electronic device of claim 19, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol.

26. (Original) The electronic device of claim 25, wherein the first wireless network protocol is an 802.11x wireless protocol and the second wireless network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol but can be maintained in a common wireless space as the 802.11x wireless protocol.

27. (Original) The electronic device of claim 19, further comprising logic for entering a sleep mode and synchronizing sleep periods with the network-enabled hub.

28. (Original) A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability;

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first network connection using a first network protocol and a second network connection using a second network protocol, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are consistent with the first network protocol, but the first network and the second network are distinct in that at least one node of the second network is not a node in the first network; and

data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in of one of the first and second networks and the destination node is a node in the other of the first and second networks.

29. (Original) The network-enabled hub of claim 28, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.

30. (Original) The network-enabled hub of claim 28, wherein the first network connection is for a network having a first operating range and the second network is for a network having a second operating range, where the first operating range is larger than the second operating range.

REMARKS/ARGUMENTS

This Amendment is responsive to the Office Action mailed on December 6, 2012. Claims 1-30 were pending in this application. In this amendment, no claims are cancelled or added and claims 3 and 24 are amended. After entry of this amendment, claims 1-30 will remain pending. Applicant submits that the amendments to the claims are supported by the specification as originally filed and therefore introduce no new matter.

In the Office Action, the Examiner rejected various claims of the present application under 35 USC §101, asserting non-statutory obviousness-type double patenting over various claims of U.S. Patent No. 8,165,102 B1. While Applicant may disagree with some of the Examiner's characterizations, in order to move prosecution along, applicant submits herewith a terminal disclaimer that obviates this rejection.

In the Office Action, the Examiner objected to claim 3 and requested that "LAN" be spelled out. Applicant submits that the amendments herein overcome this objection. A similar amendment is made with respect to claim 24.

In the Office Action, the Examiner rejected each of the pending claims over cited references under 35 USC §103(a). Specifically, the Examiner cited U.S. Patent No. 6,771,933 to Eng, et al. (hereinafter "Eng"), U.S. Patent Publication No. 2006/0015621 naming Quinn (hereinafter "Quinn"), U.S. Patent Publication 2002/0039357 naming Lipasti et al. (hereinafter "Lipasti"), U.S. Patent Publication 2003/0152110 naming Rune (hereinafter "Rune"), and U.S. Patent Publication No. 2007/0093198 naming Beckers (hereinafter "Beckers"). As the headers and text of the Office Action were inconsistent (see, e.g., ¶ 15 of the Office Action and the text rejecting claim 19), Applicant looked to the text of the rejections rather than the headers. Thus, it appears that the Examiner rejected claims 1-4, 6-11, and 28-30 using Eng and Quinn, claims 12-18 using Eng, Quinn, and Lipasti, claims 5 and 27 using Eng, Quinn, and Rune, claims 19, 22, and 24 using Eng, claims 20-21 using Eng and Lipasti, claim 23 using Eng, and Beckers, and claims 25-26 using Eng and Quinn.

Eng describes a WLAN/M-BTAP (wireless local area network/master Bluetooth access point) radio that may combine a wireless LAN radio such as an IEEE 802.11b radio and a master Bluetooth access point radio. See, Eng, 1:55-63. While it is not clear exactly how Eng proposes

to have the interactions between devices using Bluetooth at times and 802.11 at times, Eng does not use an overlay protocol. The Examiner concedes as much, and Applicant also notes that Bluetooth and 802.11 protocol traffic interfere with each other in the wireless medium.

Quinn describes task selective wireless networking, wherein each given task is assigned to a personal area network or a wireless local area network. See, Quinn, ¶ [0007]. A task allocation switch module assigned networks on a task basis, according to prioritizations. See, Quinn, ¶ [0019]. As best understood, Quinn's multi-mode wireless switch makes connections between a wired interface and a WLAN device using the switch's WLAN module *or* connections between the wired interface and a WPAN device using the switch's WPAN module, but the WPAN and the WLAN are unrelated to each other in Quinn's arrangement, so Quinn's arrangement would not be particularly relevant to systems where data is forwarded from one wireless node to another wireless node.

Lipasti describes routing in an ad-hoc network where an access point can provide Bluetooth devices with access to a LAN and the Internet.

Rune was cited for the proposition that it was known in Bluetooth devices to have mutually agreeable inactivity periods, discovery modes, indicating a mode and sleep modes.

Beckers was cited for the proposition that it was known to have Bluetooth devices fed by power sources.

Applicant submits that the cited references do not disclose or suggest all of the elements of any claim, and therefore, the claims are allowable over the cited references and Applicant need not reach the issues of whether the cited references are prior art with respect to the present application or whether the cited references are properly combinable.

Claim 1 is allowable over the cited references, as it recites at least one element not disclosed or suggested in the references. For example, claim 1 recites "logic for initiating and maintaining network connections with nodes of a wireless network" and "wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent with the first network protocol." Eng does not teach this, as the Examiner admits. Quinn also does not teach this, as Quinn only mentions 802.11, Ultrawide band, cellular and Bluetooth protocols, which are not

overlay protcols. Thus, Quinn does not make up for what Eng lacks. Additionally, the remaining references do not appear to make up for what Quinn and Eng lack.

Therefore, claim 1, and claims 2-13 dependent therefrom are also allowable and the rejection should be withdrawn. The dependent claims also include elements that are not disclosed or suggested in the cited references.

As for claim 14, Eng, Quinn and Lipasti lack at least the second network protocol that is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, but not entirely consistent, with the first network protocol, for reasons explained above, and Lipasti does not appear to make up for what those references lack, at least because Lipasti is unrelated to overlay networks protocols.

Therefore, claim 14, and claims 15-18 dependent therefrom are also allowable and the rejection should be withdrawn. The dependent claims also include elements that are not disclosed or suggested in the cited references.

Claim 19 is allowable over the cited references, as it recites at least one element not disclosed or suggested in the references. For example, claim 19 recites "control logic for generating a message based on inputs to the electronic device, wherein the message comprises data that depends on the inputs received and uniquely identifies a destination node on a network that is accessible using a first wireless network protocol but not accessible using a second wireless network protocol used by the electronic device" and that is not disclosed or suggested in the cited references.

In the Office Action, the Examiner asserted that Eng discloses control logic for generating a message based on inputs wherein the message comprises data that depends on the inputs received and uniquely identifies a destination node on a network that is accessible using a first wireless network protocol but not accessible using a second wireless network protocol used by the electronic device, citing to Eng's Fig. 3 and text at column 5, lines 32-44. Upon a close review of that portion of Eng, and other portions of Eng, it is not clear that Eng teaches (or is all that concerned with) data that depends on the inputs received and uniquely identifies a destination node.

Applicant notes that the cited text refers to Fig. 1 and not Fig. 3, but in any case, it does not appear that either figure, nor its associated text, teach of disclose the generating of such

messages. Applicant further notes that claim 19 recites a first wireless network protocol and a second wireless network protocol, yet the Examiner is apparently citing to one wireless network protocol (Bluetooth) and a wired LAN protocol. While Eng might, in other places, refer to two wireless networks, it is not clear where in Eng the Examiner finds that Eng's messages comprise data that uniquely identifies a destination node on a network that is accessible using a first wireless network protocol but not accessible using a second wireless network protocol.

Therefore, claim 19, and claims 20-27 dependent therefrom are also allowable and the rejection should be withdrawn. The dependent claims also include elements that are not disclosed or suggested in the cited references.

As for claims 28-30, Applicant submits that those claims are allowable at least for reasons similar to the allowability of claims 1-18, as well as other limitations not found in the cited references.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. Further, the Commissioner is hereby authorized to charge any additional fees or credit any overpayment in connection with this paper to Deposit Account No. 20-1430. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-276-6500.

Respectfully submitted,

Date: March 6, 2013

Philip H. Albert
Reg. No. 35,819

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PHA/psc

64734303v.1
DWT 21302633v1 0085000-002413

PTO/SB/26 (08-11)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 89863-001440US-846870

In re Application of: Katelijn Vleugels

Application No.: 13/560,917

Filed: July 27, 2012

For: Apparatus and Method for Integrating Short-Range Wireless Personal Area Networks for a Wireless Local Area Network Infrastructure

The owner*, Omega Sub Holdings, Inc., 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. 8,165,102 B1 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner 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 owner 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:

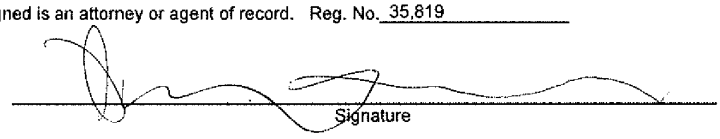
expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated 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. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 35,819



Signature — March 6, 2013 (Date)

Philip H. Albert
Typed or printed name

415-276-6500
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.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	13560917
Filing Date:	27-Jul-2012
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Filer:	Philip H. Albert/Paula Cunningham
Attorney Docket Number:	89863-001440US-846870

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

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:				
Statutory or Terminal Disclaimer	2814	1	80	80
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**80**

Electronic Acknowledgement Receipt

EFS ID:	15138001
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	20350
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	89863-001440US-846870
Receipt Date:	06-MAR-2013
Filing Date:	27-JUL-2012
Time Stamp:	20:19:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$80
RAM confirmation Number	9945
Deposit Account	040258
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		Amendment_Dec62012-NFOA_89863-001440US-846870.pdf	424585 02dc6cda2e11970e8b5f6eaaa3979066709cd933	yes	12
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	8	
	Applicant Arguments/Remarks Made in an Amendment		9	12	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	Terminal_Disclaimer_8165102-B1_89863-001440US-846870.pdf	55768 780585c3eec341fbf40f0d0199673ddc4f852e50	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30713 fd57f5eda7540b457786d54304f44cbb81bfb158	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	511066		

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

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

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

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13/560,917
	Filing Date	July 27, 2012
	First Named Inventor	Katelijn Vleugels
	Art Unit	2466
	Examiner Name	Jean F Voltaire
	Attorney Docket Number	89863-001440US-846870

U.S. PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	6,141,763		10-2000	Smith, et al.	
	2.	7,190,972		03-2007	Hollister, et al.	

U.S. PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	3.	2003/0119527	A1	06-2003	Labun, et al.	
	4.	2005/0119025	A1	06-2005	Mohindra, et al.	
	5.	2005/0192044	A1	09-2005	Travis	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T[5]
	6.							

NON-PATENT LITERATURE DOCUMENTS

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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	7.	Office Action mailed October 10, 2012 in U.S. Patent Application No. 12/892,825, 18 pages.	

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

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

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

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13/560,917
	Filing Date	July 27, 2012
	First Named Inventor	Katelijn Vleugels
	Art Unit	2466
	Examiner Name	Jean F Voltaire
	Attorney Docket Number	89863-001440US-846870

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.

64781009

Electronic Acknowledgement Receipt

EFS ID:	14653670
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	20350
Filer:	Philip H. Albert/Julie Clough
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	89863-001440US-846870
Receipt Date:	09-JAN-2013
Filing Date:	27-JUL-2012
Time Stamp:	14:44:27
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		SIDS_89863_846870.PDF	173366 878c52f1271ad3e92bceb92cca98fed139353cbf	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Form (SB08)	3	4
Warnings:			
Information:			
	Total Files Size (in bytes):	173366	

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<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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

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

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on JAN. 9, 2013.

PATENT
Attorney Docket No.: 89863-001440US-846870

KILPATRICK TOWNSEND & STOCKTON LLP

By: /Julie Taylor Clough/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Confirmation No.: 4050
Katelijn Vleugels	Examiner: Jean F Voltaire
Application No.: 13/560,917	Technology Center/Art Unit: 2466
Filed: July 27, 2012	
For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE	SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
Customer No.: 20350	

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

Commissioner:

The references cited on attached form PTO/SB/08A are being called to the attention of the Examiner. Copies of the references are not enclosed.

These references were cited in an Office Action mailed October 10, 2012 in related U.S. Patent Application No. 12/892,825. Copies of any and all Office Actions in U.S. Patent Application No. 12/892,825 are available on PAIR and are believed to be readily accessible to the Examiner.

It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

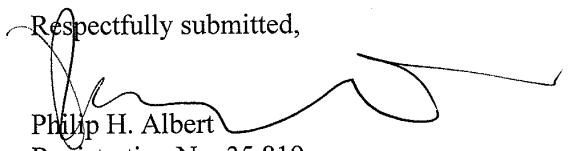
As provided for by 37 CFR § 1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

This IDS is being filed before the mailing date of the final Office Action or Notice of Allowance.

I hereby certify 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 § 1.56(c) more than three months prior to the filing of the Information Disclosure Statement.

Applicant believes that no fee is required for submission of this statement. However, if any additional fees are due for the submission of this Information Disclosure Statement, please deduct those fees from Deposit Account No. 20-1430.

Respectfully submitted,



Philip H. Albert
Registration No. 35,819

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San Francisco, California 94111-3834
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Fax: 415-576-0300
PHA/jtc

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/560,917	07/27/2012	Katelijn Vleugels	89863-001440US-846870	4050

20350 7590 12/06/2012

KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
VOLTAIRE, JEAN F	
ART UNIT	**PAPER NUMBER**
2466	

NOTIFICATION DATE	DELIVERY MODE
12/06/2012	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):

ipefiling@kilpatricktownsend.com
jlhice@kilpatrick.foundationip.com

Office Action Summary	Application No.	Applicant(s)	
	13/560,917	VLEUGELS ET AL.	
	Examiner	Art Unit	
	JEAN F. VOLTAIRE	2466	

-- 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* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, 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 *27 July 2012*.

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

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

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

Disposition of Claims

5)☒ Claim(s) *1-30* is/are pending in the application.

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

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-30* is/are rejected.

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

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

Application Papers

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

11)☒ The drawing(s) filed on *27 July 2012* 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).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

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

a)☐ All b)☐ Some * c)☐ None of:

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) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/13/2012 - 07/27/2012*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communication filed on 07/27/2012. At this time, claims 1-30 are pending and addressed below.

Information Disclosure Statement

2. The information disclosure statement filed on 07/27/2012 has been placed in the application file and the information referred to herein has been considered as the merits.

Double Patenting

3. 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 obviousness-type 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); and *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 a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. **Claims 1-6, 9, 13-17, 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 7, 11, 13, 16, 19, 21, 24-25 of U.S. Patent No. 8,165,102 B1. The conflicting claims are identical because claims 1-3, 7, 13, 16, 19, 21, 24-25 of patent no. 8,165,102 B1 contain every element of claims 1-6, 9, 13-17, 29 of the instant application and as such anticipate claims 1-6, 9, 13-17, 29 of the instant application.**

Claim Comparison Table

Instant Application 13/560917	**U.S. Patent No. 8,165,102 B1**

Claim 1. A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising: an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability; logic for processing data received via the wireless radio circuit; logic for generating data to be transmitted by the wireless radio circuit; logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first network connection using a first network protocol and a second network connection using a second network	**Claim 1**. A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising: an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability; logic for processing data received via the wireless radio circuit; logic for generating data to be transmitted by the wireless radio circuit; logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first network connection using a first network protocol and a second network connection using a second network

protocol, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, with the first network protocol; and data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in of one of the first and second networks and the destination node is a node in the other of the first and second networks.	protocol, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, **but not entirely consistent**, with the first network protocol; and data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in of one of the first and second networks and the destination node is a node in the other of the first and second networks**, the data forwarding logic also capable of identifying an address of the destination node in the data packet in order to use that**

	address to transmit data into the second network.
In view in the above, it is clear that the conflicting claims are not patentably distinct from each other because claim 1 of the instant application merely broadens the scope of claim 1 of U.S. Patent No. 8,165,102 B1 by eliminating the following portion "**but not entirely consistent**" of limitation 9 and the entire last limitation (in bold) of claim 1 of U.S. Patent No. 8,165,102 B1.	
Claim 2. The network-enabled hub of claim 1, further comprising a routing module for receiving a poll request that contains information required to unambiguously identify a station that is a node in the second network, wherein the routing module coordinates retrieval of information from the station.	**Claim 2**. The network-enabled hub of claim 1, further comprising a routing module for receiving a poll request that contains information required to unambiguously identify a station that is a node in the second network, wherein the routing module coordinates retrieval of information from the station.
Claim 3. The network-enabled hub of claim 1, wherein the first network connection provides a link via an access point of a wireless LAN and the second network connection provides a link to a personal area network ("PAN")	**Claim 3**. The network-enabled hub of claim 1, wherein the first network connection provides a link via an access point of a wireless LAN and the second network connection provides a link to a personal area network ("PAN")

serving PAN devices, such that network nodes that have access to the wireless LAN can address packets to PAN devices that are nodes on the PAN.	serving PAN devices, such that network nodes that have access to the wireless LAN can address packets to PAN devices that are nodes on the PAN.
Claim 4. The network-enabled hub of claim 1, wherein the first network protocol is an 802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol of the first network but can be maintained in a common wireless space as the 802.11x wireless protocol.	**Claim 7**. The network-enabled hub of claim 1, wherein the first network protocol is an 802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol of the first network but can be maintained in a common wireless space as the 802.11x wireless protocol.
Claim 5. The network-enabled hub of claim 1, wherein the network-enabled hub includes logic to coordinate a mutually agreeable inactivity period between the network-enabled hub and	**Claim 11**. The network-enabled hub of claim 1, wherein the network-enabled hub includes logic to coordinate a mutually agreeable inactivity period between the network-enabled hub and

wireless personal area network ("WPAN") devices such that the WPAN devices can enter a sleep mode and occasionally wake up to transmit or receive data and/or control signals, with the network-enabled hub and WPAN devices synchronized so that the network-enabled hub is able to communicate with WPAN devices when WPAN devices wake up.	wireless personal area network ("WPAN") devices such that the WPAN devices can enter a sleep mode and occasionally wake up to transmit or receive data and/or control signals, with the network-enabled hub and WPAN devices synchronized so that the network-enabled hub is able to communicate with WPAN devices when WPAN devices wake up.
Claim 6. The network-enabled hub of claim 1, further comprising the wireless radio circuit interfaced to the logic for processing data, wherein the wireless radio circuit supports communications on both the first network and the second network.	**Claim 13**. The network-enabled hub of claim 1, further comprising the wireless radio circuit interfaced to the logic for processing data, wherein the wireless radio circuit supports communications on both the first network and the second network.
Claim 9. The network-enabled hub of claim 1, wherein the network-enabled hub is embedded into a personal	**Claim 16**. The network-enabled hub of claim 1, wherein the network-enabled hub is embedded into a personal

computer, a cellular phone, or home entertainment equipment.	computer, a cellular phone, or home entertainment equipment.
Claim 14. A computing device having therein a network-enabled hub, comprising hardware and software, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising: a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability, the radio circuit configured to handle 802.11x packet transmissions, and wherein the wireless radio circuit supports communications on both a wireless local area network ("WLAN") and wireless personal area network	**Claim 19**. A computing device having therein a network-enabled hub, comprising hardware and software, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising: a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability, the radio circuit configured to handle 802.11x packet transmissions, and wherein the wireless radio circuit supports communications on both a wireless local area network ("WLAN") and wireless personal area network

("WPAN"); logic for processing data received via the wireless radio circuit; logic for generating data to be transmitted by the wireless radio circuit; logic for initiating and maintaining network connections with nodes of the WLAN and WPAN external to the network-enabled hub, maintaining at least a first network connection using a first network protocol, of the WLAN, and a second network connection using a second network protocol, of the WPAN, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, but not entirely consistent, with the first network protocol, and wherein the first network protocol is an	("WPAN"); logic for processing data received via the wireless radio circuit; logic for generating data to be transmitted by the wireless radio circuit; logic for initiating and maintaining network connections with nodes of the WLAN and WPAN external to the network-enabled hub, maintaining at least a first network connection using a first network protocol, of the WLAN, and a second network connection using a second network protocol, of the WPAN, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, but not entirely consistent, with the first network protocol, and wherein the first network protocol is an

802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol of the first network but can be maintained in a common wireless space as the 802.11x wireless protocol; logic for data forwarding between an originating node that is a node in of one of the first and second networks and a destination node that is a node in of the other of the first and second networks, the logic for data forwarding including logic for processing a data packet from the originating node to identify an address of the destination node in the data packet and using that address to transmit data into the second network, wherein a received poll request contains information required to unambiguously identify a station that is	802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol of the first network but can be maintained in a common wireless space as the 802.11x wireless protocol; logic for data forwarding between an originating node that is a node in of one of the first and second networks and a destination node that is a node in of the other of the first and second networks, the logic for data forwarding including logic for processing a data packet from the originating node to identify an address of the destination node in the data packet and using that address to transmit data into the second network, wherein a received poll request contains information required to unambiguously identify a station that is

at the destination node in the second network; at least one software module forming a software platform that allows the wireless radio circuit to connect to both the WLAN and the WPAN, and coordinate retrieval of information from the station; and an operating system that enables operation of the network-enabled hub and execution of user-written application-specific application software for the network-enabled hub, wherein the first network connection provides a link via an access point of the WLAN and the second network connection provides a link to the WPAN serving PAN devices, such that network nodes that have access to the WLAN can address packets to WPAN devices that are nodes on the WPAN and packets can be conveyed from a WPAN device, through the network-enabled hub, to the access point and	at the destination node in the second network; at least one software module forming a software platform that allows the wireless radio circuit to connect to both the WLAN and the WPAN, and coordinate retrieval of information from the station; and an operating system that enables operation of the network-enabled hub and execution of user-written application-specific application software for the network-enabled hub, wherein the first network connection provides a link via an access point of the WLAN and the second network connection provides a link to the WPAN serving PAN devices, such that network nodes that have access to the WLAN can address packets to WPAN devices that are nodes on the WPAN and packets can be conveyed from a WPAN device, through the network-enabled hub, to the access point and

from there to a destination over the Internet from the access point, and wherein the WPAN device's access to the Internet is via the network-enabled hub.	from there to a destination over the Internet from the access point, and wherein the WPAN device's access to the Internet is via the network-enabled hub.
Claim 15. The computing device of claim 14, wherein the WPAN devices are IP-addressable	**Claim 21**. The computing device of claim 19, wherein the WPAN devices are IP-addressable
Claim 16. The computing device of claim 14, wherein the WPAN devices are a computer accessory, a telephone accessory, a wearable device, a wireless headset, a wireless mouse, a wireless keyboard, a wireless recorder, or a wireless telephone.	**Claim 24**. The computing device of claim 19, wherein the WPAN devices are a computer accessory, a telephone accessory, a wearable device, a wireless headset, a wireless mouse, a wireless keyboard, a wireless recorder, or a wireless telephone.
Claim 17. The computing device of claim 14, wherein the a network-enabled hub is a component of a portable computing device, a mobile	**Claim 25**. The computing device of claim 19, wherein the a network-enabled hub is a component of a portable computing device, a mobile

computing device, a communications device with computing capability, a laptop computer, a desktop computer, a handheld computing device, a pager, or a cellular telephone.	computing device, a communications device with computing capability, a laptop computer, a desktop computer, a handheld computing device, a pager, or a cellular telephone.
Claim 29. The network-enabled hub of claim 28, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.	**Claim 16**. The network-enabled hub of claim 1, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.

Claim Objections

5. **Claim 3** is objected to because of the following informalities:

- Claim 3, line 2: claim element “LAN” needs to be spelled out to avoid misinterpretation.
- Appropriate correction is required.

Claim Rejections - 35 USC § 112

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

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

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

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

7. **In claim 1**, claim limitations “**interface providing**”, “**logic for processing**", "**logic for generating**", "**logic for initiating and maintaining**” have been interpreted under 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph, because it uses a non-structural terms “interface” and “logic” coupled with functional language “providing, processing, generating, initiating and maintaining” without reciting sufficient structure to achieve the function. Furthermore, the non-structural term is not preceded by a structural modifier. No clear and definite definition of interface that performs the means specified in the claim language can be found in the specification. Therefore, interface can be interpreted as software which is non-structural term.

Since this claim limitation invokes 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph, claim 1 is interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph limitation: **(In light of paragraph 0037 in the specification; a memory module 25 and interface circuitry 26. CPU 24 and memory module 25 are used to implement the portion of the communication protocol that is not implemented in the dedicated control**

and datapath logic). Nowhere in the specification has a hardware used to perform the logic step.

8. **In claim 2**, claim limitations “routing module for receiving”, “routing module coordinate retrieval” have been interpreted under 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph, because it uses a non-structural term “module” coupled with functional language “receiving, coordinate” without reciting sufficient structure to achieve the function. Furthermore, the non-structure term is not preceded by a structural modifier. There is no clear and definite definition of “routing module” that performs the means specified in the claim language can be found in the specification. Therefore, module can be interpreted as software which is non-structural term.

Since this claim limitation invokes 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph, claim 2 is interpreted to cover the corresponding structure described in the specification that achieves the claimed function, and equivalents thereof.

A review of the specification shows that the following appears to be the corresponding structure described in the specification for the 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph limitation: (**In light of paragraph 0039; the wireless hub further includes a number of software modules forming a software platform 36 that enable circuit 29 to communicate with both the WPAN and WLAN**)

If applicant wishes to provide further explanation or dispute the examiner's interpretation of the corresponding structure, applicant must identify the corresponding structure with reference to the specification by page and line number, and to the drawing, if any, by reference characters in response to this Office action.

If applicant does **not** wish to have the claim limitation treated under 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph, applicant may amend the claim so that it will clearly not invoke 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph, or present a sufficient showing that the claim recites sufficient structure, material, or acts for performing the claimed function to preclude application of 35 U.S.C. 112(f) or 35 U.S.C. 112 (pre-AIA), sixth paragraph.

For more information, see MPEP § 2173 et seq. and *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. § 112 and for Treatment of Related Issues in Patent Applications*, 76 FR 7162, 7167 (Feb. 9, 2011).

Claims 14, 19, and 28 have similar problem as claim 1, therefore, they are rejected under the same rationale.

Claims 2-13, 15-18, and 29-30 are also rejected based on the rejection of parent claim.

Claim Rejections - 35 USC § 103

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

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. **Claims 1-4, 6-11, 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (US-PAT: 6,771,933) in view of Quinn (USPUB: 20060015621).**

Regarding claim 1, Eng discloses a network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub **(Eng, figure 4 and col 7, lines 8-39 explicitly teaches how a WLAN/M-BTAP facilitates data communications between two or more wireless devices)**, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly **(Eng, col 7, lines 24-35; a WLAN radio in both first and second WLAN/M-BTAPs serves to communicate with WLAN access points),** providing the hub with bi-directional wireless data communication capability **(Eng, col 7, lines 34-39; a distributed antenna system effectively extends the WLAN access from back-end to the front-end of the system)**; logic for processing data received via the wireless radio circuit **(Eng, col 7, lines 8-39; the WLAN/M-BTAP processes received data via WLAN radio)**; logic for generating data to be transmitted by the wireless radio circuit **(Eng, figure 4 and col 7, lines 8-39; data generated by application server 426 and Bluetooth device is transmitted by WLAN radio)**; logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub **(Eng, figure 4 and col 7, lines 8-39; the WLAN/M-BTAP can**

initiate and maintain network connections with nodes/Bluetooth, devices/remote and unit/server), maintaining at least a first network connection using a first network protocol **(Eng, figure 4 and col 7, lines 8-39; WLAN/M-BTAP maintains network connection with a WLAN access point)** and a second network connection using a second network protocol **(Eng, figure 4 and col 7, lines 8-39; WLAN/M-BTAP maintains network connection with a Bluetooth device)**, that can be maintained, at times, simultaneously with each other **(Eng, figure 4 and col 7, lines 40-57; WLAN/M-BTAP maintains uplink and downlink between WLAN and WPAN)**, and data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node **(Eng, figure 4 and col 7, lines 40-57; WLAN/M-BTAP forwards data between nodes in the WLAN and WPAN networks)**, wherein the originating node is a node in one of the first and second networks and the destination node is a node in the other of the first and second networks **(Eng, figure 4 and col 7, lines 40-57; WLAN/M-BTAP forwards data between nodes in the WLAN and WPAN networks)**.

Eng teaches the communication between the first network protocol and the second network protocol but Eng is silent as to the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent with the first network protocol.

However, Quinn teaches wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications

using the second network protocol are partially consistent with the first network protocol **(Quinn, figure 3, [0020]; the WPAN protocol "second network protocol" is overlay with the WLAN protocol "first network protocol" then using the WPAN is partially consistent with the WLAN)**.

Eng and Quinn are analogous because they are from the same field of endeavor which is wireless communication.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to combine the teaching of Quinn with the teaching of Eng by using the above features such as the second network protocol is overlay with the first network protocol (WLAN protocol) i.e. is built on the structure of WLAN network as taught by Quinn. The motivation for doing so would be to allocate tasks between two or more wireless networks in order to improve information handling system networking capacity and efficiency as supported by Quinn (Quinn, [0007]).

Regarding claim 2, the combination of Eng and Quinn discloses the network-enabled hub of claim 1 as addressed above with the exception of a routing module for receiving a poll request that contains information required to unambiguously identify a station that is a node in the second network, wherein the routing module coordinates retrieval of information from the station.

However, Quinn teaches a routing module for receiving a poll request that contains information required to unambiguously identify a station that is a node in the second network **(Quinn, [0019]; classification of information for**

allocation to a selected network is performed, for instance, with an allocation switch module 42 that assigns networks to communicate information on a task basis), wherein the routing module coordinates retrieval of information from the station **(Quinn, figure 2; the Multi-Mode Wireless Switch 26 coordinates the retrieval of information from the node)**

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to combine the teaching of Quinn with the teaching of Eng by using the above features such as a routing module for receiving a poll request as taught by Quinn. The motivation for doing so would be to allocate tasks between two or more wireless networks in order to improve information handling system networking capacity and efficiency as supported by Quinn (See paragraph 0007).

Regarding claim 3, the combination of Eng and Quinn discloses the network-enabled hub of claim 1, wherein the first network connection provides a link via an access point of a wireless LAN **(Eng, figure 4, col 7, lines 24-28; providing a link to WLAN access point)** and the second network connection provides a link to a personal area network ("PAN") serving PAN devices **(Eng, figure 4, col 7, lines 45-57; providing a link to WPAN)**, such that network nodes that have access to the wireless LAN can address packets to PAN devices that are nodes on the PAN **(Eng, figure 4, col 7, lines 8-57; integrated module 421 has access to WLAN and devices in the WPAN)**.

Regarding claim 4, the combination of Eng and Quinn discloses the network-enabled hub of claim 1, wherein the first network protocol is an 802.1 lx wireless protocol and the second network protocol is a modification of the 802.1 l x wireless protocol that is not entirely compliant with the 802.1 l x wireless protocol of the first network but can be maintained in a common wireless space as the 802.1 lx wireless protocol **(Eng, col 1, lines 55-63; a master Bluetooth access point module generally refers to a mater Bluetooth access point radio (M-BTAP), a combination of a wireless LAN (WLAN) radio (e.g., IEEE 802.11b, IEEE 802.11a, HiperLAN, or HiperLAN2) and a master Bluetooth access point radio (WLAN/M-BTAP), or a combination of a master Bluetooth access point radio and any RF radio known in the art)**.

Regarding claim 6, the combination of Eng and Quinn discloses the network-enabled hub of claim 1, except further comprising the wireless radio circuit interfaced to the logic for processing data, wherein the wireless radio circuit supports communications on both the first network and the second network. However, Quinn teaches the wireless radio circuit interfaced to the logic for processing data **(Quinn, [0017]; Multi-mode wireless switch 26 for processing data)**, wherein the wireless radio circuit supports communications on both the first network and the second network **(Quinn, [0017]; Multi-mode wireless switch 26 supports WLAN and WPAN)**.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to combine the teaching of Quinn with the teaching of Eng

by using the above features such as introducing in the system of Eng a wireless radio circuit that can support communication on both networks with different protocol as taught by Quinn. The motivation for doing so would be to allocate tasks between two or more wireless networks in order to improve information handling system networking capacity and efficiency as supported by Quinn **(See paragraph 0007)**.

Regarding claim 7, the combination of Eng and Quinn discloses the network-enabled hub of claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to transmit on more than one radio band **(Eng, col 7, lines 40-57; The WLAN radio in the same WLAN/M-BTAP then modulates these data packets onto uplink RF signals in the IEEE802.11 frequency band and transmits the modulated uplink RF signals to the antennae of the distributed antenna system)**.

Regarding claim 8, the combination of Eng and Quinn discloses the network-enabled hub as addressed in claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to alternate connectivity between the first network connection and the second network connection **(Eng, figure 2, col 6, lines 26-41; which recites an alternate connectivity between the first network connection and the second network connection)**.

Regarding claim 9, the combination of Eng and Quinn discloses the network-enabled hub of claim 1, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment **(Eng, col 6, lines 1-14; M-BTAP is embedded into a remote unit)**.

Regarding claim 10, the combination of Eng and Quinn discloses the network-enabled hub as addressed in claim 1, wherein the first network connection is for a network having a first operating range and the second network is for a network having a second operating range **(Eng, figure 4; first network is a WLAN which has its operating range and second network is a WPAN which also has its operating range)**, where the first operating range is larger than the second operating range **(Quinn, figure 3, [0020]; the second network (WPAN) is overlay with the first network (WLAN) i.e. it is built on the top of the first one (WLAN), therefore, its operating range is smaller than the first network one's)**.

Regarding claim 11, the combination of Eng and Quinn discloses the network-enabled hub as addressed in claim 1, wherein the data forwarding logic further comprises logic for uniquely identifying the destination node from data received from the originating node such that the network-enabled hub can use that data to transmit data into the second network **(Eng, figure 4, lines 8-39; WLAN/M-BTAP processes and forwards data between nodes in the WLAN and WPAN networks)**.

Regarding claim 28, Eng discloses a network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub **(Eng, figure 4 and col 7, lines 8-39 explicitly teaches how a WLAN/M-BTAP facilitates data communications between two or more wireless devices)**, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly **(Eng, figure 4, col 7, lines 24-35; a WLAN radio in both first and second WLAN/M-BTAPs serves to communicate with WLAN access points)**, providing the hub with bi-directional wireless data communication capability **(Eng, figure 4, col 7, lines 34-39; a distributed antenna system effectively extends the WLAN access from back-end to the front-end of the system)**; logic for processing data received via the wireless radio circuit **(Eng, figure 4, col 7, lines 8-39; the WLAN/M-BTAP processes received data via WLAN radio)**; logic for generating data to be transmitted by the wireless radio circuit **(Eng, figure 4, col 7, lines 8-39; data generated by application server 426 and Bluetooth device is transmitted by WLAN radio)**; logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub **(Eng, figure 4, col 7, lines 8-39; the WLAN/M-BTAP can initiate and maintain network connections with nodes/Bluetooth, devices/remote and unit/server)**, maintaining at least a first network connection using a first network protocol **(Eng, figure 4, col 7, lines 8-39; WLAN/M-BTAP**

maintains network connection with a WLAN access point) and a second network connection using a second network protocol **(Eng, figure 4, col 7, lines 8-39; WLAN/M-BTAP maintains network connection with a Bluetooth device)**, that can be maintained, at times, simultaneously with each other **(Eng, figure 4, col 7, lines 40-57; WLAN/M-BTAP maintains uplink and downlink between WLAN and WPAN)**, and data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node **(Eng, figure 4, col 7, lines 40-57; WLAN/M-BTAP forwards data between nodes in the WLAN and WPAN networks)**, wherein the originating node is a node in one of the first and second networks and the destination node is a node in the other of the first and second networks **(Eng, figure 4, col 7, lines 40-57; WLAN/M-BTAP forwards data between nodes in the WLAN and WPAN networks)**; but the first network and the second network are distinct in that at least one node of the second network is not a node in the first network **(Eng, figure 2; the node of the network interface card (NIC) 222 in the LAN is distinct from the wireless phone node in the WPAN)**;

Eng teaches the communication between the first network protocol and the second network protocol but he/she is silent as to the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent with the first network protocol.

However, Quinn teaches wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent with the first network protocol **(Quinn, figure 3, [0020]; the WPAN protocol "second network protocol" is overlay with the WLAN protocol "first network protocol" then using the WPAN is partially consistent with the WLAN)**.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to combine the teaching of Quinn with the teaching of Eng by using the above features such as the second network protocol is overlay with the first network protocol (WLAN protocol) i.e. is built on the structure of WLAN network as taught by Quinn. The motivation for doing so would be to allocate tasks between two or more wireless networks in order to improve information handling system networking capacity and efficiency as supported by Quinn (Quinn, [0007]).

Regarding claim 29, Eng discloses the network-enabled hub as addressed in claim 28, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment **(Eng, col 6, lines 1-14; M-BTAP is embedded into a remote unit)**.

Regarding claim 30, Eng discloses the network-enabled hub as addressed in claim 28, wherein the first network connection is for a network having a first operating range and the second network is for a network having a

second operating range **(Eng, figure 4; first network is a WLAN which has its operating range and second network is a WPAN which also has its operating range)**, he/she is silent as to where the first operating range is larger than the second operating range. However, Quinn teaches the second network (WPAN) is overlay with the first network (WLAN) which explains why the first operating range is larger than the second operating range **(Quinn, figure 3, [0020]; the second network (WPAN) is overlay with the first network (WLAN) i.e. it is built on the top of the first one (WLAN), therefore, its operating range is smaller than the first network operating range)**. Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to combine the teaching of Quinn with the teaching of Eng by using the above features such as building the second network (WPAN) on the top of the first network (WLAN) by using the structure already in place by the WLAN as taught by Quinn. The motivation for doing so would be to allocate tasks between two or more wireless networks in order to improve information handling system networking capacity and efficiency as supported by Quinn (Quinn, [0007]).

13. **Claims 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (US-PAT: 6,771,933) in view of Quinn (USPUB: 20060015621) in further in view of Lipasti (USPUB: 20020039357).**

Regarding claim 12, the combination of Eng and Quinn discloses the electronic device addressed in claim 11, but he/she is silent as to wherein the data identifying the destination node is a network address of the destination node. However, Lipasti teaches wherein the data identifying the destination node is a network address of the destination node **(Lipasti, [0008]; destination routing addresses from network layer addresses or unique device identifiers of mobile nodes of a mobile ad hoc network and routing packets inside the mobile ad hoc network on the basis of routing addresses instead of network layer or data link layer addresses)**.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teaching of Eng with the teaching of Lipasti by using the network address as a destination node as taught by Lipasti. The motivation for doing so would be to allow nodes in the working MANET (Mobile Ad Hoc Network) inexpensively access the internet as supported by the system of Lipasti (Libasti, [(0003-0006)]).

Regarding claim 13, the combination of Eng and Quinn discloses the network-enabled hub as addressed in claim 11; he/she is silent as to wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node. However, Lipasti teaches destination node is an Internet Protocol (IP) address of the destination node **(Lipasti, [0026-0027]; Bluetooth devices are IP addressable)**.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of Eng and Quinn with the teaching of Lipasti for addressing and routing in mobile ad hoc networks as taught by Lipasti. The motivation for doing so would be to allow nodes in the working MANET (Mobile Ad Hoc Network) inexpensively access the internet as supported by the system of Lipasti (Libasti, [(0003-0006)]).

Regarding claim 14, Eng discloses a computing device having therein a network-enabled hub, comprising hardware and software, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub **(Eng, figure 4 and col 7, lines 8-39 explicitly teaches how a WLAN/M-BTAP facilitates data communications between two or more wireless devices)**, comprising:

a wireless radio circuit that can send and receive data wirelessly **(Eng, col 7, lines 24-35; a WLAN radio in both first and second WLAN/M-BTAPs serves to communicate with WLAN access points)**, providing the hub with bi-directional wireless data communication capability **(Eng, col 7, lines 34-39; a distributed antenna system effectively extends the WLAN access from back-end to the front-end of the system)**, the radio circuit configured to handle 802.1 lx packet transmissions **(Eng, col 3, lines 1-16; the WLAN radio in the same module serves to communicate with WLAN access point (which are typically IEEE802.11 radio))**;

logic for processing data received via the wireless radio circuit **(Eng, col 7, lines 8-39; the WLAN/M-BTAP processes received data via WLAN radio)**;

logic for generating data to be transmitted by the wireless radio circuit **(Eng, figure 4 and col 7, lines 8-39; data generated by application server 426 and Bluetooth device is transmitted by WLAN radio)**;

logic for initiating and maintaining network connections with nodes of the WLAN and WPAN external to the network-enabled hub **(Eng, figure 4 and col 7, lines 8-39; the WLAN/M-BTAP can initiate and maintain network connections with nodes/Bluetooth, devices/remote and unit/server)**, maintaining at least a first network connection using a first network protocol, of the WLAN **(Eng, figure 4 and col 7, lines 8-39; WLAN/M-BTAP maintains network connection with a WLAN access point)**, and a second network connection using a second network protocol, of the WPAN **(Eng, figure 4 and col 7, lines 8-39; WLAN/M-BTAP maintains network connection with a Bluetooth device)**, that can be maintained, at times, simultaneously with each other **(Eng, figure 4 and col 7, lines 40-57; WLAN/M-BTAP maintains uplink and downlink between WLAN and WPAN)**, and wherein the first network protocol is an 802.1 lx wireless protocol and the second network protocol is a modification of the 802.11 x wireless protocol of the first network but can be maintained in a common wireless space as the 802.1 lx wireless protocol **(Eng, col 1, lines 55-63; a master Bluetooth access point module generally refers to a mater Bluetooth access point radio (M-BTAP), a combination of a wireless LAN (WLAN) radio (e.g., IEEE 802.11b, IEEE 802.11a, HiperLAN, or HiperLAN2) and a**

master Bluetooth access point radio (WLAN/M-BTAP), or a combination of a master Bluetooth access point radio and any RF radio known in the art); logic for data forwarding between an originating node that is a node in of one of the first and second networks and a destination node that is a node in of the other of the first and second networks **(Eng, figure 4 and col 7, lines 40-57; WLAN/M-BTAP forwards data between nodes in the WLAN and WPAN networks)**; wherein the first network connection provides a link via an access point of the WLAN **(Eng, figure 4, col 7, lines 24-28; providing a link to WLAN)** and the second network connection provides a link to the WPAN serving PAN devices **(Eng, figure 4, lines 45-57; providing a link to WPAN)**, such that network nodes that have access to the WLAN can address packets to WPAN devices that are nodes on the WPAN **(Eng, figure 4, col 7, lines 8-57; integrated module 421 has access to WLAN and devices in the WPAN)**.

Eng is silent as to wireless radio circuit supports communications on both wireless local area network (WLAN) and wireless personal area network (WPAN). However, Quinn teaches the wireless radio circuit supports communications on both the first network which is a wireless local area network (WLAN) and the second network which is a wireless personal area network (WPAN) **(Quinn, [0017]; Multi-mode wireless switch 26 supports WLAN and WPAN),** and wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, but not entirely consistent, with the first network protocol **(Quinn, figure 3, [0020]; the WPAN protocol "second**

network protocol" is overlay with the WLAN protocol "first network protocol" then using the WPAN is partially consistent with the WLAN), at least one software module forming a software platform that allows the wireless radio circuit to connect to both the WLAN and the WPAN **(Quinn, [0015]; the software control logic to handle the system)**, and coordinate retrieval of information from the station **(Quinn, [0019]; the multi-mode switch 26 scans retrieval information from the station)**; and

an operating system that enables operation of the network-enabled hub and execution of user-written application-specific application software for the network-enabled hub **(Quinn, [0015]; the information handling system that includes random access memory, one or more processing resources such as CPU (central processing unit))**,

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teaching of Quinn with the teaching of Eng by using the above features such as introducing a wireless radio circuit that can support communication on both networks with different protocol as taught by Quinn. The motivation for doing so would be to allocate tasks between two or more wireless networks in order to improve information handling system networking capacity and efficiency as supported by Quinn (See paragraph 0007).

The combination of Eng and Quinn discloses transmitting packets from WPAN device to WLAN (Eng, figure 4) but it does not explicitly teach packets can be conveyed from a WPAN device, through the network-enabled hub, to the access point and from there to a destination over the Internet from the access

point, and wherein the WPAN device's access to the Internet is via the network-enabled hub.

However, Lipasti teaches packets can be conveyed from WPAN device, through the network-enabled hub, to a destination over the internet from the access point**,** and wherein the WPAN device's access to the internet is via the network-enabled hub **(Lipasti, figure 1, [0023]; Bluetooth device accesses the internet via access point (AP))**

Eng, Quinn, and Lipasti are analogous because they are from the same field of endeavor which is wireless communication.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the combination of Eng and Quinn with the teaching of Lipasti by providing access for Bluetooth device nodes to the local area network and to other networks, such as the internet as taught by Lipasti. The motivation for doing so would be to allow nodes in the working MANET (Mobile Ad Hoc Network) inexpensively access the internet as supported by the system of Lipasti (Libasti, [(0003-0006)]).

Regarding claim 15, the combination Eng and Quinn discloses the computing device as addressed in claim 14, but silence as to wherein the WPAN devices are IP addressable. However, Lipasti teaches the WPAN devices are IP addressable **(Lipasti, [0026-0027]; Bluetooth devices are IP addressable)**.

It would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teachings of Eng and Quinn with the teaching of

Lipasti for addressing and routing in mobile ad hoc networks as taught by Lipasti. The motivation for doing so would be to allow nodes in the working MANET (Mobile Ad Hoc Network) inexpensively access the internet as supported by the system of Lipasti (Libasti, [(0003-0006)]).

Regarding claim 16, the combination of Eng, Quinn and Lipasti discloses the computing device of claim 14, wherein the WPAN devices are a computer accessory, a telephone accessory, a wearable device, a wireless headset, a wireless mouse, a wireless keyboard, a wireless recorder, or a wireless telephone **(Eng, figure 2, devices 412 and 413 are wireless phones)**.

Regarding claim 17, the combination of Eng, Quinn and Lipasti discloses the computing device of claim 14, wherein the computing device is a component of a portable computing device, a mobile computing device, a communications device with computing capability, a laptop computer, a desktop computer, a handheld computing device, a pager, or a cellular telephone **(Eng, figure 1, device 126 which is a server could be a laptop computer or a desktop computer)**.

Regarding claim 18, the combination of Eng, Quinn and Lipasti discloses the computing device of claim 14, wherein the logic for data forwarding further comprises logic for uniquely identifying the destination node from data in a data packet received from the originating node and transmit data into the second

network using that unique identification of the destination node **(Eng, figure 4, lines 8-39; WLAN/M-BTAP processes and forwards data between nodes in the WLAN and WPAN networks)**.

14. **Claim 5 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (US-PAT: 6,771,933) in view of Quinn (USPUB: 20060015621) in further view of Rune (USPUB: 20030152110)**.

Regarding claim 5, the combination of Eng and Quinn discloses the network-enabled hub and WPAN as addressed in claim 1, but the combination is silent as to wherein the network-enabled hub includes logic to coordinate a mutually agreeable inactivity period between the network-enabled hub and wireless personal area network ("WPAN") devices such that the WPAN devices can enter a sleep mode and occasionally wake up to transmit or receive data and/or control signals, with the network-enabled hub and WPAN devices synchronized so that the network-enabled hub is able to communicate with WPAN devices when WPAN devices wake up.

However, Rune teaches a mutually agreeable inactivity period between the network-enabled hub and wireless personal area network ("WPAN") devices such that the WPAN devices can enter a sleep mode and occasionally wake up to transmit or receive data and/or control signals, with the network-enabled hub and WPAN devices synchronized so that the network-enabled hub is able to communicate with WPAN devices when WPAN devices wake up **(Rune, [0009-**

0010]; a mutually agreeable sleep mode period during which one or both of the master node and the slave node are configurable to enter in sleep mode and the slave node listens for transmissions from the master node and responds when it is addressed i.e. when WPAN devices wake up)

Eng, Quinn, and Rune are analogous arts because they are from the same field of endeavor which is wireless network.

Therefore, it would have been obvious to one with ordinary skill, in the art at the time of invention to combine the teachings of Eng and Quinn with the teaching of Rune by using the above features such as allowing the WPAN devices to enter the sleep mode for low power consumption when in inactivity. The motivation for doing so would be to save power on Bluetooth devices as taught by Rune.

Regarding claim 27, Eng discloses the electronic device as addressed in claim 19, but he/she is silent as to further comprising logic for entering a sleep mode and synchronizing sleep periods with the network-enabled hub. However, Rune teaches a logic for entering a sleep mode and synchronizing sleep periods with the network-enabled hub **(Rune, [0009]; entering a sleep mode, i.e., when the master node will not poll the slave node and the slave node will not listen for transmissions from the master node)**.

Therefore, it would have been obvious to one with ordinary skill, in the art at the time of invention to combine the teaching of Eng with the teaching of Rune by using the above features such as allowing the electronic device to enter a

sleep mode for low power consumption when in inactivity. The motivation for doing so would be to save power on Bluetooth devices as taught by Rune.

15. **Claims 19-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng et al. (US-PAT: 6,771,933) in view of Quinn (USPUB: 20060015621) in view of Lipasti (USPUB: 20020039357) in further in view of Beckers (USPUB: 20070093198).**

Regarding claim 19, Eng discloses an electronic device having an ability to communicate wirelessly **(Fig. 4, device 412, a wireless phone with caller ID)** and configured to support functions requiring messages to be sent, or data to be received, to destination nodes not directly accessible by wireless communication circuits of the electronic device, the electronic device comprising:

a processor **(Fig. 4, device 412, a wireless phone with caller ID);**

a memory **(Fig. 4, device 412, a wireless phone with caller ID)**;

control logic for generating a message based on inputs to the electronic device (**Eng, 4, col 7, lines 40-57; each master Bluetooth access point radio in a WLAN/M-BTAP receives uplink Bluetooth RF signals from its constituent slave Bluetooth devices, and converts these signals to data packet)**, wherein the message comprises data that depends on the inputs received and uniquely identifies a destination node on a network that is accessible using a first wireless network protocol but not accessible using a second wireless network protocol used by the electronic device **(Eng, figure 3, col 5, lines 32-44; first M-**

BTAP 123 converts the uplink Bluetooth RF signals to appropriate data packets, which are then sent to LAN 120 i.e. to the first wireless network protocol);

datapath logic for generating addressing information of an address of a network-enabled hub accessible directly by the electronic device using the second wireless network protocol **(Eng, figure 3, col 6, lines 26-41; IP data packets are modulated onto uplink optical signal carriers and subsequently transmitted to main unit 101, where the modulated optical signal carriers are converted to uplink RF carriers to be forwarded to integrated module 221)**, the address being of a network-enabled hub capable of sending messages to the destination node using the second wireless network protocol **(Eng, figure 4, col 6; lines 26-41; integrated module 221 de-modulates the original data packets from the uplink RF carriers and sends the demodulated data packet to LAN 220 using second network protocol)**;

a wireless radio circuit that can send and receive data wirelessly between the electronic device and the network-enabled hub **(Eng, figure 4, col 7, lines 24-35; a WLAN radio in both first and second WLAN/M-BTAPs serves to communicate with WLAN access points)**;

an interface between the processor and the wireless radio circuit for sending and receiving data wirelessly **(Eng, figure 4, col 7, lines 24-35; a WLAN radio in both first and second WLAN/M-BTAPs serves to communicate with WLAN access points))** and processing that data **(Eng, figure 4, col 7, lines 8-39; WLAN/M-BTAP processes received data)**.

Regarding claim 20, Eng discloses the electronic device addressed in claim 19, but he/she is silent as to wherein the data identifying the destination node is a network address of the destination node. However, Lipasti teaches wherein the data identifying the destination node is a network address of the destination node **(Lipasti, [0008]; destination routing addresses from network layer addresses or unique device identifiers of mobile nodes of a mobile ad hoc network and routing packets inside the mobile ad hoc network on the basis of routing addresses instead of network layer or data link layer addresses)**.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teaching of Eng with the teaching of Lipasti by using the network address as a destination node as taught by Lipasti. The motivation for doing so would be to allow nodes in the working MANET (Mobile Ad Hoc Network) inexpensively access the internet as supported by the system of Lipasti (Libasti, [(0003-0006)])

Regarding claim 21, Eng discloses the electronic device addressed in claim 19, but he/she is silent as to wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node. However, Lipasti teaches wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node **(Lipasti, [0006]; one possibility for arranging routing between mobile nodes is to use network layer Internet**

Protocol (IP) addresses as in the case of protocols being developed by the MANET working group).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teaching of Eng with the teaching of Lipasti by using the Internet protocol address as a destination node as taught by Lipasti. The motivation for doing so would be to allow nodes in the working MANET (Mobile Ad Hoc Network) inexpensively access the internet as supported by the system of Lipasti (Libasti, [(0003-0006)]).

Regarding claim 22, Eng discloses the electronic device of claim 19, wherein the electronic device is a remote control for a home entertainment accessory **(Eng, figure 2, col 5, lines 59-67 and col 6, lines 1-14; application server 226 and a controller 225 are connected to LAN 220)**.

Regarding claim 23, Eng discloses the electronic device as addressed in claim 19, but he/she is silent as to further comprising a battery for powering the electronic device and further wherein the electronic device is configured to wirelessly communicate with a network-enabled hub that is powered such that wireless communication power is not a constraint on the network-enabled hub.

However, Beckers teaches a battery for powering the electronic device **(Beckers, [0013]; to make Bluetooth run on a battery)** and further wherein the electronic device is configured to wirelessly communicate with a network-enabled hub that is powered such that wireless communication power is not a constraint

on the network-enabled hub **(Beckers, [0012]; making the Bluetooth protocol work with a communicating object that is not connected to any main power source, such as a rechargeable battery or a direct connection to a mains supply)**.

Eng and Beckers are analogous arts because they are from the same field of endeavor which is networking.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to combine the teaching of Eng with the teaching of Beckers in order to powering devices in the system of Eng as taught by Beckers. The motivation for doing so would be to provide power to the electronic device that communicates with the network-enabled hub.

Regarding claim 24, Eng discloses the electronic device as addressed in claim 19, wherein the first wireless network protocol provides a link via an access point of a wireless LAN **(Eng, figure 4, col 7, lines 24-28; providing a link to WLAN access point)** and the second wireless network protocol provides a link to a personal area network ("PAN") serving PAN devices including the electronic device **(Eng, figure 4, col 7, lines 45-57; providing a link to WPAN)**.

Regarding claim 25, Eng discloses the electronic device as addressed in claim 19, but he/she is silent as to wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially

consistent with the first wireless network protocol. However, Quinn discloses wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol **(Quinn, figure 3, [0020]; the WPAN protocol "second network protocol" is overlay with the WLAN protocol "first network protocol" then using the WPAN is partially consistent with the WLAN)**.

Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to combine the teaching of Quinn with the teaching of Eng by using the above features such as the second network protocol is overlay with the first network protocol (WLAN protocol) i.e. is built on the structure of WLAN network as taught by Quinn. The motivation for doing so would be to allocate tasks between two or more wireless networks in order to improve information handling system networking capacity and efficiency as supported by Quinn (Quinn, [0007]).

Regarding claim 26, Eng discloses the electronic device of claim 25, wherein the first wireless network protocol is an 802.1 lx wireless protocol and the second wireless network protocol is a modification of the 802.1 lx wireless protocol that is not entirely compliant with the 802.1 lx wireless protocol but can be maintained in a common wireless space as the 802.1 l x wireless protocol **(Eng, col 1, lines 55-63; a master Bluetooth access point module generally refers to a mater Bluetooth access point radio (M-BTAP), a combination of**

a wireless LAN (WLAN) radio (e.g., IEEE 802.11b, IEEE 802.11a, HiperLAN, or HiperLAN2) and a master Bluetooth access point radio (WLAN/M-BTAP), or a combination of a master Bluetooth access point radio and any RF radio known in the art).

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chow (US-PAT-NO: 6546253), Nguyen (US-PAT-NO: 7286513) are all cited to show systems which are considered pertinent to the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEAN F VOLTAIRE whose telephone number is (571)272-3953. The examiner can normally be reached on Monday-Friday, Alternate Friday, 8:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Faruk HAMZA can be reached on (571) 272-7969. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JEAN F VOLTAIRE/

Examiner, Art Unit 2466

/JAE Y LEE/

Primary Examiner, Art Unit 2466

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	Examiner JEAN F. VOLTAIRE	Art Unit 2466	Page 1 of 1

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
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*	C	US-2002/0039357	04-2002	Lipasti et al.	370/338
*	D	US-2003/0152110	08-2003	Rune, Johan	370/509
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	M	US-			

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NON-PATENT DOCUMENTS

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13560917	VLEUGELS ET AL.
	Examiner	**Art Unit**
	JEAN F VOLTAIRE	2466

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

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

CLAIM		DATE								
Final	Original	11/10/2012								
	1	✓								
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PTO-SB-08A (07-09)

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	TBD
				Filing Date	Herewith
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned 2466
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned J.V.
Sheet	1	of	3	Attorney Docket Number	89863-001440US-846870

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Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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/J.V./	7	US-6,842,460	01-11-2005	Olkkonen et al.	
/J.V./	8	US-6,879,574	04-12-2005	Naghian et al.	
/J.V./	9	US-7,003,102	02-21-2006	Kiko	
/J.V./	10	US-7,039,358	05-02-2006	Shellhammer et al.	
/J.V./	11	US-7,088,687	08-08-2006	Ayyagari et al.	
/J.V./	12	US-7,095,748	08-22-2006	Vij et al.	
/J.V./	13	US-7,190,972	03-13-2007	Hollister et al.	
/J.V./	14	US-7,333,829	02-19-2008	Malone et al.	
/J.V./	15	US-7,463,907	12-09-2008	Smith et al.	
/J.V./	16	US-7,590,101	09-15-2009	Forand et al.	
/J.V./	17	US-7,664,081	02-16-2010	Luoma et al.	
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/J.V./	20	US-2002-0039357	04-2002	Lipasti et al.	
/J.V./	21	US-2003-0119527	06-26-2003	Labun et al.	
/J.V./	22	US-2003-0152110	08-2003	Rune	
/J.V./	23	US-2004-0076136	04-22-2004	Beach	
/J.V./	24	US-2004-0157551	08-12-2004	Gainey et al.	
/J.V./	25	US-2004-0170120	09-02-2004	Reunamaki et al.	
/J.V./	26	US-2004-0259544	12-23-2004	Amos	
/J.V./	27	US-2004-0259552	12-23-2004	Ihori et al.	
/J.V./	28	US-2005-0025104	02-03-2005	Fischer et al.	

Examiner Signature	/Jean Voltaire/	Date Considered	11/14/2012

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PTO-SB-08A (07-09)

Substitute for form 1449-PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	TBD
				Filing Date	Herewith
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned 2466
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned J.V.
Sheet	2	of	3	Attorney Docket Number	89863-001440US-846870

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/J.V./	29	US-2005-0068965	03-31-2005	Lin et al.	
/J.V./	30	US-2005-0086393	04-2005	Meng et al.	
/J.V./	31	US-2005-0099275	05-12-2005	Kamdar et al.	
/J.V./	32	US-2005-0101260	05-12-2005	Hunt et al.	
/J.V./	33	US-2005-0119025	06-02-2005	Mohindra et al.	
/J.V./	34	US-2005-0176473	08-11-2005	Melpignano	
/J.V./	35	US-2005-0192044	09-01-2005	Travis	
/J.V./	36	US-2005-0286474	12-29-2005	van Zelst et al.	
/J.V./	37	US-2006-0015621	01-2006	Quinn	
/J.V./	38	US-2006-0146868	07-06-2006	Ginzburg	
/J.V./	39	US-2006-0165035	07-27-2006	Chandra et al.	
/J.V./	40	US-2006-0203841	09-14-2006	Fischer	
/J.V./	41	US-2006-0215601	09-28-2006	Vleugels et al.	
/J.V./	42	US-2007-0093198	04-2007	Beckers	
/J.V./	43	US-2008-0144493	06-19-2008	Yeh	
/J.V./	44	US-2008-0291858	11-27-2008	Kandala et al.	
/J.V./	45	US-2009-0086619	04-02-2009	Santhoff et al.	

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/J.V./	46	WO	97/048198	A2	12-18-1997	Streamix Corporation		
/J.V./	47	WO	03/065654	A1	08-07-2003	Koninklijke Philips Electronics N.V.		
/J.V./	48	WO	06/099588	A2	09-21-2006	H-Stream Wireless		
/J.V./	49	EP	1207654	A2	05-22-2002	Symbol Technologies, Inc.		

Examiner Signature	/Jean Voltaire/	Date Considered	11/14/2012

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/J.V./	51	The State Intellectual Property Office of the People's Republic of China, First Office Action for Application No. 200680013461.6, dated May 12, 2010, 24 pages total.	☒
/J.V./	52	Office Action for US Application No.11/422,945, dated November 21, 2008.	☐
/J.V./	53	Office Action for US Application No.11/422,945, dated October 22, 2009.	☐
/J.V./	54	Notice of Allowance for US Application No.11/422,945, dated June 23, 2010.	☐

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BIB DATA SHEET

CONFIRMATION NO. 4050

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/560,917	07/27/2012	370	2466	89863-001440US-846870

APPLICANTS

Katelijn Vleugels, San Carlos, CA;
Roel Peeters, San Carlos, CA;

**** CONTINUING DATA ***************************

This application is a CON of 12/892,825 09/28/2010
which is a DIV of 11/422,945 06/08/2006 PAT 7,826,408
which is a CON of 11/376,729 03/14/2006 ABN
which claims benefit of 60/661,763 03/14/2005

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

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
08/07/2012

Foreign Priority claimed	❑ Yes ☑ No	❑ Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
35 USC 119(a-d) conditions met	❑ Yes ☑ No		CA	12	30	4
Verified and Acknowledged	/JEAN F VOLTAIRE/ Examiner's Signature	Initials				

ADDRESS

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SAN FRANCISCO, CA 94111-3834
UNITED STATES

TITLE

APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

FILING FEE RECEIVED		
1255	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	❑ All Fees ❑ 1.16 Fees (Filing) ❑ 1.17 Fees (Processing Ext. of time) ❑ 1.18 Fees (Issue) ❑ Other _____ ❑ Credit

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on July 27, 2012.

KILPATRICK TOWNSEND & STOCKTON LLP

By: Paula Cunningham
Paula Cunningham

PATENT
Atty. Docket No.: 89863-001440US-846870

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katelijn Vleugels et al.

Application No.: TBA

Filed:

For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Customer No.: 20350

Confirmation No.: TBA

Examiner: Not Yet Assigned

Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97 and §1.98

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

Commissioner:

The references cited on attached form PTO/SB/08A are being called to the attention of the Examiner. In accordance with 37 CFR §1.98(d), copies of the references can be found in Application No. 11/422,945, filed June 8, 2006, now U.S. Patent No. 7,826,408 (Attorney Docket No. 89863-713437) and Application No. 12/892,825, filed September 28, 2010 (Attorney Docket No. 89863-792770). It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR §1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no

representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Date: 7/29/2012

Respectfully submitted,

Philip H. Albert
Reg. No. 35,819

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San Francisco, California 94111-3834
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64440422v1

PTO/SB/08A (07-09)

Substitute for form 1449/PTO				*Complete if Known*	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	TBA
				Filing Date	September 29, 2011
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned 2466
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned J. V.
Sheet	1	of	3	Attorney Docket Number	89863-818213 (001430US)

U.S. PATENT DOCUMENTS

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/J.V./	1	US-6,141,763	10/31/2000	Smith et al.	
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/J.V./	15	US-2004/0259552	12/23/2004	Ihori et al.	
/J.V./	16	US-2005/0025104	2/3/2005	Fischer et al.	
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/J.V./	26	US-2006/0203841	9/14/2006	Fischer	
/J.V./	27	US-2006/0215601	9/28/2006	Vleugels et al.	
/J.V./	28	US-2008/0144493	6/19/2008	Yeh	

Examiner Signature	/Jean Voltaire/	Date Considered	11/16/2012

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				Art Unit	Not Yet Assigned 2466
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/J.V./	31	WO	97/048198	A2	12-18-1997	Streamix Corporation		
/J.V./	32	WO	03/065654	A1	08-07-2003	Koninklijke Philips Electronics N.V.		
/J.V./	33	WO	06/099588	A2	09-21-2006	H-Stream Wireless		
/J.V./	34	EP	1207654	A2	05-22-2002	Symbol Technologies, Inc.		

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/J.V./	36	The State Intellectual Property Office of the People's Republic of China, First Office Action for Application No. 200680013461.6, dated May 12, 2010, 24 pages total.	☒
/J.V./	37	Office Action for US Application No.11/422,945, dated November 21, 2008	☐

Examiner Signature	/Jean Voltaire/	Date Considered	11/16/2012

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64440422v1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13560917	VLEUGELS ET AL.
	Examiner	Art Unit
	JEAN F VOLTAIRE	2466

SEARCHED			
Class	Subclass	Date	Examiner
370	338, 509, 349, 401	11/10/2012	J.V.
455	1, 41.2, 426, 562	11/10/2012	J.V.

SEARCH NOTES		
Search Notes	Date	Examiner
370/338 combined with key words of claims invention like overlay, gateway, session, protocol, simultaneous, distinct, WLAN, WPAN, router, switch, connect, hub, network, first, second, etc...	11/10/2012	J.V.
East, IP.COM, Google.com/patents, google.com, eMPEP, PALM.	11/10/2012	J.V.
Consulted with Primary Examiner Jae Y. LEE	11/10/2012	J.V.

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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SAN FRANCISCO CA 94111-3834

MAILED

AUG 16 2012

OFFICE OF PETITIONS

Doc Code: TRACK1.GRANT

Decision Granting Request for Prioritized Examination (Track I or After RCE)	Application No.:13/560,917

1. THE REQUEST FILED July 27, 2012 IS **GRANTED**.

The above-identified application has met the requirements for prioritized examination

A. ☒ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination.** The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;
B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims**, or a multiple dependent claim;
C. filing a **request for continued examination**;
D. filing a notice of appeal;
E. filing a request for suspension of action;
F. mailing of a notice of allowance;
G. mailing of a final Office action;
H. completion of examination as defined in 37 CFR 41.102; or
I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to Kimberly Inabinet at 571-272-4618. In his/her absence, calls may be directed to Brian W. Brown at 571-272-5338.

/ Brian W. Brown/
[*Signature*]

Petitions Examiner, Office of Petitions
(Title)

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	15	US-7,463,907	12-09-2008	Smith et al.	
	16	US-7,590,101	09-15-2009	Forand et al.	
	17	US-7,664,081	02-16-2010	Luoma et al.	
	18	US-7,733,885	06-08-2010	Ayyagari et al.	
	19	US-7,826,408	11-02-2010	Vleugels et al.	
	20	US-2002-0039357	04-2002	Lipasti et al.	
	21	US-2003-0119527	06-26-2003	Labun et al.	
	22	US-2003-0152110	08-2003	Rune	
	23	US-2004-0076136	04-22-2004	Beach	
	24	US-2004-0157551	08-12-2004	Gainey et al.	
	25	US-2004-0170120	09-02-2004	Reunamaki et al.	
	26	US-2004-0259544	12-23-2004	Amos	
	27	US-2004-0259552	12-23-2004	Ihori et al.	
	28	US-2005-0025104	02-03-2005	Fischer et al.	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

64440422v1

Substitute for form 1449-PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 3

Complete if Known	
Application Number	TBD
Filing Date	Herewith
First Named Inventor	Vleugels, Katelijn
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	89863-001440US-846870

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	29	US-2005-0068965	03-31-2005	Lin et al.	
	30	US-2005-0086393	04-2005	Meng et al.	
	31	US-2005-0099275	05-12-2005	Kamdar et al.	
	32	US-2005-0101260	05-12-2005	Hunt et al.	
	33	US-2005-0119025	06-02-2005	Mohindra et al.	
	34	US-2005-0176473	08-11-2005	Melpignano	
	35	US-2005-0192044	09-01-2005	Travis	
	36	US-2005-0286474	12-29-2005	van Zelst et al.	
	37	US-2006-0015621	01-2006	Quinn	
	38	US-2006-0146868	07-06-2006	Ginzburg	
	39	US-2006-0165035	07-27-2006	Chandra et al.	
	40	US-2006-0203841	09-14-2006	Fischer	
	41	US-2006-0215601	09-28-2006	Vleugels et al.	
	42	US-2007-0093198	04-2007	Beckers	
	43	US-2008-0144493	06-19-2008	Yeh	
	44	US-2008-0291858	11-27-2008	Kandala et al.	
	45	US-2009-0086619	04-02-2009	Santhoff et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		Country Code[3]	Number[4]	Kind Code[5] (if known)				
	46	WO	97/048198	A2	12-18-1997	Streamix Corporation		
	47	WO	03/065654	A1	08-07-2003	Koninklijke Philips Electronics N.V.		
	48	WO	06/099588	A2	09-21-2006	H-Stream Wireless		
	49	EP	1207654	A2	05-22-2002	Symbol Technologies, Inc.		

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

64440422v1

Substitute for form 1449-PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	TBD
				Filing Date	Herewith
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned
Sheet	3	of	3	Attorney Docket Number	89863-001440US-846870

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No.[1]	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, page(s), volume-issue number(s), publisher, city and-or country where published.	T[6]
	50	International Search Report and Written Opinion corresponding to the PCT application No. PCT/US06/09786, dated September 25, 2007, 9 pages total.	☐
	51	The State Intellectual Property Office of the People's Republic of China, First Office Action for Application No. 200680013461.6, dated May 12, 2010, 24 pages total.	☒
	52	Office Action for US Application No.11/422,945, dated November 21, 2008.	☐
	53	Office Action for US Application No.11/422,945, dated October 22, 2009.	☐
	54	Notice of Allowance for US Application No.11/422,945, dated June 23, 2010.	☐

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

64440422v1

Electronic Acknowledgement Receipt

EFS ID:	13484807
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	20350
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	89863-001440US-846870
Receipt Date:	13-AUG-2012
Filing Date:	27-JUL-2012
Time Stamp:	17:09:37
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_89863-001440US-846870.pdf	252947 4668a2bc155c56c06071e6c5990dd18f0a8e439a	yes	5

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Form (SB08)	3	5
Warnings:			
Information:			
	Total Files Size (in bytes):	252947	

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.

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on August 13, 2012.

KILPATRICK TOWNSEND & STOCKTON LLP

By: Paula Cunningham

Paula Cunningham

PATENT

Atty. Docket No.: 89863-001440US-846870

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katelijn Vleugels et al.

Application No.: 13/560,917

Filed: July 27, 2012

For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Customer No.: 20350

Confirmation No.: 4050

Examiner: Not Yet Assigned

Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97 and §1.98

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

Commissioner:

The references cited on attached form PTO/SB/08A are being called to the attention of the Examiner. In accordance with 37 CFR §1.98(d), copies of the references can be found in:

Application No. 11/422,945, filed June 8, 2006, now U.S. Patent No. 7,826,408 (Attorney Docket No. 89863-713437);

Application No. 12/892,825, filed September 28, 2010 (Attorney Docket No. 89863-792770); and

Application No. 13/249,059, filed September 29, 2011 (Attorney Docket No. 89863-818213).

It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR §1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,

Date: August 6, 2012

Philip H. Albert
Reg. No. 35,819

KILPATRICK TOWNSEND & STOCKTON LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 415-576-0200 Fax: 415-576-0300
PHA:psc

64440422v1

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/560,917

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	95		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	310		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	125		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	30 minus 20 =	* 10	x 30 =	300	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4 minus 3 =	* 1	x 125 =	125			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	955		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.

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/560,917	07/27/2012	2472	1255	89863-001440US-846870	30	4

CONFIRMATION NO. 4050

20350
KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

FILING RECEIPT

OC00000055826743

Date Mailed: 08/10/2012

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

Applicant(s)

Katelijn Vleugels, San Carlos, CA;
Roel Peeters, San Carlos, CA;

Assignment For Published Patent Application

Ozmo, Inc., Palo Alto, CA

Power of Attorney: The patent practitioners associated with Customer Number 20350

Domestic Priority data as claimed by applicant

This application is a CON of 12/892,825 09/28/2010
which is a DIV of 11/422,945 06/08/2006 PAT 7826408
which is a CON of 11/376,729 03/14/2006 ABN
which claims benefit of 60/661,763 03/14/2005

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

If Required, Foreign Filing License Granted: 08/07/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/560,917**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
** **SMALL ENTITY** **

Title

APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Preliminary Class

370

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 (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where

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

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

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

NOT GRANTED

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

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/560,917	07/27/2012	Katelijn Vleugels	89863-001440US-846870

CONFIRMATION NO. 4050

20350
KILPATRICK TOWNSEND & STOCKTON LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

POA ACCEPTANCE LETTER

OC000000055826254

Date Mailed: 08/10/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/27/2012.

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

/emikru/

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

Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/SB/424 (09-11)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION (TRACK I) (Page 1 of 1)

First Named Inventor:	Katelijn Vleugels	Nonprovisional Application Number (if known):	
Title of Invention:	Apparatus and Method for Integrating Short-Range Wireless Personal Area Networks for a Wireless Local Area Network Infrastructure		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION (TRACK I) FOR THE ABOVE-IDENTIFIED APPLICATION.

1. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

   OR

   (b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper. (Note: Plant applications cannot be filed via EFS-Web.)

   Note: The following are excluded from the Track I program: design applications, provisional applications, national stage applications, PCT international applications, reissue applications, and reexamination proceedings.

2. The following fees (in amounts consistent with the current fee schedule available at http://www.uspto.gov/about/offices/cfo/finance/fees.jsp) are filed with the application: (1) basic filing fee; (2) search fee; (3) examination fee; (4) any required excess claims fees; (5) any required application size fee; (6) publication fee; (7) processing fee (Track I) set forth in 37 CFR 1.17(i); and (8) prioritized examination fee (Track I) set forth in 37 CFR 1.17(c).

3. An executed oath or declaration under 37 CFR 1.63 is filed with the application.

4. The application contains or is amended to contain no more than four independent claims and no more than thirty total claims, and no multiple dependent claims.

Signature	Date 7/27/2012
Name (Print/Typed) Philip H. Albert	Practitioner Registration Number 35,819

Note: *Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required in accordance with 37 CFR 1.33 and 11.18. Please see 37 CFR 1.4(d) for the form of the signature. If necessary, submit multiple forms for more than one signature, see below*.*

☑ *Total of one forms are submitted.

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
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Application Data Sheet

Application Information

Application number::	To be assigned
Filing Date::	Herewith
Application Type::	Regular
Subject Matter::	Utility
Suggested classification::	
Suggested Group Art Unit::	
CD-ROM or CD-R??::	
Number of CD disks::	
Number of copies of CDs::	
Sequence Submission::	
Computer Readable Form (CRF)?::	
Number of copies of CRF::	
Title::	Apparatus and Method for Integrating Short-Range Wireless Personal Area Networks for a Wireless Local Area Network Infrastructure
Attorney Docket Number::	89863-001440US-846870
Request for Early Publication::	No
Request for Non-Publication::	Yes
Suggested Drawing Figure::	Fig. 4
Total Drawing Sheets::	12
Small Entity?::	Yes
Latin name::	
Variety denomination name::	
Petition included?::	No
Petition Type::	
Licensed US Govt. Agency::	
Contract or Grant Numbers One::	
Secrecy Order in Parent Appl.::	No

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Correspondence Information

Correspondence Customer Number:: 20350

Representative Information

Representative Customer Number:: 20350

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This Application	Continuation of	12/892,825	09/28/10
12/892,825	Division of	11/422,945	06/08/06
11/422,945	Continuation of	11/376,729	03/14/06
11/376,729	An Appn claiming benefit under 35 USC 119(e) of	60/661,763	03/14/05

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64440571v1

Attorney Docket No.: 89863-001440US-846870

PATENT APPLICATION

APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

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APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This is a continuation of U.S. Patent Application No. 12/892,825, filed September 28, 2010, which is a divisional application of U.S. Patent Application No. 11/422,945, filed June 8, 2006, which is a continuation of U.S. Patent Application No. 11/376,729, filed March 14, 2006, and claims the benefit of U.S. Provisional Patent Application No. 60/661,763, filed on March 14, 2005. Each of the referenced applications are incorporated by reference herein in their entirety for all purposes, and the present application also incorporates by reference herein U.S. Patent Application No. 11/376,753, filed March 14, 2006, hereinafter referred to as "Vleugels I" and U.S. Provisional Patent Application No. 60/661,746.

FIELD OF THE INVENTION

[0002] The present invention generally relates to wireless communications. More particularly, the invention relates to seamlessly integrating short-range wireless personal area networks ("WPANs") into longer-range wireless local area networks ("WLANs").

BACKGROUND OF THE INVENTION

[0003] Fig. 1 depicts some parameters associated with a few existing and emerging standards for wireless connectivity. Based on targeted range and supported data rates, these standards can be grouped into four categories: wireless wide area networks ("WWANs"), wireless metropolitan area networks ("WMANs"), wireless local area networks ("WLANs") and wireless personal area networks ("WPANs").

[0004] An example of a wireless local area network ("WLAN") is an 802.11x (x=a, b, g, n, etc.) network. An 802.11x NIC (network interface card) or 802.11x built-in circuitry might be used for networking an electronic device to the outside world, or at least to devices at other nodes of a WLAN 802.11x network.

[0005] The 802.11x specifications uses unlicensed, free spectrum in either the 2.4 GHz or 5 GHz frequency bands, supporting data rates of up to 54 Megabits per second (Mbps) and

ranges of 300 feet and more. The 802.11x standard, also known as Wi-Fi, was adopted several years ago, and is now being widely deployed for WLAN connectivity in homes, offices and public places like airports, coffee shops and university campuses.

[0006] The adoption and deployment of 802.11x-compliant equipment has experienced tremendous growth in recent years. The majority of laptops manufactured today include a built-in wireless circuit compliant with some variant of the 802.11x standard. While originally devised for enabling wireless network connectivity ("wireless Ethernet"), WLAN connectivity based on the 802.11x standard is rapidly finding its way in new applications like mobile phones - primarily driven by the adoption of Voice-over-IP ("VoIP") - and consumer electronics (home entertainment, video streaming, etc.). In addition, with the development of the new 802.11n specification, and the proliferation of citywide 802.11x deployment initiatives, the 802.11x standard is expanding into longer range applications.

[0007] Fig. 2 illustrates a typical 802.11x WLAN configuration in infrastructure mode 1. Although the 802.11x standard supports two modes of operation, namely ad-hoc mode and infrastructure mode, the infrastructure mode is used more often. In the infrastructure mode, a dedicated 802.11x wireless circuit, also called an access point ("AP"), is necessary for and manages an infrastructure network. AP 2 is configured specifically to coordinate the activities of the infrastructure network and to enable connectivity to, for example, the Internet or other WLANs via an Internet router 3, which may be disposed in AP 2. Other 802.11x-compliant wireless circuits, hereafter alternatively referred to as stations ("STAs") 4 can become a member of the infrastructure network by going through an authentication and association procedure. Additional security procedures may be required as well. Once associated with the infrastructure network, a STA 4 can communicate with AP 2. A STA 4 may communicate with other STAs 4 of infrastructure network 1 via AP 2. Furthermore, a STA 4 may communicate with STAs of other infrastructure networks (not shown) via AP 2. On a regular basis, the STAs listen to the beacons and pending traffic from the AP 2.

[0008] In contrast to WLAN, no such unifying standard exists for WPAN. Instead, a number of proprietary and standardized communication protocols have been and are being developed for establishing short-range WPAN connectivity. Standardized protocols include the Bluetooth specification (based on the IEEE 802.15.1 standard), the recently approved Zigbee specification (based on the IEEE 802.15.4 standard), and the Ultra-Wideband ("UWB") specification which is still under development. In addition, there are several

proprietary protocols in the unlicensed 27 MHz, 900 MHz, and 2.4 GHz frequency bands developed for the sole purpose of providing short-range wireless connectivity. Examples include Cypress Semiconductor's proprietary wireless USB solution, or Logitech's proprietary FastRF solution. The lack of a unified standard is hindering the widespread adoption of WPAN technologies. In addition, several WPAN communication protocols co-exist in the same 2.4-GHz frequency band as a commonly used version of the WLAN protocol. Because they use different methods of accessing the wireless medium, and are not synchronized with one another, severe interference may result when devices conforming to such standards are made to co-exist and are positioned in the same physical vicinity.

[0009] One alternative for avoiding the above mentioned problems when seeking to establish interoperability between WPAN and WLAN networks, is to use network interface circuitry based on the WLAN protocol in WPAN STAs. However, the power dissipation of the resulting STA would be several orders of magnitude higher than what is acceptable in typical WPAN applications. WPAN technologies are typically used to establish communication with a remote battery-operated device for which it is inconvenient, impractical, or may be impossible to replace batteries. Examples include security sensors in windows, wearable or implanted medical monitoring devices or environmental sensors to monitor temperature, humidity or other environmental parameters. To minimize the frequency at which batteries need replacement, maximizing the battery life is of paramount importance, thus placing stringent requirements on the power that can be dissipated in establishing and maintaining the wireless communication link.

[0010] The power dissipation of a standard WLAN STA is several orders of magnitude higher than what is acceptable in most battery-operated devices for a number of reasons. First, in order to be able to communicate with the AP, which may be, for example, 300 feet away, a standard WLAN STA transmits at high transmit powers (up to 20 dBm) and is also required to receive relatively weak signals, attenuated heavily by the path loss it encounters in the over-the-air transmission. Second, the WLAN must adhere to stringent receiver sensitivity requirements. Both the transmit and receive requirements result in relatively large power dissipation in the network interface circuits. Furthermore, WLANs typically operate at relatively high data rates (up to 54 Mbps). It is thus undesirable to have a STA that is part of an infrastructure network to communicate at lower data rates, since such a STA will slow down the entire infrastructure network. This is the case because some of the communication between the AP and its associated STAs occurs at the lowest common data rate supported by

all STAs. The noise and linearity requirements associated with transmitting at high data rates thus result in large power dissipation of the wireless 802.11x wireless circuit. Furthermore, there is significant protocol overhead associated with the services and procedures required to establish and maintain an association with an infrastructure network. This overhead translates directly in higher power dissipation. As a member of an infrastructure network coordinated by an AP, the STA has, on a regular basis, to listen to the beacons transmitted by the AP. Also, although the 802.11x standard specifies power save modes that allow the STA to skip some of the beacons, the STA is still required to wake up on a regular basis to maintain association and synchronization with the AP.

[0011] Accordingly, a need continues to exist for a method and apparatus that overcome the above-described problems and enable seamless integration of WPAN into WLAN infrastructure, and at power dissipation levels that meet the stringent requirements of battery-operated devices.

BRIEF SUMMARY OF THE INVENTION

[0012] A wireless hub for integrating a wireless personal area network ("WPAN") seamlessly into a wireless local area network ("WLAN") includes, in part, a wireless circuit compliant with the WLAN standard, a processor coupled to the wireless circuit and a memory module that is coupled to the wireless circuit and the processor.

[0013] In some embodiments, the WLAN standard is the 802.11x standard. In such an embodiment, the wireless circuit is an 802.11x-compliant wireless circuit, and the memory module may be integrated with the wireless circuit. The hub further includes software modules forming a software platform that allows the wireless circuit to connect to both the WPAN and WLAN. In accordance with one embodiment, the software platform allows the wireless circuit to connect to the WPAN, without losing connectivity (such as association and synchronization) to the WLAN. In another embodiment, the wireless circuit is configured to connect to the WLAN and WPAN alternately. In some embodiments, an operating system enables the operation of the wireless hub, thereby enabling users to write application-specific application software. The operating system may be Windows XP, Windows CE, Linux, Symbian, or the like, that may be used to develop additional applications.

[0014] In accordance with one embodiment, the wireless hub is seamlessly integrated into an electrical power outlet. This allows the hub to be unobtrusively and conveniently

integrated in a home, business or industrial setting. Such embodiments are hereinafter alternatively referred to as "Wi-Fi-enabled power outlets". As is known, "Wi-Fi" is often used to refer to "wireless fidelity", and refers to 802.11x-based radio technologies.

[0015] Advantageously, the present invention extends the communication range of power-sensitive battery-operated devices and allows power-sensitive battery operated devices to become part of the larger WLAN infrastructure, thus enabling monitoring and control from any location that is within the range covered by the WLAN In addition, since battery-operated devices are IP addressable and since the AP of the WLAN can be connected to the Internet via an Internet router, the battery-operated devices may be monitored and controlled from any location when access to the Internet is available. The longer communication range and seamless integration into the larger WLAN infrastructure is obtained without incurring the power penalty that is typically unavoidable in longer range communication and is inherent to the protocol overhead of typical WLAN networks.

[0016] Other objects, features, and advantages of the present invention will become apparent upon consideration of the following detailed description and the accompanying drawings, in which like reference designations represent like features throughout the figures.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Fig. 1 depicts a number of parameters associated with a few existing and emerging standards for wireless connectivity, as known in the prior art.

[0018] Fig. 2 illustrates some of different components of an 802.11x WLAN in infrastructure mode, as known in the prior art.

[0019] Fig. 3 illustrates an apparatus configured to integrate a wireless personal area network ("WPAN") into a wireless local area network ("WLAN"), in accordance with an embodiment of the present invention.

[0020] Fig. 4 illustrates a number of WPANs integrated into a WLAN, in accordance with one embodiment of the present invention.

[0021] Fig. 5 is a simplified high-level block diagram of a power-sensitive station ("PS-STA"), in accordance with an embodiment of the present invention

[0022] Fig. 6 is a simplified high-level block diagram of a wireless hub configured for use as a bridge between a WPAN and a WLAN.

[0023] Fig. 7 illustrates a WPAN used for remote monitoring and controlling, in accordance with one embodiment of the present invention.

[0024] Fig. 8 is a block diagram illustrating various devices operating as part of a primary wireless network ("PWN"), a secondary wireless network ("SWN"), or both, wherein the SWN operates using an SWN protocol that co-exists with the PWN protocol.

[0025] Fig. 9 is a block diagram illustrating a subpart of the elements of Fig. 8, in greater detail.

[0026] Fig. 10 is a block diagram illustrating a secondary network including multiple WPAN peripherals ("PERs").

[0027] Fig. 11 illustrates method to coordinate the communication between a WPAN coordinator ("COORD") and multiple WPAN peripherals.

[0028] Fig. 12 illustrates an alternative frame exchange sequence for the coordination of multiple WPAN peripherals.

DESCRIPTION OF THE INVENTION

[0029] Fig. 3 illustrates a wireless personal area network ("WPAN") 10 integrated with wireless local area network ("WLAN") 6 to form an integrated network 5, in accordance with one embodiment of the present invention. In the embodiments described below, WLAN 6 is compliant with the 802.11x specification. It is understood, however, that the WLAN may be compliant with other protocols, such as WiMax. WLAN 6 may operate either in ad-hoc or in infrastructure mode. Moreover, the following description is provided with reference to the infrastructure mode of operation of WLAN 6. It is understood that the present disclosure equally applies to the ad-hoc or any other mode. The infrastructure WLAN 6 is shown as including an AP 7 and one or more STAs 8. STAs 8 are associated with and synchronized to AP 7 and periodically listen to beacons from AP 7.

[0030] Each STA 8 is configured to include an 802.11x-compliant wireless circuit, such as a wireless enabled computer, a wireless Personal Digital Assistant, a Wi-Fi enabled cellular phone, or the like. The AP 2 can be connected to the Internet via an Internet router 9. Internet connectivity can be established through any number of communication services, including Digital Subscriber Line ("DSL"), cable, satellite, or the like, as is well known.

[0031] WPAN 10 is shown as including one or more power-sensitive stations 11 ("PS-STA"). A PS-STA is defined herein as a device that is battery-operated and for which maximizing battery-life is beneficial to the application and/or user. Examples of PS-STAs include peripherals and accessories for personal computers, cellular phones, home entertainment accessories such as remote controls, monitoring devices for security, automation medical applications, or the like.

[0032] In accordance with one embodiment, a PS-STA is typically in a sleep mode the majority of the time, only waking up occasionally to communicate and exchange information with the outside world. In some systems described herein, each PS-STA 11 is equipped with a wireless circuit that can communicate directly with a standard 802.11x-compliant wireless circuit. PS-STAs 11 however are not required to be fully compliant with the 802.11x specification; some PS-STAs 11 may have reduced power dissipation thereby extending the battery life.

[0033] In embodiments in which PS-STAs 11 are not fully compliant with the 802.11x specification, the drivers or firmware of the 802.11x-compliant wireless circuit at the other end of the communication link (i.e., the device with which the PS-STA is interacting) may require modification. Thus, in some implementations, both the wireless circuit at the other end as well as the PS-STA are 802.11x-compliant, while in others the wireless circuit at the other end is 802.11x-compliant, but the PS-STA is not a fully compliant 802.11x wireless circuit, while in yet other implementations the driver or firmware of the 802.11x-compliant wireless circuit at the other end of the link requires modifications to accommodate the PS-STA. Integrated network 5 is also shown as including a wireless hub 12 adapted to facilitate seamless communication between the WLAN and the WPAN. The wireless hub 12 includes, in part, a wireless 802.11x-compliant wireless circuit that can communicate with the AP 7 disposed in infrastructure WLAN 6 as well as with PS-STAs 11 disposed in WPAN 10. If more than one PS-STA is present in the WPAN, the wireless hub coordinates the timing and communication with each of the PS-STAs. In some embodiments, it may be desirable to shift as much as possible of the protocol overhead associated with the communication between wireless hub 12 and the PS-STAs 11 such as, for example, access to the medium, reservation of the medium, synchronization, etc., onto the wireless hub 12, where power consumption is much less of a concern compared to the PS-STA. In such cases, the driver or firmware of the 802.11x-compliant components disposed in wireless hub 12 may require modification

[0034] To operate, wireless hub 12 is placed within the range of the AP 7 of the infrastructure WLAN 6; this range is typically on the order of 300+ feet. The wireless hub 12 is also be placed within the range of each of the PS-STAs 11 in the WPAN 10 The PS-STAs 11 typically have a range of about 30 feet. This range can be longer or shorter depending on the application.

[0035] In one embodiment, the wireless hub 12 (alternatively referred to herein below as a "hub") is seamlessly integrated within an electrical power outlet. In a different embodiment, the hub can be a separate device that can be plugged into a power outlet. The wireless hub 12 can also be integrated inside other electronic devices, such as light bulbs, light switches, thermostats, energy meters, personal computers, Personal Digital Assistants ("PDAs"), cellular phones, home entertainment equipment and the like.

[0036] In some embodiments, a multitude of WPANs 13 may be so configured so as to be coupled to and in communication with a single WLAN 14, as shown in Fig. 4. Each WPAN 13 is coupled to the WLAN 14 by using a wireless hub 15, as described above. If WPANs 13 are configured to operate independently, no additional coordination is required and each wireless hub 15 decides autonomously when to communicate with each of its respective PS-STAs under its control. However, in cases where additional coordination between the different WPANs is desirable, the necessary timing and control information can be exchanged between the wireless hubs 15 via the longer-range WLAN 14.

[0037] Fig. 5 illustrates some of the components disposed in a PS-STA 11, in accordance with one embodiment. PS-STA 11 typically includes, in part, a battery 16, a sensor or stimulus unit 17, a clock or crystal 18, a wireless circuit 19 and an antenna 20. Although not shown, other components like capacitors, resistors, inductors, an external power amplifier ("PA") and an external low-noise amplifier ("LNA") may also be included in PS-STA 11. Wireless circuit 19 is configured so as to communicate over the physical layer ("PHY") of a standard 802.11x-compliant circuit chip disposed in the wireless hub (see Figs. 3 and 4). Wireless circuit 19 may be an embedded System-on-Chip ("SoC"), having disposed therein a radio 21 operating, for example, in the unlicensed 2.4-GHz and/or 5-GHz frequency bands, a baseband modem 22, dedicated control and datapath logic 23, a central processing unit ("CPU") 24, a memory module 25 and interface circuitry 26. CPU 24 and memory module 25 are used to implement the portion of the communication protocol that is not implemented in the dedicated control and datapath logic (also referred to as the 802.11x device drivers),

together with any application-specific software. Wireless circuits are well known in the art and are not described herein.

[0038] Fig. 6 shows various blocks of a wireless hub, such as wireless hubs 12 and 15 shown respectively in Figs. 3 and 4, in accordance with one embodiment. The wireless hub acts as a pivot and provides communication between the corresponding WPAN and WLAN. The wireless hub includes an 802.11x-compliant wireless circuit 27, a processing unit 28 coupled to or integrated with the 802.11x-compliant circuit, a memory module 29 that is coupled to or integrated with the 802.11x-compliant circuit, a crystal or clock 30, and an antenna 38. The 802.11x-compliant circuit 27 is shown as including a radio 31 operating, for example, in the unlicensed 2.4-GHz and/or 5-GHz frequency bands, a baseband modem 32, and dedicated control and datapath logic 33. Interface circuitry 34 provides an interface to the processing unit 28 and memory module 29. Wireless hub may be connected to the power grid, in which case no batteries are needed to operate the device. Regulator 35 is adapted to regulate the supply. The wireless hub may further include various passive components like capacitors, resistors and/or inductors and an external power amplifier ("PA") and/or external low-noise amplifier ("LNA") (not shown).

[0039] The wireless hub further includes a number of software modules forming a software platform 36 that enable circuit 29 to communicate with both the WPAN and WLAN. In one embodiment , the software platform 36 enables circuit 27 to connect to the WPAN, without losing connectivity (such as association and synchronization) to the WLAN , as described in Vleugels I. Circuit 27 can be connected to the WLAN and WPAN in alternating cycles, however added latency would be incurred.

[0040] In some embodiments, the wireless hub may further include an operating system 37 that may be used to write application-specific software. The operating system may be, for example, Windows XP, Windows CE, Linux, Symbian, or any operating system that may enable writing of applications.

[0041] The processing unit 28 and memory module 29 are used to implement that portion of the communication protocol that is not implemented in dedicated control and datapath logic; this portion of the communications protocol is referred to as the 802.11x device driver. If the communication protocol between the wireless hub and a PS-STA is modified to reduce power consumption of the PS-STA, the 802.11x device driver may also require slight modification to accommodate such changes. The CPU and memory module are also used for

the implementation of the software platform that enables concurrent or alternating WLAN/WPAN connectivity, and can furthermore be used to run application-specific software.

[0042] The following example is provided to further aid in understanding the invention. Fig. 7 illustrates a WPAN used for remote monitoring and controlling, in accordance with one embodiment of the present invention. A user desires to check one or more security monitoring devices 39 inside or around his house 40 while at work 41. Each security monitoring device is a PS-STA and is wirelessly connected to a Wi-Fi-enabled power outlet 42. The Wi-Fi-enabled power outlet is furthermore within the range of a WLAN infrastructure network 43 which the user is assumed to have set up at his home.

[0043] The WLAN infrastructure network 43 is adapted to establish communication with the Internet via an Internet router 44 that is coupled to the AP 45. At the office, the user has access to a laptop 46 that is equipped with an 802.11x-compliant wireless circuit. This circuit is associated with a WLAN infrastructure network 47 that has been set up in the user's office 41. The WLAN network 47 is adapted to establish communication with the Internet via an Internet router 48 that is coupled to the infrastructure's network AP 49. The connection at the office may be wireless or wired. In a wired office environment, the user's laptop is hooked up directly through the Internet router 48 with a cable, without making use of the WLAN 47.

[0044] Application software on the user's laptop 46 allows the user to poll information from a specific PS-STA at home. To do so, the user sends a poll request, which contains the information required to unambiguously identify the PS-STA of interest, and possibly additionally information about the data to be retrieved. Destination address information includes the address of the router 44, the address of the Wi-Fi-enabled power outlet 42 that controls the PS-STA of interest and the address of the PS-STA 39 itself. PS-STA address is typically required where multiple PS-STAs are connected to, for example, a single Wi-Fi-enabled power outlet. The poll request is transmitted over the WLAN 47 in the office, and via Internet router 48 transported over the Internet to the Internet router 44 at the home. At the user's home, the poll request is directed to the Wi-Fi-enabled power outlet that coordinates the PS-STA of interest. The Wi-Fi-enabled power outlet receives this request over the home's infrastructure WLAN. If the requested information has already been retrieved from the PS-STA during a previous data transfer event, the Wi-Fi-enabled power

outlet responds to the poll request by sending the requested information over the home's infrastructure WLAN 43 to the Internet router that is connected to the home's WLAN AP. The requested information is transported over the Internet to the Internet router at the office, and from there directed to the user's laptop over the offices WLAN infrastructure network. Application software on the user's laptop receives the information and presents it to the user. In case the requested information has not yet been previously retrieved from the PS-STA, the Wi-Fi-enabled outlet does so during the next scheduled WPAN communication event. The timing of the occurrence of this event, depends, in part, on the power management techniques used for the WPAN communication.

[0045] To conserve power, the PS-STAs are typically mostly in sleep mode and only occasionally wake up as needed to transmit or receive data and/or control signals. When connected to the WPAN coordinated by the Wi-Fi-enabled power outlet 42, a PS-STA 39 is synchronized to the Wi-Fi-enabled power outlet 42, which as part of the infrastructure network, is in turn synchronized to the AP 45. The synchronization between the PS-STAs and the Wi-Fi-enabled power outlet ensures that the Wi-Fi-enabled power outlet is in WPAN mode at the same time that a PS-STA wakes up to transmit or receive. The above example describes an instance where the information from a single PS-STA is remotely accessed, using a Wi-Fi-enabled power outlet. It is understood that the wireless hub does not have to be a Wi-Fi-enabled power outlet, and may be any wireless hub, as described above. Furthermore, it is understood that multiple PS-STAs may be connected to a single as well as to multiple wireless hubs. The present invention may also be used to activate or steer PS-STAs, in addition to monitoring or retrieving information.

[0046] In some embodiments, rather than having data transfer be triggered by a poll request, the PS-STAs may also transmit data to the wireless hub periodically. In such embodiments, the retrieved data can be stored and/or processed locally on the wireless hub, or, alternatively, be transferred to a different location.

[0047] The association of a PS-STA with a wireless hub may or may not be static. In some embodiments, the PS-STA may be attached to a moving object, in which case the nearest wireless hub is dynamic and may change over time. This scenario is common in the context of medical monitoring/treatment. In such embodiments, medical sensors and stimulus devices in, on and around a person's body communicate to a nearby wireless hub that acts as a seamless bridge between the low-power WPAN and the longer-range WLAN. As the

person/patient moves around the house, the nearest wireless hub may change over time. In such applications, seamless transitioning between wireless hubs is carried out and includes dynamic association capabilities inside the PS-STA, as well as software on the wireless hub side to seamlessly handle the required hand-offs among wireless hubs. The present invention is also applicable, for example, to the following situations:

[0048] - Remote medical monitoring

[0049] - Medical monitoring/treatment in hospitals

[0050] - In-house monitoring and control from any location to any location

[0051] - Industrial monitoring/warehouse monitoring

[0052] - Home automation

[0053] - Energy metering

[0054] - PC, cell phone and home entertainment peripherals and accessories

[0055] The following are among the advantages of embodiments of the present invention:

[0056] - Cost savings associated with infrastructure/hardware re-use

[0057] - Integration of low-power short-range networks in the ubiquitous WLAN infrastructure results in cost savings since already-present hardware can be re-used. Little or no dedicated set up is required to enable the short-range connectivity

[0058] - IP-addressable PS-STAs, enabling remote monitoring

[0059] - Low-power short-range networks typically act as isolated networks. As a consequence, such networks can only be accessed when in close vicinity. This enables access to the WPAN from any location that is within the coverage area of the WLAN, or even from a remote location. Unlike other low-power wireless technologies, the power-sensitive nodes described herein are IP-addressable and, consequently, can be monitored and/or controlled from any location that has Internet access.

[0060] - Long-range connectivity is achieved, without putting the associated burden on the power-sensitive device

[0061] - The burden of achieving long-range connectivity is shifted away from the power-sensitive device onto the wireless hub. Since typically, the wireless hub is a powered device, power dissipation is not much of an issue.

[0062] - As a result, a power-sensitive battery-operated device can be connected to the ubiquitous WLAN infrastructure without having to bear the consequences in terms of power dissipation and protocol overhead that are typically associated with this.

Specific Examples

[0063] A WPAN is a short-range wireless network, with typical coverage ranges on the order of 30 feet, usable to connect peripherals to devices in close proximity, thereby eliminating cables usually present for such connections. For example, a WPAN might be used to connect a headset to a mobile phone or music/audio player, a mouse or keyboard to a laptop, a PDA or laptop to a mobile phone (for syncing, phone number lookup or the like), etc. Yet another example of a WPAN application is a wireless medical monitoring device that wirelessly connects monitoring hardware to a pager or similar read-out device. Yet another example is a remote control that connects to a wireless-enabled electronic device.

[0064] A WPAN is generally used for the interconnection of information technology devices within the range of an individual person, typically within a range of 10 meters. For example, a person traveling with a laptop will likely be the sole user of that laptop and will be the same person handling the personal digital assistant ("PDA") and portable printer that interconnect to the laptop without having to plug anything in, using some form of wireless technology. Typically, PAN nodes interact wirelessly, but nothing herein would preclude having some wired nodes. By contrast, a WLAN tends to be a local area network ("LAN") that is connected without wires and serves multiple users.

[0065] Communication with the WPAN device might use an SWN protocol that is only partially compliant with the protocol used over a conventional WLAN and might do so without interference from the conventional WLAN, yet usage of the WLAN is such that the WPAN device and computing device can communicate without interference. To reduce interference, the computing device coordinates the usage of the wireless medium with devices of a WLAN that may be active in the same space. Coordination is achieved by the use of a secondary network (WPAN) protocol that is an overlay protocol that is partially compatible with the WLAN protocol, but not entirely, in terms of power, frame contents and

sequences, timing, etc. The secondary network (WPAN) protocols might be 802.11x frames with new frame arrangements adapted for WPAN needs, such as reduced latency, power etc. The computing device might determine to signal the primary network (WLAN) such that devices therein defer so that communications can occur with the secondary network.

[0066] In the general example, the computing device is a portable and/or mobile computing and/or communications device with some computing capability. Examples of computing devices include laptop computers, desktop computers, handheld computing devices, pagers, cellular telephones, devices with embedded communications abilities and the like. Examples of peripheral devices include typical computer, telephone etc. accessories where wireless connections are desired, but might also include less common devices, such as wearable devices that communicate with other devices on a person or even to communicate with other nearby devices, possibly using the electrical conductivity of the human body as a data network. For example, two people could exchange information between their wearable computers without wires, by transmission through the air, or using their bodies and/or clothing.

[0067] The computing devices may interface to 802.11 WLANs or other wireless networks to communicate with other network nodes, including nodes accessible through wired connections to the wireless network (typically via an access point). The computing devices also may interface to PAN devices over a WPAN, such as wireless headsets, mice, keyboards, accessories, recorders, telephones and the like. A wide variety of PAN devices are contemplated that are adapted for short-range wireless communications, typically bi-directional and typically low power so as to conserve a PAN device's limited power source. Some PAN devices might be unidirectional, either receive-only or transmit-only, devices.

[0068] In a typical approach, where a STA needs to connect to more than one wireless network, the STA associates with one wireless network and then when associating with another wireless network, it disassociates with the first wireless network. While this is useful for a WLAN where a STA might move out of one network's range and into the range of another network, this is not desirable when latency needs to be less than an association set-up time. The latency incurred with this switching procedure easily amounts to several hundreds of milliseconds.

[0069] In certain applications, it may be desirable for a STA to connect to multiple networks without incurring long switching-induced latencies. For example, consider a typical PER device, that of a cordless mouse. Since update rates for a cordless mouse during normal operation are on the order of 50 to 125 times per second, switching-induced latencies involved with 802.11x association set ups are not acceptable. Furthermore, the switching overhead significantly reduces the STA's usable communication time, defined as the time that the STA is available to transmit or receive data.

[0070] In a specific embodiment of the invention, a wireless peripheral like a mouse, is attached to an 802.11x-enabled computing device like a laptop computer, using the 802.11x wireless circuitry inside the laptop, or connected to the laptop via a NIC card. At the same time, the laptop may be connected to the Internet via a regular WLAN network, using the same 802.11x circuitry. Herein, a peripheral or WPAN node will be referred to as "PER". Multiple PERs can connect to a single WPAN. The wireless device coordinating the WPAN is called the coordinator ("COORD"). Where the COORD is also able to connect to the 802.11x network, the COORD is referred to as a "dual-net" device, since it handles both networks. A typical dual-net device in this example is a device that is a STA on an 802.11x network while also having wireless peripherals used by applications running on that device.

[0071] While not always required, the PERs are power-sensitive devices. It should be understood that an object labeled "PER" need not be a peripheral in the sense of an object with a purpose to serve a particular purpose, but rather an object that performs the behaviors herein referred to as behaviors of a WPAN node. For example, a printer can be a PER when it is connected to a desktop computer via a WPAN, but some other device not normally thought of as a peripheral can be a PER if it behaves as one.

[0072] Fig. 8 illustrates various devices operating as part of a primary wireless network ("PWN") 100, a secondary wireless network ("SWN") (such as 114 or 116), or both. In the figure, an access point ("AP") 110 supports an infrastructure mode for PWN 100, coupling various stations to the network allowing, for example, network traffic between a station and a wired network 112. By communicating with the AP, a station can retrieve information from the Internet and exchange data with other stations that may or may not be part of the Basic Service Set ("BSS") managed by the AP.

[0073] As shown in the example, the stations present are STA1, STA2, STA3 and STA4. Each station is associated with a node in PWN 100 and has the necessary hardware, logic,

power, etc. to be a node device in PWN 100. Station STA1 also coordinates SWN 114 as the COORD for that network shown comprising PER1, PER2 and PER3. Likewise, station STA4 coordinates SWN 116 as the COORD for the network comprising STA4, PER10 and PER11. In Fig. 8, each node device is shown with an antenna to indicate that it can communicate wirelessly, but it should be understood that an external antenna is not required.

[0074] Other network components and additional instances might also be present. For example, more than one AP might be present, there might be overlaps of BSSes and other network topologies might be used instead of the exact one shown in Fig. 8 without departing from the scope of the invention. Examples used herein for PWN 100 include 802.11x (x=a, b, g, n, etc.), but it should be understood that the primary wireless network may well be another network selected among those in present use or available when the primary wireless network is implemented.

[0075] In this example, the secondary wireless networks are assumed to be used for WPAN functionality. The WPAN can be used for, but is not limited to, fixed data rate applications where exchange of data can be scheduled and the amount of data to be exchanged is known and a single dual-net device might interface with multiple PERs. Because the dual-net device may be a regular STA in the first WLAN, it can power-down as needed without problems, unlike an access point. However, since it is also the COORD, peripheral communication could be lost if the peripheral is powered up but the dual-net device/COORD is not. This can be dealt with using mutually agreeable inactivity periods.

[0076] Fig. 8 shows, at a high level, the interplay among various nodes of various networks. Fig. 9 illustrates a subpart of the elements of Fig. 8, illustrating in greater detail. In this figure, AP 110 is coupled to wired network 112 via cable 120 and might communicate using any suitable wire-based networking protocol. On the other side, AP 110 transmits signals to a station device, in this case a laptop 122, using the AP's antenna and those signals are received by laptop 112 using its antenna. Signals can also flow in the other direction. Such communications would be done according to a PWN protocol, such as an 802.11x protocol.

[0077] Laptop 122 (a dual-net device in this example) in turn can communicate with the peripherals shown, in this example a wireless mouse ("PER1") 124 and a wireless printer ("PER2") 126. It may be that power for wireless printer 126 comes from an external power outlet, in which case power consumption might be less of a concern than with mouse 124 if it

operates on battery power. Nonetheless, both peripherals might use the same power-saving protocol. Power conservation might also be performed on the dual-net device, for example, when it is a laptop.

[0078] To conserve power at the WPAN device and the computing device, they can agree on an inactivity time and disable at least a part of a coordination function of the computing device following a start of the inactivity time, wherein disabling is such that less power per unit time is consumed by the network circuit relative to power consumed when not disabled.

Coordination of Multiple PERs

[0079] When a secondary network includes multiple PERs as illustrated in Fig. 10, it may be desirable to coordinate data exchanges in order to minimize the power dissipation, as well as to minimize the WM occupancy. A method to coordinate the communication between a COORD and multiple PERs is shown in Fig. 11.

[0080] At time T_0, the COORD and PERs are programmed to start the frame exchange. If power-save modes are implemented in the COORD or the PERs, a wake-up request will be issued prior to T_0, to ensure that all necessary circuits are powered up at time T_0. At time T_0, the COORD contends for the WM and, optionally using the highest priority queue (AC-VO) transmits a first frame, *frame 1*. The duration field of this frame has been increased to reserve the WM for the subsequent frame transmission by the PERs of the secondary network that are scheduled for a frame exchange during the current frame exchange sequence. The duration field might have been passed during the pairing state, so that the PER and COORD both know and agree on its value.

[0081] Furthermore, *frame 1* contains a list of PERs it expects to respond, as well as an offset for each scheduled PER. At the specified offset, each PER is awake and responds with a frame containing its data (*frame 2P1* and *frame 2P2*). Optionally, the COORD acknowledges error free reception of the frame, or the COORD can respond with a frame that includes data to be transmitted from the COORD to the frame. Optionally, the PER acknowledges error free reception of the latter frame. Optionally, PERs can return to sleep during the time slots where the COORD is communicating with other PERs.

[0082] If one or more of the transmissions were not successful, the COORD may send an additional frame immediately following the above described frame sequence to reserve the medium for additional time to allow for retransmissions. This frame contains the PERs for

which retransmission is desirable as well as the corresponding offsets for each PER. PERs that received acknowledgment of their transmission do not have to wake up to listen to this additional frame. In one embodiment, it may be left up to a PER to decide whether it will consider retransmission.

[0083] An alternative frame exchange sequence for the coordination of multiple PERs is illustrated in Fig. 12. In this embodiment, the COORD polls each PER individually. At the start of a Service Period ("SP"), the COORD contends for the WM and after gaining access to the WM, the COORD polls the PERs in its secondary network one by one with 1 SIFS space intervals. The latter avoids the situation where the COORD has to contend for the WM for each PER in its secondary network.

[0084] To conserve power in the PERs, the expected time for communication with each PER can be pre-calculated based on the number of PERs that are scheduled to be polled prior to the respective PER and their scheduled traffic size.

[0085] In case a transmission fails, a retransmission mechanism can be initiated. Alternatively, the COORD may poll the next PER and come back to the failed transmission later, after it has polled all other PERs for which a traffic stream ("TS") has been set up.

[0086] Before entering the ACTIVE state, a COORD and PER first go through the PAIRING and CONNECTION states. The first step in establishing a new connection is device PAIRING. Device pairing comprises the first time configuration steps for linking a PER to a COORD.

Device Discovery

[0087] During a device discovery procedure, MAC address information is exchanged between the COORD and the PER. A dedicated configuration pushbutton or a simple user action will be used to initiate device discovery. Upon such user intervention, the COORD and PER both enter a "limited discoverable mode" for a certain period of time that is long enough to finish the device discovery procedure. Both COORD and PER can initiate the discovery procedure. The device that initiates the discovery procedure is called the "initiator"; the other device is hereafter referred to as the "follower".

[0088] Upon entering discoverable mode, the initiator sends a *broadcast discovery request*. The broadcast discovery request is a broadcast frame, and may contain information such as the initiator's MAC address, and the type of devices that should respond. A follower in

discoverable mode responds to a broadcast discovery request with a *discovery response*. The discovery response frame is a unicast frame that is addressed to the initiator.

[0089] For security reasons, it is advisable that the amount of information exchanged while in discoverable mode is minimized. However, if appropriate, additional information can be exchanged during the device discovery procedure. For example, if generated by the COORD, the broadcast discovery frame may optionally contain information on the WLAN connectivity status (infrastructure/ad-hoc/unconnected, operating channel, power-save, etc.). If generated by the PER, the broadcast discovery frame may optionally contain information about the type of PER.

[0090] In one embodiment, the COORD acts as the initiator and sends an IEEE802.11 probe request frame. The SSID parameter of the broadcast probe request frame may be used to communicate specific information to the PER, in this case the follower. More specifically, the SSID field in the frame body can be used as a frame type identifier and to send additional information to a follower. For example, specific bits of the SSID can be used to identify the over-the-air protocol. Other bits of the SSID can be reserved to identify the frame as a broadcast discovery request frame. The remainder of the bits can be reserved or used to communicate additional information about the COORD or the WLAN it is associated with to the PER (follower).

[0091] In another embodiment, a data frame or standard or proprietary IBSS beacon frame or other management frame is used as a broadcast discovery request frame.

[0092] Upon receiving the broadcast device discovery request frame, the PER in discoverable mode (the follower) responds by sending a unicast discovery response frame. This can be a unicast IEEE802.11 probe response frame. The probe response frame is addressed to the initiator, and structured such that it is recognized as a discovery response frame by the initiator. Alternatively, the discovery response frame can be a data frame formatted to be recognized by the COORD as a discovery response frame.

[0093] A device discovery channel can be pre-defined in the protocol. In that case, an initiator put into discoverable mode will, by default, start sending broadcast discovery requests on the pre-defined channel, and a follower put in discoverable mode will, by default, listen for a broadcast discovery request on the pre-defined channel.

[0094] When device discovery is initiated, and no device discovery channel is pre-defined, the initiator and follower may need to search for each other. Either the initiator or the follower may perform this search. If the initiator performs the search, the follower listens on a fixed channel, while the initiator scans different channels, by subsequently transmitting broadcast discovery request frames on different channels. Alternatively, when the follower performs the search, the initiator transmits broadcast discovery request frames on a fixed channel at $T_{discovery}$ time intervals, while the follower performs a passive scan by listening for a broadcast discovery request on different channels. Note that the follower should stay on a single channel for at least $T_{discovery}$ to ensure it will capture a broadcast discovery frame.

[0095] At the conclusion of the device discovery procedure, at a minimum, the initiator and follower have knowledge of each other's MAC address and current operating channel of the COORD's primary network.

Variations

[0096] Other variations should be apparent upon review of this disclosure.

[0097] While the present invention has been described herein with reference to particular embodiments thereof, a latitude of modification, various changes, and substitutions are intended in the present invention. In some instances, features of the invention can be employed without a corresponding use of other features, without departing from the scope of the invention as set forth. Therefore, many modifications may be made to adapt a particular configuration or method disclosed, without departing from the essential scope and spirit of the present invention. It is intended that the invention not be limited to the particular embodiments disclosed, but that the invention will include all embodiments and equivalents falling within the scope of the claims.

WHAT IS CLAIMED IS:

1. A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability;

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first network connection using a first network protocol and a second network connection using a second network protocol, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent with the first network protocol; and

data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in one of the first and second networks and the destination node is a node in the other of the first and second networks.

2. The network-enabled hub of claim 1, further comprising a routing module for receiving a poll request that contains information required to unambiguously identify a station that is a node in the second network, wherein the routing module coordinates retrieval of information from the station.

3. The network-enabled hub of claim 1, wherein the first network connection provides a link via an access point of a wireless LAN and the second network connection provides a link to a personal area network ("PAN") serving PAN devices, such that network nodes that have access to the wireless LAN can address packets to PAN devices that are nodes on the PAN.

4. The network-enabled hub of claim 1, wherein the first network protocol is an 802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol of

the first network but can be maintained in a common wireless space as the 802.11x wireless protocol.

5. The network-enabled hub of claim 1, wherein the network-enabled hub includes logic to coordinate a mutually agreeable inactivity period between the network-enabled hub and wireless personal area network ("WPAN") devices such that the WPAN devices can enter a sleep mode and occasionally wake up to transmit or receive data and/or control signals, with the network-enabled hub and WPAN devices synchronized so that the network-enabled hub is able to communicate with WPAN devices when WPAN devices wake up.

6. The network-enabled hub of claim 1, further comprising the wireless radio circuit interfaced to the logic for processing data, wherein the wireless radio circuit supports communications on both the first network and the second network.

7. The network-enabled hub of claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to transmit on more than one radio band.

8. The network-enabled hub of claim 1, wherein the wireless radio circuit and the logic for processing data are configured to allow the network-enabled hub to alternate connectivity between the first network connection and the second network connection.

9. The network-enabled hub of claim 1, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.

10. The network-enabled hub of claim 1, wherein the first network connection is for a network having a first operating range and the second network is for a network having a second operating range, where the first operating range is larger than the second operating range.

11. The network-enabled hub of claim 1, wherein the data forwarding logic further comprises logic for uniquely identifying the destination node from data received from the originating node such that the network-enabled hub can use that data to transmit data into the second network.

12. The network-enabled hub of claim 11, wherein the data identifying the destination node is a network address of the destination node.

13. The network-enabled hub of claim 11, wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node.

14. A computing device having therein a network-enabled hub, comprising hardware and software, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability, the radio circuit configured to handle 802.11x packet transmissions, and wherein the wireless radio circuit supports communications on both a wireless local area network ("WLAN") and wireless personal area network ("WPAN");

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining network connections with nodes of the WLAN and WPAN external to the network-enabled hub, maintaining at least a first network connection using a first network protocol, of the WLAN, and a second network connection using a second network protocol, of the WPAN, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are partially consistent, but not entirely consistent, with the first network protocol, and wherein the first network protocol is an 802.11x wireless protocol and the second network protocol is a modification of the 802.11x wireless protocol of the first network but can be maintained in a common wireless space as the 802.11x wireless protocol;

logic for data forwarding between an originating node that is a node in of one of the first and second networks and a destination node that is a node in of the other of the first and second networks;

at least one software module forming a software platform that allows the wireless radio circuit to connect to both the WLAN and the WPAN, and coordinate retrieval of information from the station; and

an operating system that enables operation of the network-enabled hub and execution of user-written application-specific application software for the network-enabled hub,

wherein the first network connection provides a link via an access point of the WLAN and the second network connection provides a link to the WPAN serving PAN devices, such that network nodes that have access to the WLAN can address packets to WPAN devices that are nodes on the WPAN and packets can be conveyed from a WPAN device, through the network-enabled hub, to the access point and from there to a destination over the Internet from the access point, and wherein the WPAN device's access to the Internet is via the network-enabled hub.

15. The computing device of claim 14, wherein the WPAN devices are IP addressable.

16. The computing device of claim 14, wherein the WPAN devices are a computer accessory, a telephone accessory, a wearable device, a wireless headset, a wireless mouse, a wireless keyboard, a wireless recorder, or a wireless telephone.

17. The computing device of claim 14, wherein the computing device is a component of a portable computing device, a mobile computing device, a communications device with computing capability, a laptop computer, a desktop computer, a handheld computing device, a pager, or a cellular telephone.

18. The computing device of claim 14, wherein the logic for data forwarding further comprises logic for uniquely identifying the destination node from data in a data packet received from the originating node and transmit data into the second network using that unique identification of the destination node.

19. An electronic device having an ability to communicate wirelessly and configured to support functions requiring messages to be sent, or data to be received, to destination nodes not directly accessible by wireless communication circuits of the electronic device, the electronic device comprising:

a processor;

a memory;

control logic for generating a message based on inputs to the electronic device, wherein the message comprises data that depends on the inputs received and uniquely identifies a destination node on a network that is accessible using a first wireless

network protocol but not accessible using a second wireless network protocol used by the electronic device;

datapath logic for generating addressing information of an address of a network-enabled hub accessible directly by the electronic device using the second wireless network protocol, the address being of a network-enabled hub capable of sending messages to the destination node using the second wireless network protocol;

a wireless radio circuit that can send and receive data wirelessly between the electronic device and the network-enabled hub;

an interface between the processor and the wireless radio circuit for sending and receiving data wirelessly and processing that data.

20. The electronic device of claim 19, wherein the data identifying the destination node is a network address of the destination node.

21. The electronic device of claim 19, wherein the data identifying the destination node is an Internet Protocol (IP) address of the destination node.

22. The electronic device of claim 19, wherein the electronic device is a remote control for a home entertainment accessory.

23. The electronic device of claim 19, further comprising a battery for powering the electronic device and further wherein the electronic device is configured to wirelessly communicate with a network-enabled hub that is powered such that wireless communication power is not a constraint on the network-enabled hub.

24. The electronic device of claim 19, wherein the first wireless network protocol provides a link via an access point of a wireless LAN and the second wireless network protocol provides a link to a personal area network ("PAN") serving PAN devices including the electronic device.

25. The electronic device of claim 19, wherein the second wireless network protocol is an overlay protocol with respect to the first wireless network protocol in that communications using the second wireless network protocol are partially consistent with the first wireless network protocol.

26. The electronic device of claim 25, wherein the first wireless network protocol is an 802.11x wireless protocol and the second wireless network protocol is a modification of the 802.11x wireless protocol that is not entirely compliant with the 802.11x wireless protocol but can be maintained in a common wireless space as the 802.11x wireless protocol.

27. The electronic device of claim 19, further comprising logic for entering a sleep mode and synchronizing sleep periods with the network-enabled hub.

28. A network-enabled hub, usable for facilitating data communications between two or more wireless devices that are configured to communicate indirectly with each other via the network-enabled hub, comprising:

an interface to a wireless radio circuit that can send and receive data wirelessly, providing the hub with bi-directional wireless data communication capability;

logic for processing data received via the wireless radio circuit;

logic for generating data to be transmitted by the wireless radio circuit;

logic for initiating and maintaining network connections with nodes of a wireless network external to the network-enabled hub, maintaining at least a first network connection using a first network protocol and a second network connection using a second network protocol, that can be maintained, at times, simultaneously with each other, wherein the second network protocol is an overlay protocol with respect to the first network protocol in that communications using the second network protocol are consistent with the first network protocol, but the first network and the second network are distinct in that at least one node of the second network is not a node in the first network; and

data forwarding logic, implemented in the network-enabled hub using hardware and/or software, that forwards data between an originating node and a destination node, wherein the originating node is a node in of one of the first and second networks and the destination node is a node in the other of the first and second networks.

29. The network-enabled hub of claim 28, wherein the network-enabled hub is embedded into a personal computer, a cellular phone, or home entertainment equipment.

30. The network-enabled hub of claim 28, wherein the first network connection is for a network having a first operating range and the second network is for a network having a second operating range, where the first operating range is larger than the second operating range.

APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

ABSTRACT

A network system comprises a first logic block providing a link to a first network via an access point of a WLAN and a second logic block communicating with a node of a second network (such as a WPAN) and configured to provide a link between the node and the first network via the access point. The network system is configured to maintain continuous connections to both the access point and the node while receiving power. The second logic block can communicate with the node using a modified communication protocol that is only partially compliant with an 802.11x communications protocol. A wireless hub can integrate a WPAN with a WLAN including, in part, a wireless circuit compliant with the WLAN standard (such as an 802.11x standard), a processor, and a memory. The wireless circuit can connect to the WPAN without losing connectivity (such as association and synchronization) to the WLAN.

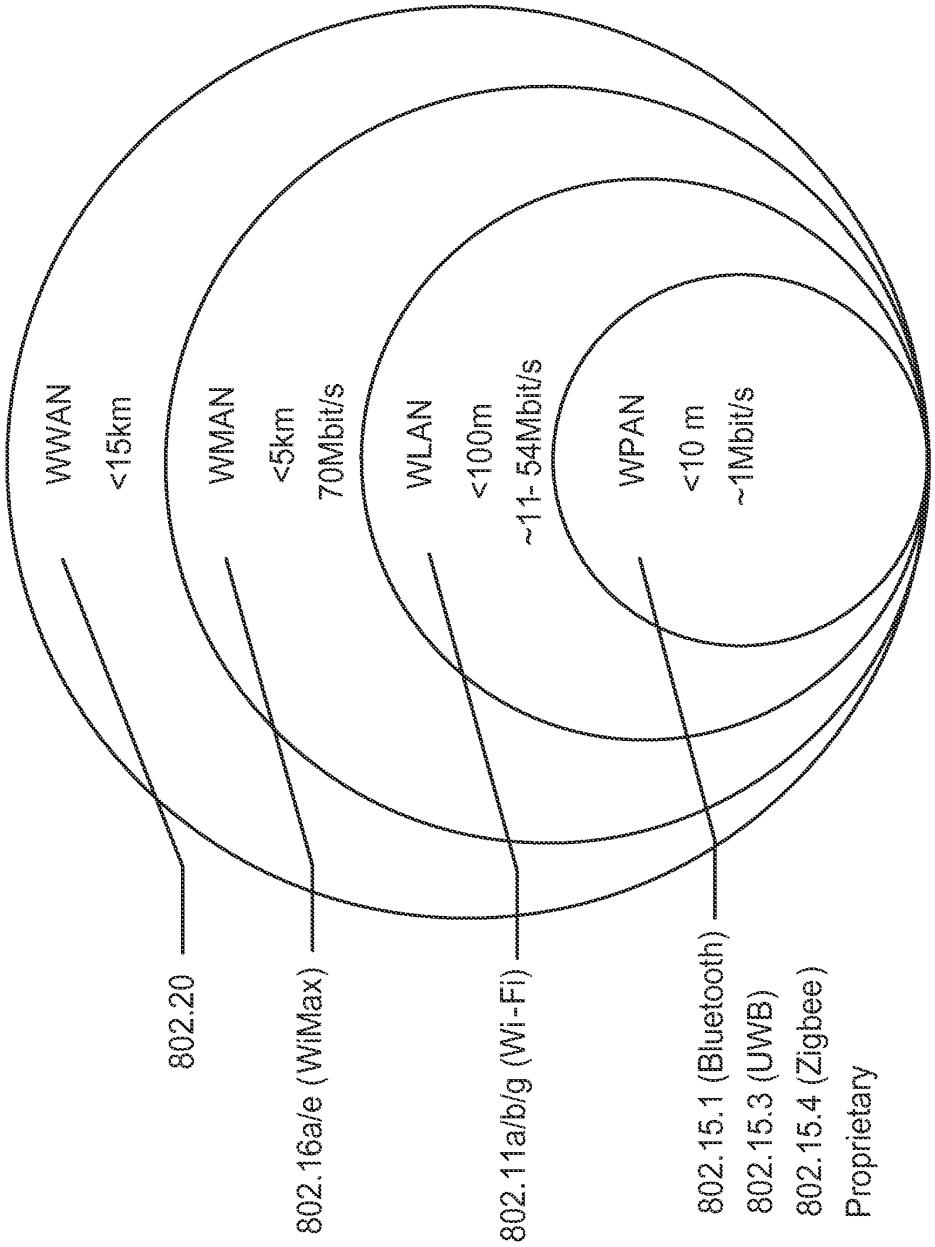

WWAN
<15km
WMAN
<5km
70Mbit/s
WLAN
<100m
~11- 54Mbit/s
WPAN
<10 m
~1Mbit/s
802.20
802.16a/e (WiMax)
802.11a/b/g (Wi-Fi)
802.15.1 (Bluetooth)
802.15.3 (UWB)
802.15.4 (Zigbee)
Proprietary

FIG. 1

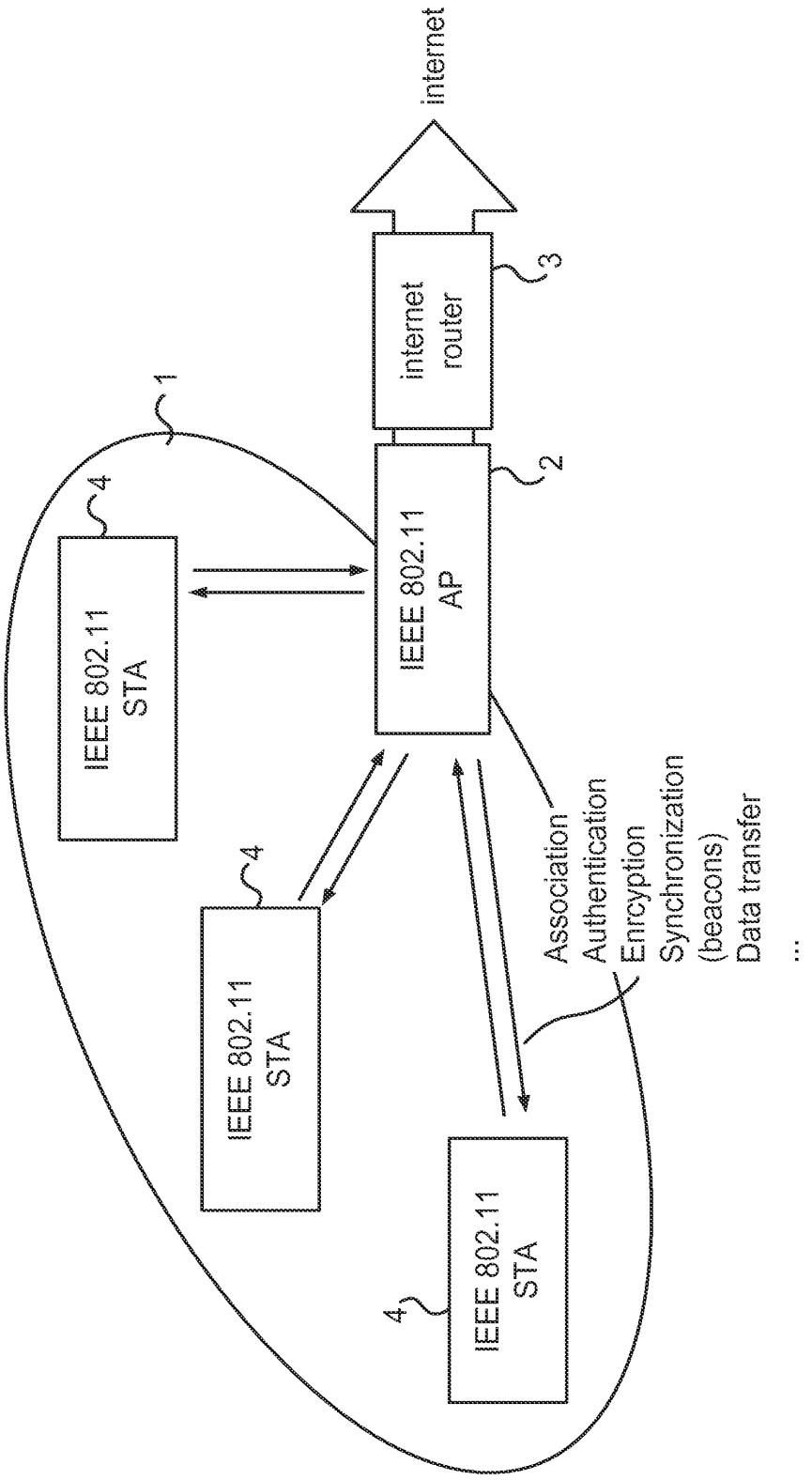

internet
internet router
3
1
2
4
IEEE 802.11 AP
IEEE 802.11 STA
IEEE 802.11 STA
IEEE 802.11 STA
Association
Authentication
Encryption
Synchronization
(beacons)
Data transfer
...

FIG. 2

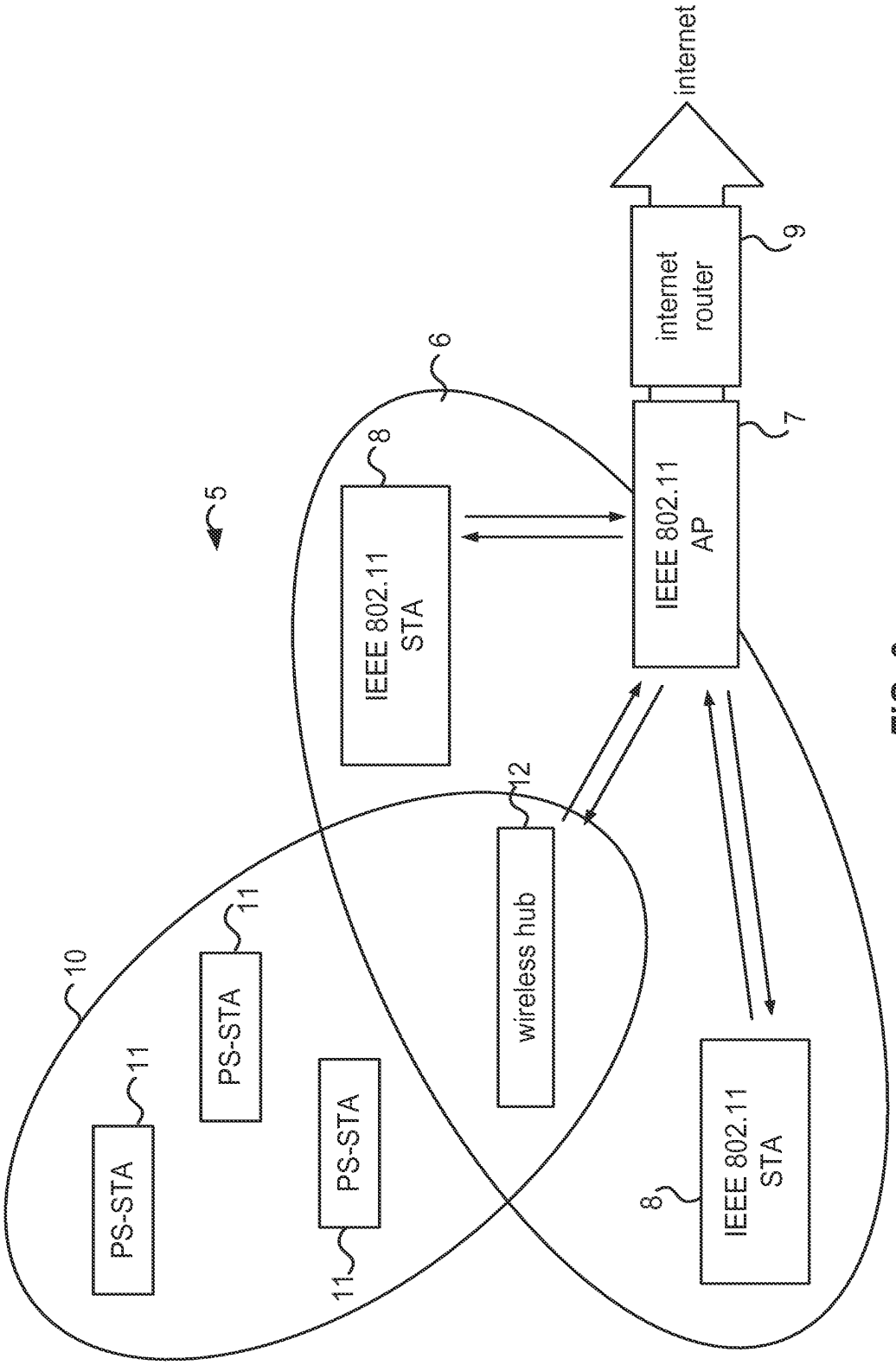

internet
internet router
9
6
8
IEEE 802.11 STA
5
IEEE 802.11 AP
7
12
wireless hub
10
11
PS-STA
11
PS-STA
11
PS-STA
8
IEEE 802.11 STA

FIG. 3

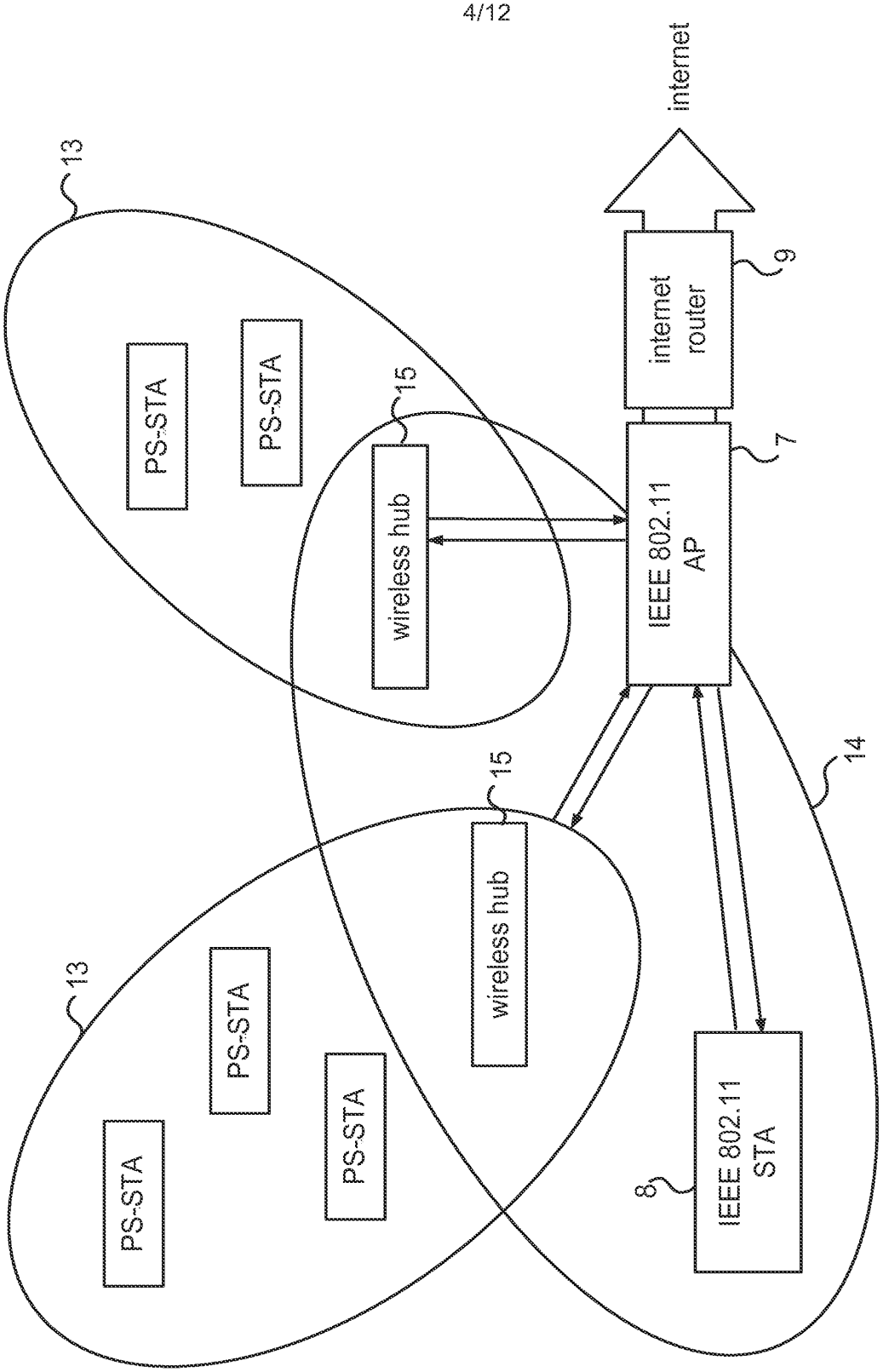

internet
13
PS-STA
PS-STA
15
wireless hub
internet router
9
IEEE 802.11 AP
7
14
15
wireless hub
13
PS-STA
PS-STA
PS-STA
8
IEEE 802.11 STA

FIG. 4

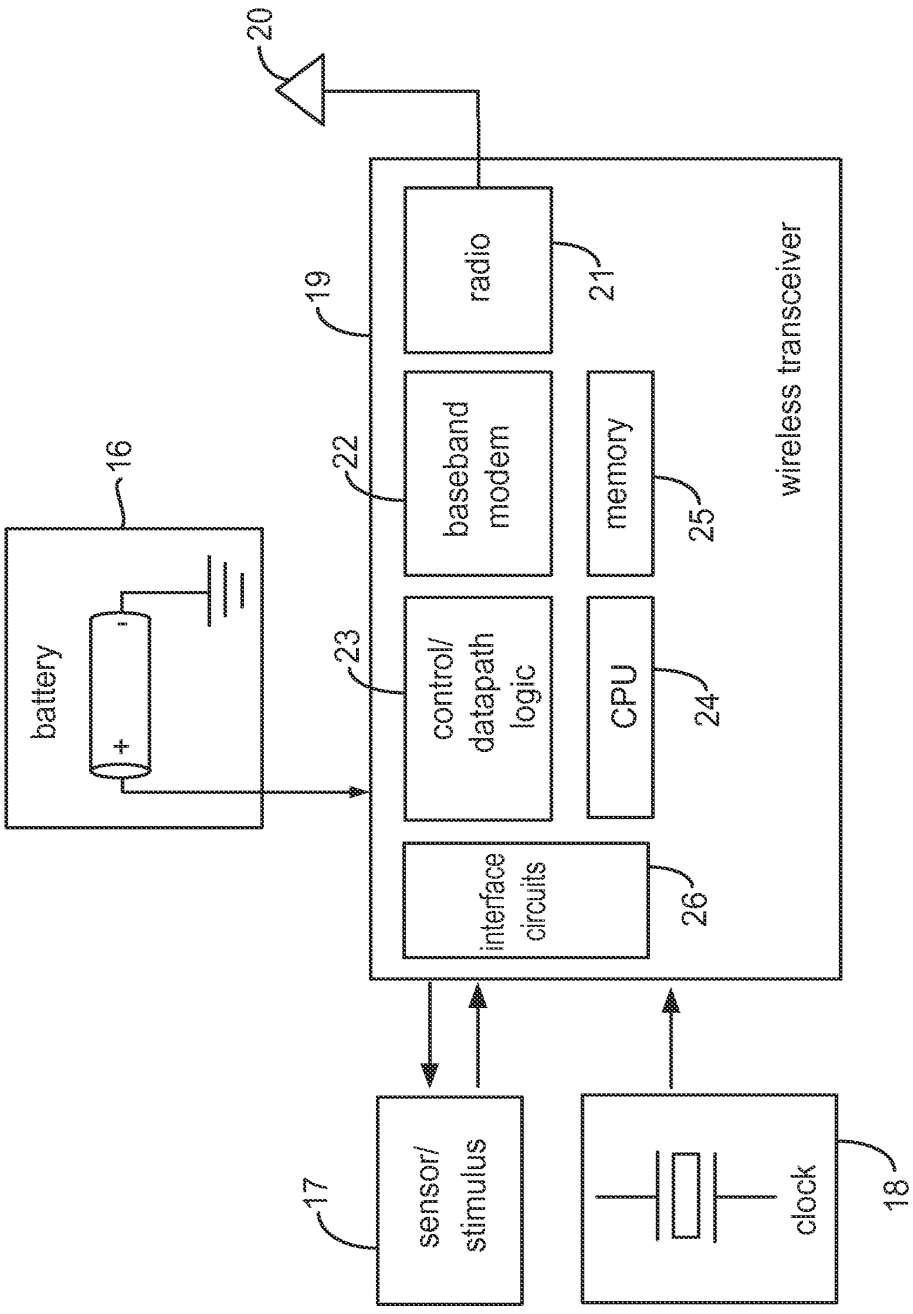

20
19
radio
21
wireless transceiver
16
22
baseband modem
memory
25
battery
+
23
control/ datapath logic
CPU
24
interface circuits
26
17
sensor/ stimulus
clock
18

FIG. 5

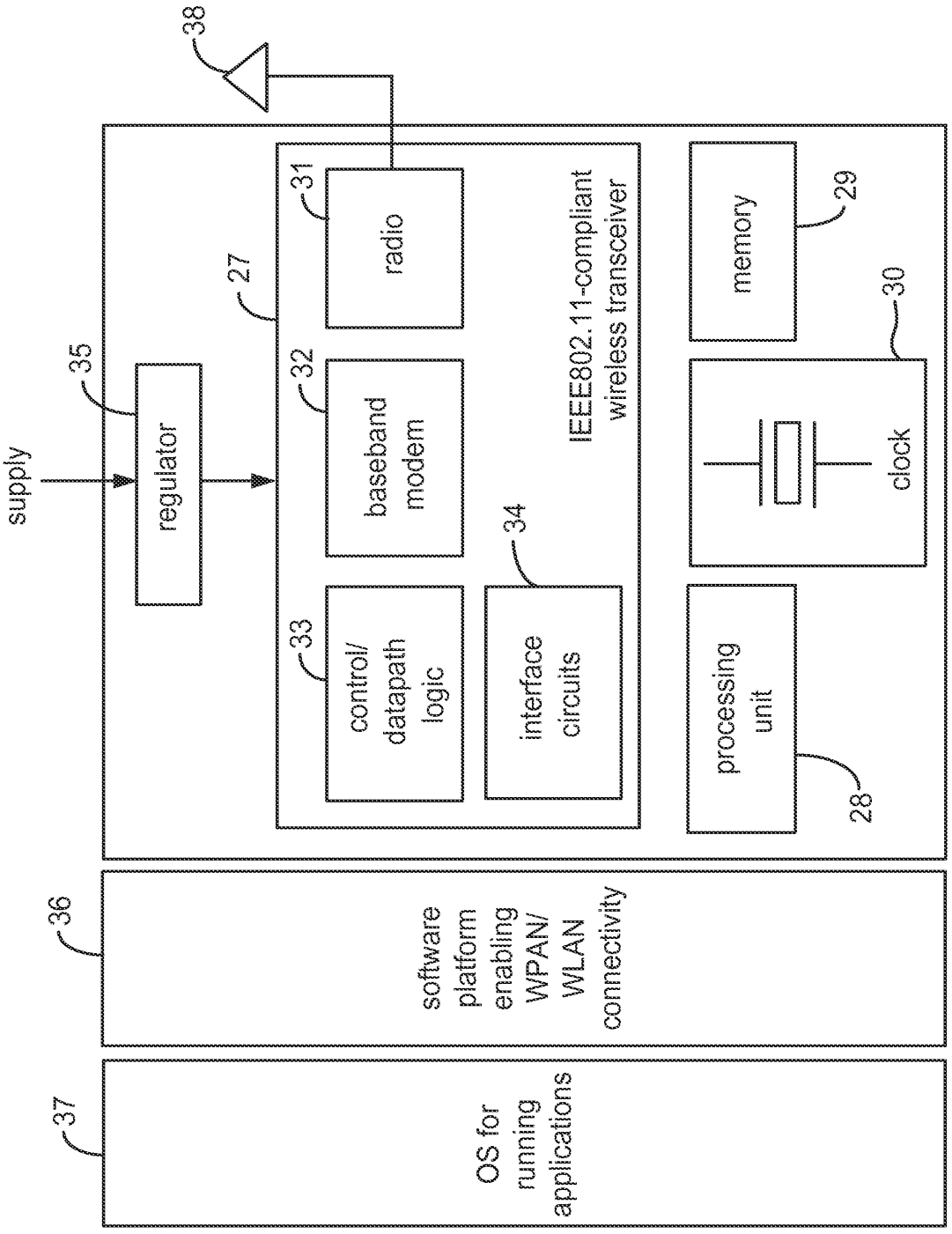

38
supply
35
regulator
27
31
radio
32
baseband modem
33
control/ datapath logic
34
interface circuits
IEEE802.11-compliant wireless transceiver
memory
29
30
clock
processing unit
28
36
software platform enabling WPAN/ WLAN connectivity
37
OS for running applications

FIG. 6

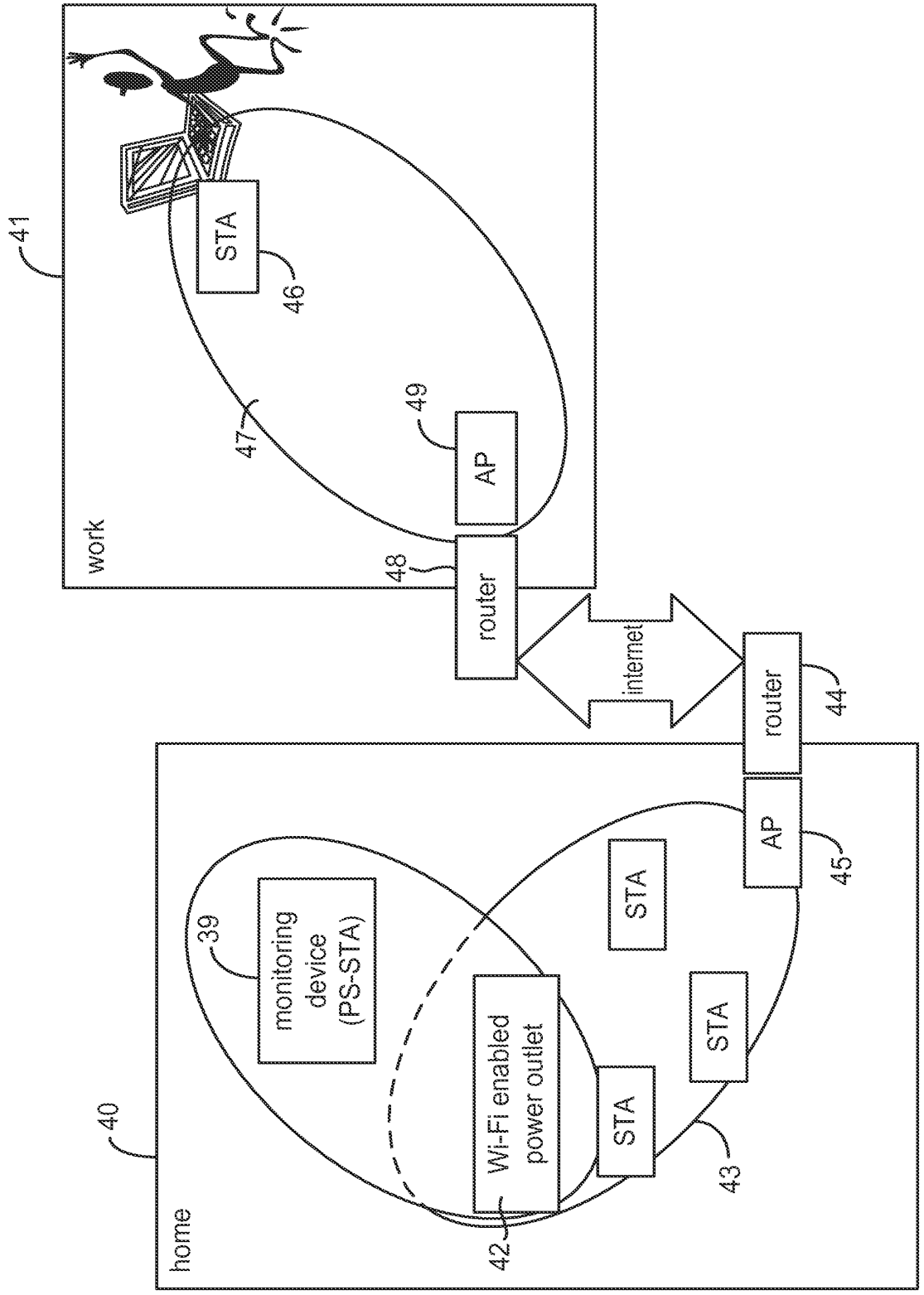

41
work
STA
46
47
49
AP
48
router
internet
router
44
AP
45
home
40
monitoring device (PS-STA)
39
Wi-Fi enabled power outlet
42
STA
STA
STA
43

FIG. 7

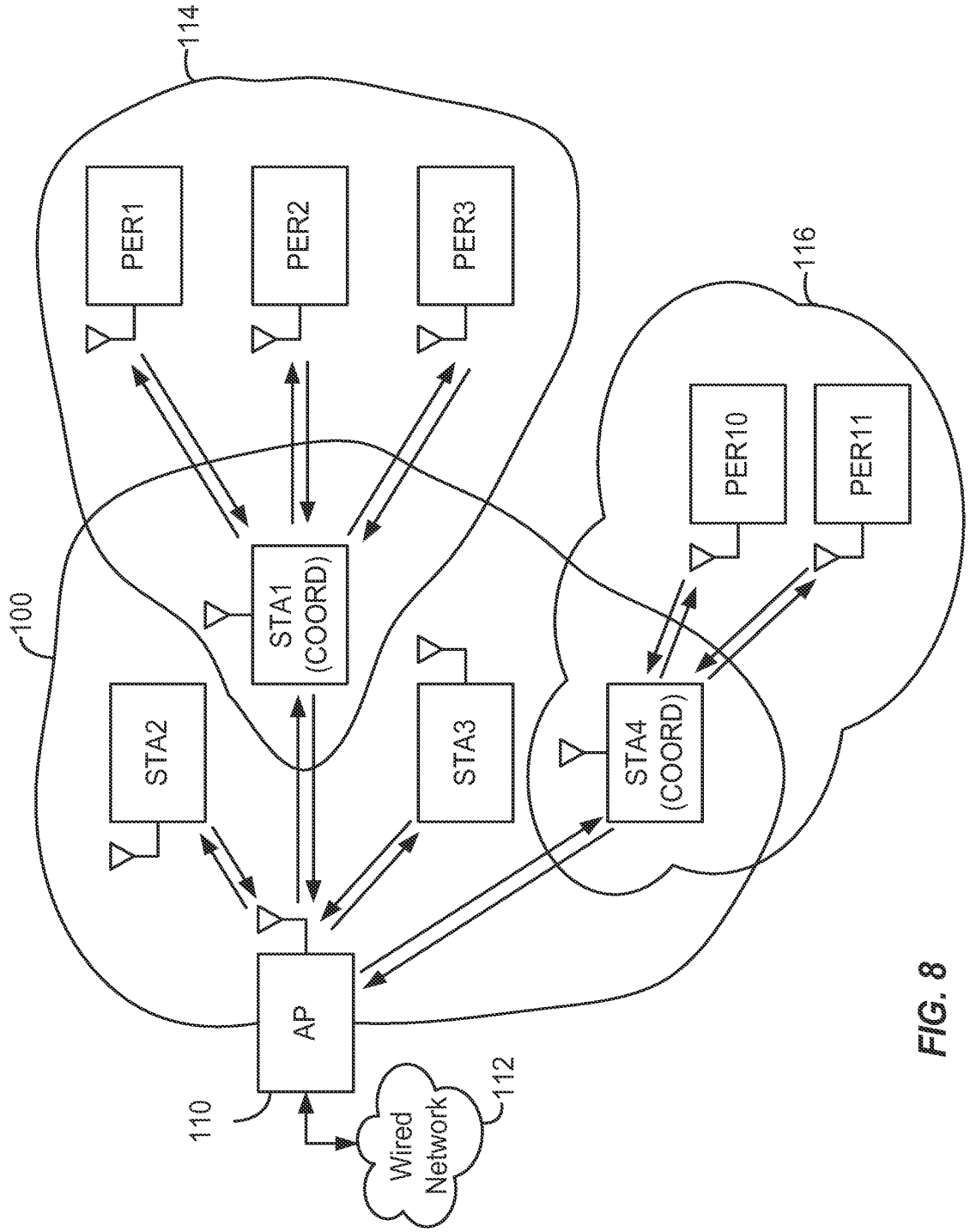

114
PER1
PER2
PER3
116
PER10
PER11
100
STA1
(COORD)
STA2
STA3
STA4
(COORD)
AP
110
Wired
Network
112

FIG. 8

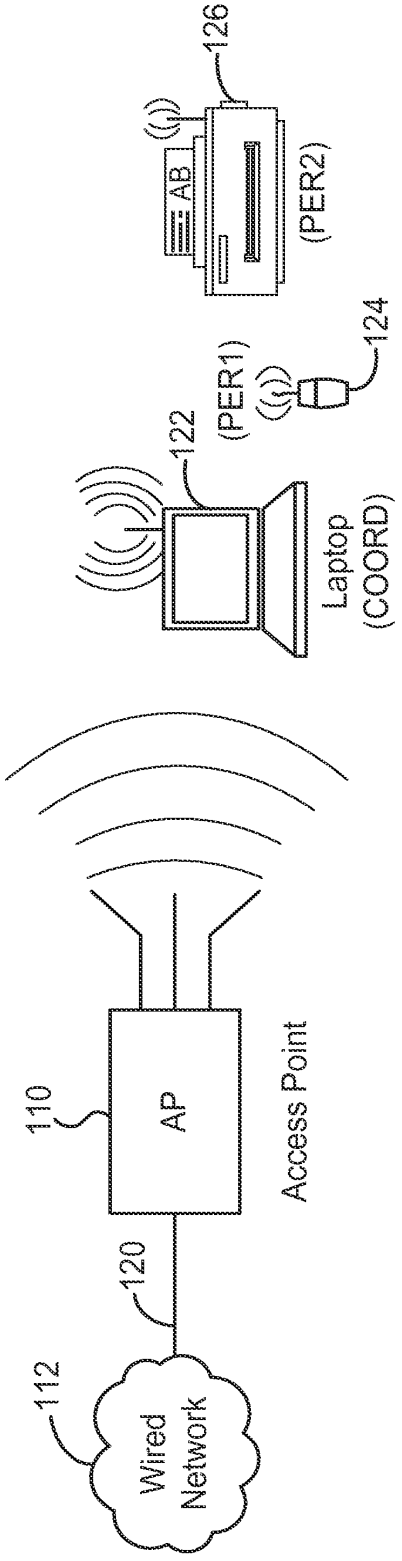

126
AB
(PER2)
124
(PER1)
122
Laptop
(COORD)
110
AP
Access Point
120
112
Wired
Network

FIG. 9

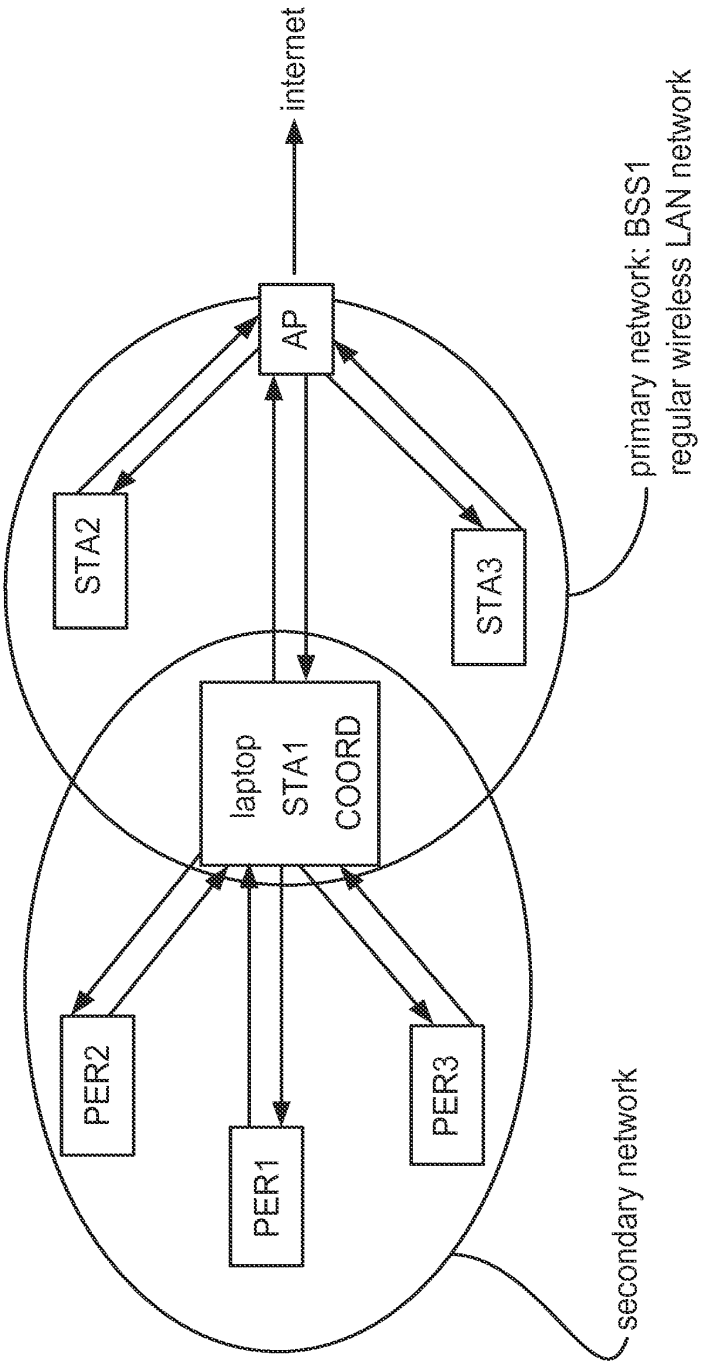

internet
AP
primary network: BSS1
regular wireless LAN network
STA2
STA3
laptop
STA1
COORD
PER2
PER1
PER3
secondary network

FIG. 10

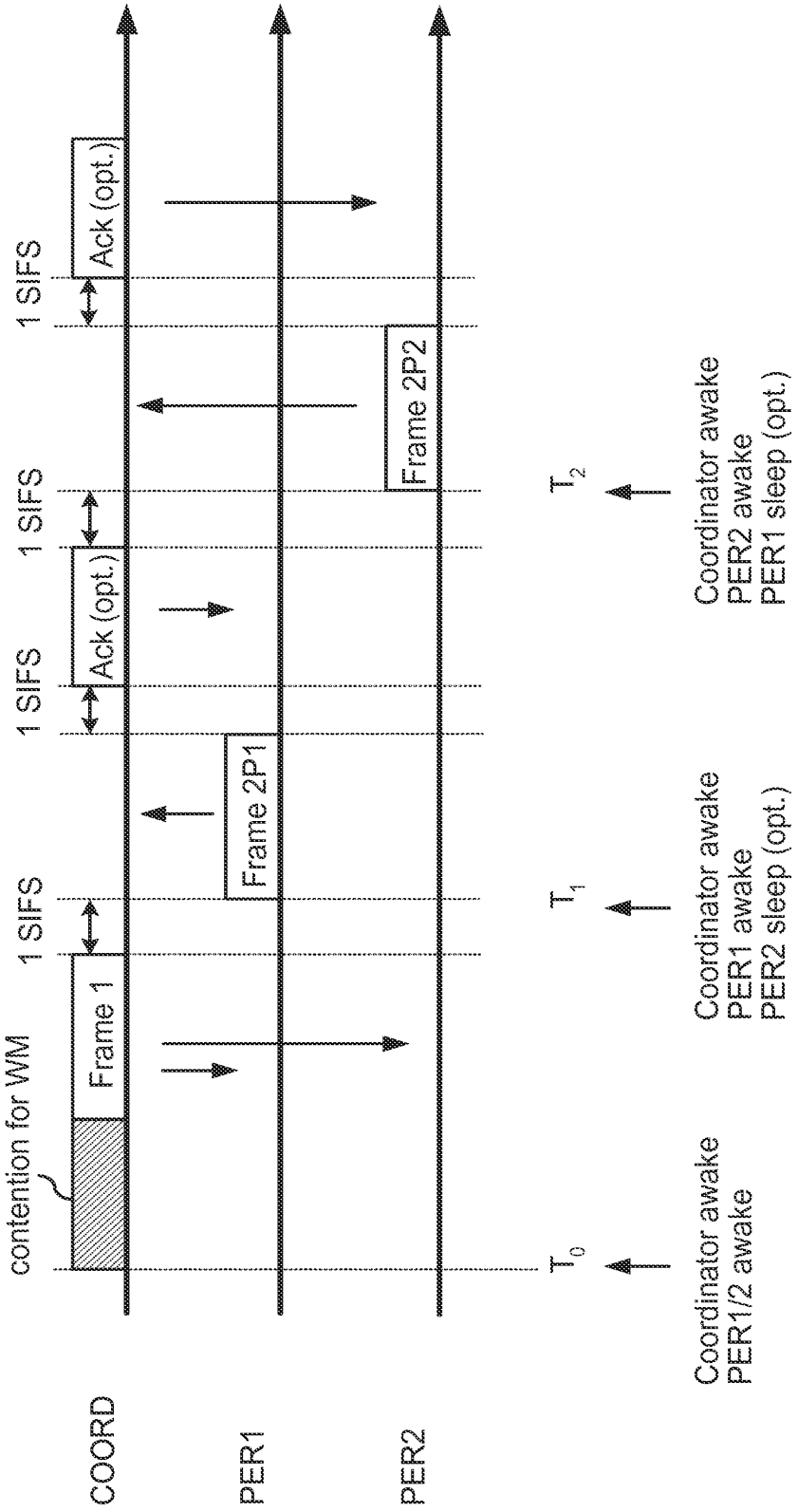

COORD
PER1
PER2
contention for WM
Frame 1
1 SIFS
Frame 2P1
Ack (opt.)
Frame 2P2
Ack (opt.)
T_0
T_1
T_2
Coordinator awake
PER1/2 awake
Coordinator awake
PER1 awake
PER2 sleep (opt.)
Coordinator awake
PER2 awake
PER1 sleep (opt.)

FIG. 11

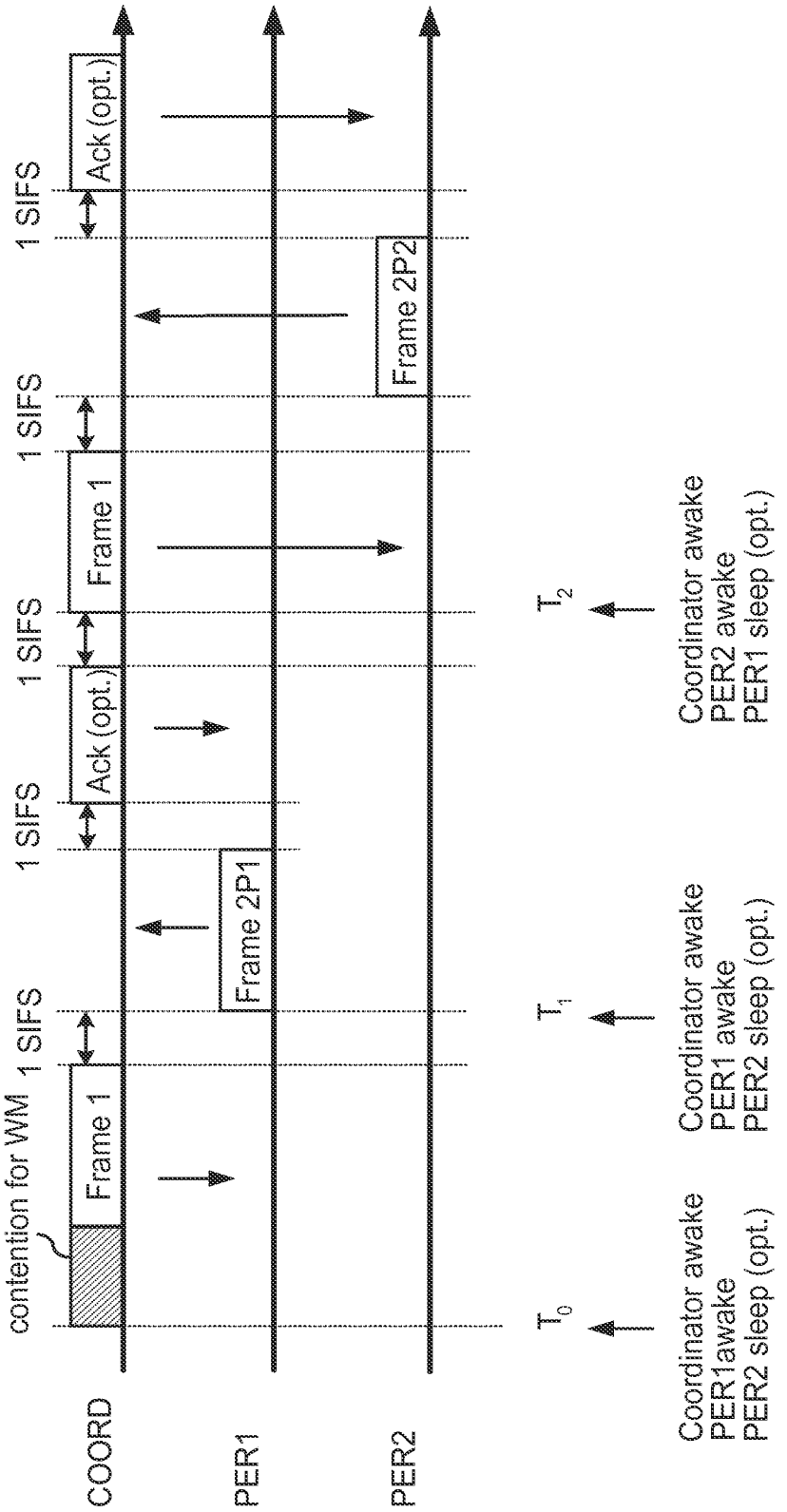

COORD
PER1
PER2
contention for WM
Frame 1
1 SIFS
Frame 2P1
Ack (opt.)
Frame 1
Frame 2P2
Ack (opt.)
T_0
T_1
T_2
Coordinator awake
PER1awake
PER2 sleep (opt.)
Coordinator awake
PER1 awake
PER2 sleep (opt.)
Coordinator awake
PER2 awake
PER1 sleep (opt.)

FIG. 12

Attorney Docket No.: 89863-001440US-846870
Client Ref. No.:

PTO/SB/01A (07-07)

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

Title of Invention	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

As the below named inventor(s), I/we declare that:

This declaration is directed to:

☒ The attached application, or

☐ Application No. _____, filed on _____,

☐ as amended on _____ (if applicable);

I/we believe that I/we am/are the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought;

I/we have reviewed and understand the contents of the above-identified application, including the claims, as amended by any amendment specifically referred to above;

I/we acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me/us to be material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT International filing date of the continuation-in-part application.

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.

All statements made herein of my/our own knowledge are true, all statements made herein on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and may jeopardize the validity of the application or any patent issuing thereon.

FULL NAME OF INVENTOR(S)

Inventor one: Katelijn Vleugels Date: 7/24/2012

Signature: _____ Citizen of: Belgium

Inventor two: Roel Peeters Date: 7/24/2012

Signature: _____ Citizen of: Belgium

☐ Additional inventors or a legal representative are being named on N/A additional form(s) attached hereto.

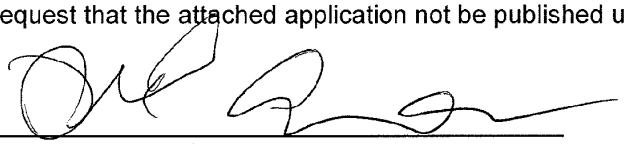
64440548V1

PTO/SB/35 (07-09)

NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)		
	First Named Inventor	Vleugels, Katelijn
	Title	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA
	Attorney Docket Number	89863-001440US-846870

I hereby 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.

I hereby request that the attached application not be published under 35 U.S.C. 122(b).



Signature

7/27/2012

Date

Philip H. Albert

Typed or printed name

35,819

Registration Number, if applicable

415-576-0200

Telephone Number

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing.**

Applicant may rescind this nonpublication request at any time. If applicant rescinds a request that an application not be published under 35 U.S.C. 122(b), the application will be scheduled for publication at eighteen months from the earliest claimed filing date for which a benefit is claimed.

If applicant subsequently files an application directed to the invention disclosed in the attached application in another country, or under a multilateral international agreement, that requires publication of applications eighteen months after filing, the applicant **must** notify the United States Patent and Trademark Office of such filing within forty-five (45) days after the date of the filing of such foreign or international application. **Failure to do so will result in abandonment of this application (35 U.S.C. 122(b)(2)(B)(iii)).**

64440540v1

PTO/SB/96 (07-09)

Attorney Docket No. 89863-001440US-846870

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Katelijn Vleugels et al.

Application No./Patent No.: _____ Filed/Issue Date: _____

Titled: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

OZMO, Inc. (Name of Assignee), a Corporation (Type of Assignee: corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;

2. ☐ an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____%); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

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.

OR

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet (s).

☒ As required by 37 CFR 3.73(b)(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.

_____ 7/27/2012
Signature Date

Philip H. Albert, Reg. No. 35,819 Attorney
Printed or Typed Name Title

64440572v1

Attorney Docket No.: 89863-001440US-846870

ASSIGNMENT OF PATENT APPLICATION

WHEREAS, Katelijn Vleugels, residing in San Carlos, CA, having a mailing address c/o Ozmo, Inc., 2595 East Bayshore Rd., Suite 100, Palo Alto, CA 94303; and Roel Peeters. residing in San Carlos, CA, c/o Ozmo, Inc., 2595 East Bayshore Rd., Suite 100, Palo Alto, CA 94303, hereinafter referred to as "Assignors," are the inventors of the invention described and set forth in the below-identified application for United States Letters Patent:

Title of Invention: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Date(s) of execution of Declaration: July 24, 2012

Filing Date:

Application No.: ; and

WHEREAS, OZMO INC., a corporation of the state of Delaware, located at 2595 East Bayshore Rd., Ste. 100, Palo Alto, CA 94303, hereinafter referred to as "ASSIGNEE," is desirous of acquiring an interest in the invention and application and in any U.S. Letters Patent and Registrations which may be granted on the same;

For good and valuable consideration, receipt of which is hereby acknowledged by Assignors, Assignors have assigned, and by these presents do assign to Assignee all right, title and interest in and to the invention and application and to all foreign counterparts (including patent, utility model and industrial designs), and in and to any Letters Patent and Registrations which may hereafter be granted on the same in the United States and all countries throughout the world, and to claim the priority from the application as provided by the Paris Convention. The right, title and interest is to be held and enjoyed by Assignee and Assignee's successors and assigns as fully and exclusively as it would have been held and enjoyed by Assignors had this Assignment not been made, for the full term of any Letters Patent and Registrations which may be granted thereon, or of any division, renewal, continuation in whole or in part, substitution, conversion, reissue, prolongation or extension thereof.

Assignors further agree that they will, without charge to Assignor, but at Assignee's expense, (a) cooperate with Assignee in the prosecution of U.S. Patent applications and foreign counterparts on the invention and any improvements, (b) execute, verify, acknowledge and deliver all such further papers, including patent applications and instruments of transfer, and (c) perform such other acts as Assignee lawfully may request to obtain or maintain Letters Patent and Registrations for the invention and improvements in any and all countries, and to vest title thereto in Assignee, or Assignee's successors and assigns.

Assignors hereby authorize and request Kilpatrick Townsend & Stockton LLP, Two Embarcadero Center, Eighth Floor, San Francisco, CA 94111-3834, to insert herein above the application number and filing date of said application when known.

IN TESTIMONY WHEREOF, Assignors have signed their names on the dates indicated.

Dated: 7/24/2012

Katelijn Vleugels

Dated: 7/24/2012

Roel Peeters

64440554v1

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: **20350**

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: **20350**

OR

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

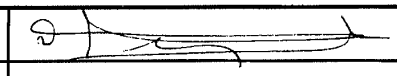
Assignee Name and Address:

Ozmo, Inc.
2595 East Bayshore Road, Suite 100
Palo Alto, California 94303

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		Date	11/03/2008
Name	Katelijn Vleugels	Telephone	(650) 515-3524
Title	CTO & Co-founder		

61550303 v1

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on July 27, 2012.

KILPATRICK TOWNSEND & STOCKTON LLP

By Paula Cunningham
Paula Cunningham

PATENT
Atty. Docket No.: 89863-001440US-846870

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katelijn Vleugels et al.

Application No.: TBA

Filed:

For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Customer No.: 20350

Confirmation No.: TBA

Examiner: Not Yet Assigned

Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97 and §1.98

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

Commissioner:

The purpose of this Invention Disclosure Statement is to bring to the Examiner's attention textual differences between the present application and a co-pending application (the "parent application"). The present application is a continuation of U.S. Patent Application No. 12/892,825, filed September 28, 2010 (hereinafter, the "parent application"), which is a divisional application of U.S. Patent Application No. 11/422,945, filed June 8, 2006, which is a continuation of U.S. Patent Application No. 11/376,729, filed March 14, 2006. Each of those prior filed nonprovisional applications incorporated by reference herein in their entirety for all purposes each preceding nonprovisional application as well as U.S. Provisional Patent Application No. 60/661,763, filed on March 14, 2005, U.S. Patent Application No. 11/376,753,

filed March 14, 2006 (hereinafter referred to as "Vleugels I"). Vleugels I also incorporated by reference in its entirety for all purposes U.S. Provisional Patent Application No. 60/661,746 ("the '746 provisional application").

Applicant asserts that material copied into the present application from Vleugels I and the '746 provisional application (see, Section A, below) does not constitute new matter and Applicant still enjoys the priority claims set forth in the present application. Applicant further asserts that grammatical and reference differences (see, Section B, below) do not constitute new matter. If the Examiner disagrees, the Examiner is invited to issue a new matter objection.

A. Insertions from Applications Incorporated by Reference in Earlier Applications

In the present application, ¶¶ [0063]-[0095] and Figs. 8-12 were not present in their current form in the text and figures of the parent application but were in incorporated-by-reference applications. Specifically, Figs. 8-9 of the present application correspond to Figs. 1-2 of Vleugels I and Figs. 10-12 of the present application correspond to Figs. 10-12 of the '746 provisional application. As for the text, ¶¶ [0063]-[0064] of the present application correspond to ¶¶[0008]-[0009] of Vleugels I, ¶ [0065] of the present application corresponds to ¶[0024] of Vleugels I, ¶¶ [0066]-[0071] of the present application correspond to ¶¶[0041]-[0046] of Vleugels I, ¶¶ [0072]-[0077] of the present application correspond to ¶¶[0048]-[0053] of Vleugels I, ¶ [0078] of the present application corresponds to ¶[0027] of Vleugels I, and ¶¶ [0079]-[0095] of the present application correspond to page 17, line 13 through page 20, line 22 of the '746 provisional application.

B. Grammatical and Reference Differences

Since the USPTO prefers that continuations not be filed with preliminary amendments to submit minor changes, grammatical and reference corrections were made to the continuation as filed. The differences include:

1) In Fig. 8, a box labeled "PER" was changed to "PER3" to be consistent with the text at ¶ [0073].

2) In Fig. 9, the AP is now labeled with "110" to be consistent with ¶ [0076].

3) In various places in the text, for readability, punctuation is added or revised, abbreviations are quoted and capitals are replaced with lowercase.

4) In ¶ [0006], "802.11xn" is replaced by "802.11n" as that was clearly intended.

5) ¶ [0013] was changed to read: "In some embodiments, the WLAN standard is the 802.11x standard. In such an embodiment, the wireless circuit is an 802.11x-compliant wireless circuit,..."

6) ¶ [0029] was changed to read: "Fig. 3 illustrates a wireless personal ~~are~~ area network" and "It is understood that the present disclosure equally applies to the ad-hoc or any other mode."

7) ¶ [0031] was changed to read: "WPAN 10 is shown as including ~~comprises~~ one or more..."

8) ¶ [0033] was changed as follows: "both the wireless circuit at the other end as well as the PS-STA are ~~both~~ 802.11x-compliant" (the word "both" was redundant) and "WPAN 5" changed to "WPAN 10" to be consistent with Fig. 3 and the rest of the description that uses "10" to refer to WPAN 10 and "5" to refer to integrated network 5.

9) ¶ [0037] was changed to read: "Fig. 5 illustrates some of the components disposed in a PS-STA 11, in accordance with one embodiment. PS-STA 11 typically includes, in part, a battery 16, a sensor or stimulus unit 17, a clock or crystal 18, a wireless circuit 19 and an

antenna 20." so as to be consistent with Fig. 5 and so that reference numerals in the figures appear in the text and vice versa.

10) The Abstract was shortened to 150 words or less to comply with the limits on Abstracts put in place since that Abstract was first used.

C. Conclusion

No inference should be made that any specific added text or figure is essential to support any particular claim in the present application.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Respectfully submitted,

Date: 7/27/2012

Philip H. Albert
Reg. No. 35,819

KILPATRICK TOWNSEND & STOCKTON LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 415-576-0200 Fax: 415-576-0300
PHA:psc
64440415v1

I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on July 27, 2012.

KILPATRICK TOWNSEND & STOCKTON LLP

By: Paula Cunningham
Paula Cunningham

PATENT
Atty. Docket No.: 89863-001440US-846870

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katelijn Vleugels et al.

Application No.: TBA

Filed:

For: APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE

Customer No.: 20350

Confirmation No.: TBA

Examiner: Not Yet Assigned

Art Unit: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §1.97 and §1.98

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

Commissioner:

The references cited on attached form PTO/SB/08A are being called to the attention of the Examiner. In accordance with 37 CFR §1.98(d), copies of the references can be found in Application No. 11/422,945, filed June 8, 2006, now U.S. Patent No. 7,826,408 (Attorney Docket No. 89863-713437) and Application No. 12/892,825, filed September 28, 2010 (Attorney Docket No. 89863-792770). It is respectfully requested that the cited references be expressly considered during the prosecution of this application, and the references be made of record therein and appear among the "references cited" on any patent to issue therefrom.

As provided for by 37 CFR §1.97(g) and (h), no inference should be made that the information and references cited are prior art merely because they are in this statement and no

representation is being made that a search has been conducted or that this statement encompasses all the possible relevant information.

Applicant believes that no fee is required for submission of this statement. However, if a fee is required, the Commissioner is authorized to deduct such fee from the undersigned's Deposit Account No. 20-1430. Please deduct any additional fees from, or credit any overpayment to, the above-noted Deposit Account.

Date: 7/29/2012

Respectfully submitted,

Philip H. Albert
Reg. No. 35,819

KILPATRICK TOWNSEND & STOCKTON LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 415-576-0200 Fax: 415-576-0300
PHA:psc

64440422v1

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 3

Complete if Known	
Application Number	TBA
Filing Date	September 29, 2011
First Named Inventor	Vleugels, Katelijn
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	89863-818213 (001430US)

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	US-6,141,763	10/31/2000	Smith et al.	
	2	US-6,272,140	8/7/2001	LaRowe, Jr. et al.	
	3	US-6,505,253	1/7/2003	Chiu et al.	
	4	US-6,751,455	6/14/2004	Acampora	
	5	US-6,842,460	1/11/2005	Olkkonen et al.	
	6	US-7,003,102	2/21/2006	Kiko	
	7	US-7,039,358	5/2/2006	Shellhammer et al.	
	8	US-7,190,972	3/13/2007	Hollister et al.	
	9	US-7,463,907	12/9/2008	Smith et al.	
	10	US 7,826,408	11/2/2010	Vleugels et al.	
	11	US-2003/0119527	6/26/2003	Labun et al.	
	12	US-2004/0076136	4/22/2004	Beach	
	13	US-2004/0157551	8/12/2004	Gainey et al.	
	14	US-2004/0170120	9/2/2004	Reunamaki et al.	
	15	US-2004/0259552	12/23/2004	Ihori et al.	
	16	US-2005/0025104	2/3/2005	Fischer et al.	
	17	US-2005/0068965	3/31/2005	Lin et al.	
	18	US-2005/0099275	5/12/2005	Kamdar et al.	
	19	US-2005/0101260	5/12/2005	Hunt et al.	
	20	US-2005/0119025	6/2/2005	Mohindra et al.	
	21	US-2005/0176473	8/11/2005	Melpignano	
	22	US-2005/0192044	9/1/2005	Travis	
	23	US-2005/0286474	12/29/2005	van Zelst et al.	
	24	US-2006/0146868	7/6/2006	Ginzburg	
	25	US-2006/0165035	7/27/2006	Chandra et al.	
	26	US-2006/0203841	9/14/2006	Fischer	
	27	US-2006/0215601	9/28/2006	Vleugels et al.	
	28	US-2008/0144493	6/19/2008	Yeh	

Examiner Signature		Date Considered	

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64440422v1

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	TBA
				Filing Date	September 29, 2011
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned
Sheet	2	of	3	Attorney Docket Number	89863-818213 (001430US)

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	29	US-2008/0291858	11/27/2008	Kandala et al.	
	30	US-2009/0086619	4/2/2009	Santhoff et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		Country Code[3]	Number[4]	Kind Code[5] (if known)				
	31	WO	97/048198	A2	12-18-1997	Streamix Corporation		
	32	WO	03/065654	A1	08-07-2003	Koninklijke Philips Electronics N.V.		
	33	WO	06/099588	A2	09-21-2006	H-Stream Wireless		
	34	EP	1207654	A2	05-22-2002	Symbol Technologies, Inc.		

NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No.[1]	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	35	International Search Report and Written Opinion corresponding to the PCT application No. PCT/US06/09786, dated September 25, 2007, 9 pages total.	☐
	36	The State Intellectual Property Office of the People's Republic of China, First Office Action for Application No. 200680013461.6, dated May 12, 2010, 24 pages total.	☒
	37	Office Action for US Application No.11/422,945, dated November 21, 2008	☐

Examiner Signature		Date Considered	

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	TBA
				Filing Date	September 29, 2011
				First Named Inventor	Vleugels, Katelijn
				Art Unit	Not Yet Assigned
(Use as many sheets as necessary)				Examiner Name	Not Yet Assigned
Sheet	3	of	3	Attorney Docket Number	89863-818213 (001430US)

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No.[1]	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, page(s), volume-issue number(s), publisher, city and/or country where published.	T[6]
	38	Office Action for US Application No.11/422,945, dated October 22, 2009	☐
	39	Notice of Allowance for US Application No.11/422,945, dated June 23, 2010	☐

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kind Codes of U.S. Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

64440422v1

Electronic Patent Application Fee Transmittal	
Application Number:	
Filing Date:	
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Filer:	Philip H. Albert/Paula Cunningham
Attorney Docket Number:	89863-001440US-846870
Filed as Small Entity	

Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	95	95
Utility Search Fee	2111	1	310	310
Utility Examination Fee	2311	1	125	125
Request for Prioritized Examination	2817	1	2400	2400
Pages:				
Claims:				
Claims in excess of 20	2202	10	30	300
Independent claims in excess of 3	2201	1	125	125

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous-Filing:				
Publ. Fee- early, voluntary, or normal	1504	1	300	300
Processing Fee, except for Provis. apps	1808	1	130	130
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**3785**

Electronic Acknowledgement Receipt

EFS ID:	13364775
Application Number:	13560917
International Application Number:	
Confirmation Number:	4050
Title of Invention:	APPARATUS AND METHOD FOR INTEGRATING SHORT-RANGE WIRELESS PERSONAL AREA NETWORKS FOR A WIRELESS LOCAL AREA NETWORK INFRASTRUCTURE
First Named Inventor/Applicant Name:	Katelijn Vleugels
Customer Number:	20350
Filer:	Philip H. Albert/Paula Cunningham
Filer Authorized By:	Philip H. Albert
Attorney Docket Number:	89863-001440US-846870
Receipt Date:	27-JUL-2012
Filing Date:	
Time Stamp:	20:19:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$3785
RAM confirmation Number	8688
Deposit Account	201430
Authorized User	ALBERT,PHILIP

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

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	TrackOne Request	Certification_and_Request_for_Prioritized_Exam_Track-I_89863-001440US-846870.pdf	136402 69cdaf025055520b280bc7db70e94e59db4deca5	no	2
Warnings:					
Information:					
2	Application Data Sheet	Application_Data_Sheet_89863-001440US-846870.pdf	58826 f2cabf5ed7e77dcf06362517153e5afa2d47a100	no	3
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3		Accelerated_Continuation_Application_89863-001440US-846870.pdf	156154 66b72118951c2f74f3a404401f9102bae714c6df	yes	29

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	21
Claims	22	28
Abstract	29	29

Warnings:					
Information:					
4	Drawings-only black and white line drawings	Drawings_Figs1-12_89863-001440US-846870.pdf	133179 c66f099a1a8e4244ced523937b4fd2ebd039c6db	no	12
Warnings:					
Information:					
5	Oath or Declaration filed	Declaration_89863-001440US-846870.pdf	154920 af3b65168ca6cdf3149cf832a106470a5d1c223b	no	1
Warnings:					
Information:					
6	Nonpublication request from applicant.	Nonpublication_Request_89863-001440US-846870.pdf	47941 344fc0bbe5b697cb58b9c4a80a509123cec38943	no	1

Warnings:					
Information:					
7	Assignee showing of ownership per 37 CFR 3.73(b).	Statement_Under_37CFR373b_w-Asgnmt_89863-001440US-846870.pdf	120059 c976bb180150d9235e4d8bcf9e0b45c64cdb22b6	no	2
Warnings:					
Information:					
8	Power of Attorney	Power_of_Attorney_89863-001440US-846870.pdf	49949 67fb48870b62c233f6470d97d1b55b6de4478ea0	no	1
Warnings:					
Information:					
9	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_1_89863-001440US-846870.pdf	166015 fb1289eb57461044651725b82757fb6dc89ef2a3	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
10		Information_Disclosure_Statement_2_89863-001440US-846870.pdf	234172 e48c5cdee74f57bb8807832c7a55ae4a0dc79d9f	yes	5

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Form (SB08)	3	5

Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	43370 f4bd87341892b59b8e8736cdd1f74d0dd6ed9ee2	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	1300987	

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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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