PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT8300525

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
BLUE UMBRELLA LLC	11/29/2023

RECEIVING PARTY DATA

Name:	GAMBA GROUP HOLDINGS LLC
Street Address:	8273 NW 127 LN
City:	PARKLAND
State/Country:	FLORIDA
Postal Code:	33076

PROPERTY NUMBERS Total: 19

Property Type	Number
Patent Number:	7899583
Patent Number:	8836580
Patent Number:	8896485
Patent Number:	7924149
Patent Number:	8866673
Patent Number:	9020687
Patent Number:	8941485
Patent Number:	9374673
Patent Number:	9204257
Patent Number:	9491584
Patent Number:	9602193
Patent Number:	9204251
Patent Number:	9420423
Patent Number:	9538332
Patent Number:	9674684
Patent Number:	9772193
Patent Number:	9961507
Patent Number:	10470013
Patent Number:	10117078

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 9542574319

Email: umendelson@gmail.com

Correspondent Name: EHUD MENDELSON

Address Line 1: 8273 NW 127 LN

Address Line 4: PARKLAND, FLORIDA 33076

ATTORNEY DOCKET NUMBER:	BLU2GAMBA PATENTS1-19
NAME OF SUBMITTER:	EHUD MENDELSON
SIGNATURE:	/EHUD MENDELSON/
DATE SIGNED:	11/29/2023
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 4

source=Patent assignment blue to gamba#page1.tif

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source=Patent assignment blue to gamba#page3.tif

source=Patent assignment blue to gamba#page4.tif

PATENTS ASSIGNMENT AGREEMENT

THIS AGREEMENT is made this day of November 27, 2023, by and between Blue Umbrella llc represent by Ehud Mendelson (the "Assignor"), having its primary place of business at 8273 NW 127 Ln. Parkland Florida 33076 , and Gamba Group Holdings(the "Assignee") having its primary place of business at 8273 NW 127 Ln. Parkland, Florida 33076 (collectively the "Parties").

WHEREAS, Licensor is has invented RF Beacon and Method of use (the "Invention"), and has been granted United States Letters Patents for said invention, Patent No- .See Attach A (the "Patent"), granted on the patent application filed with the United States Patent and Trademark Office.

WHEREAS, Assignee wishes to acquire all right, title and interest in the Patent, and Assignor wishes to sell its interest in the Patent to Assignee.

NOW THEREFORE, in consideration of the mutual promises, covenants, warranties, and other good and valuable consideration set forth herein, and in accordance with applicable law, the Parties hereby agree as follows:

1. *Assignment*. Assignor hereby assigns to Assignee, and its successors, representatives and assigns, all right, title and interest in the Patent including all reexaminations, extensions and reissues thereof. Assignor hereby requests the Commissioner of Patents of the United States to record this assignment of all right, title and interest in the Patent to Assignee.

2. *Payment*. In consideration of the assignment of the Patent pursuant to this Agreement, and of the promises and covenants contained herein, Assignee shall pay to Assignor a fee in the amount Set in Attachment A of this agreement, payable upon execution of sale or licenses of a patent or patents from the list attach A to this Agreement, until such execution will take place it is agree that the Assignor Ehud Mendelson payment/fee will be conceders as a loan to the Gamba Group Holdings llc in the dynamic amount set in the attachment A. Until such execution of sale or license will take place, Ehud Mendelson will receive a personal loan to his business account in the USA (Dba. Blue Umbrella and or search4parking bank account), payment for the loan will payable upon execution of sale or licenses of a patent or patents from the list attach A to this Agreement.

Google Ex. 1028, p. 003

3. *Assignor's Representations and Warranties*. Assignor hereby represents and warrants
i) that it has the legal right and authority to execute this Agreement, and to validly assign the entire interest in the Patent to Assignee,

ii) that it has not executed any other agreement that would conflict with the terms of this Agreement, nor shall it execute any such agreement in the future, and

iii) that to the best of Assignor's knowledge, the Patent is valid and enforceable as of the date of this Agreement. Assignor makes no representations or warranties as to the validity or enforceability of the Patent subsequent to the date of this Agreement.

4. *Patent Status*. Assignee hereby acknowledges that any finding or ruling subsequent to the date of this Agreement that the Patent is invalid or unenforceable shall not give rise to a cause of action against Assignor under this Agreement.

5. *Further Actions*. Assignor hereby agrees to execute any further agreements and to take any further actions necessary to aid Assignee in perfecting its interest in the Patent and in enforcing any and all protections or privileges deriving from the Patent.

6. *Counterparts*. This Agreement may be executed in several counterparts, each of which shall constitute an original and all of which, when taken together, shall constitute one agreement.

7. *Severability*. If any part or parts of this Agreement shall be held unenforceable for any reason, the remainder of this Agreement shall continue in full force and effect. If any provision of this Agreement is deemed invalid or unenforceable by any court of competent jurisdiction, and if limiting such provision would make the provision valid, then such provision shall be deemed to be construed as so limited.

8. *Notice*. Any notice required or otherwise given pursuant to this Agreement shall be in writing and mailed certified return receipt requested, postage prepaid, or delivered by overnight delivery service, addressed as follows:

Google Ex. 1028, p. 004

If to Assignor: Blue Umbrella LLC by her president Ehud Mendelson 8273 NW 127 Ln. Parkland, Florida 33076

If to Assignee: Gamba Group Holdings LLC having its primary place of business at 8273 NW 127 Ln. Parkland, Florida 33076

9 *Headings*. The headings for section herein are for convenience only and shall not affect the meaning of the provisions of this Agreement.

10. Entire Agreement. This Agreement constitutes the entire agreement between Assignor and Assignee, and supersedes any prior understanding or representation of any kind preceding the date of this Agreement. There are no other promises, conditions, understandings or other agreements, whether oral or written, relating to the subject matter of this Agreement.

Attach A List of patents assignment:

Patents #:	Application #:
7899583	US11/396,843
8836580	US11/429,864
8896485	US11/472,706
7924149	US12/069,899
8866673	US12/587,042
9020687	US12/930,735
8941485	US12/932,811
9374673	US13/135,421
9204257	US13/135,421
9491584	US14/285,332
9602193	US14/285,273
9204251	US14/285,209
9420423	US15/086,028
9538332	US15/237,727
9674684	US15/397,685
9772193	US15/403,146
9961507	US15/687,445
10470013	US15/953,389
10117078	US15/972,074

Google Ex. 1028, p. 005

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed the day and year first above written.

ASSIGNOR
Ehud Mendelson
BLVD UMBRELLA LLC. MENDELSON
Signature
EHUD MENDELSON
Print Name

ASSIGNEE
Gamba Group Holdings President
MENDELSON
Signature
EHUD MENDELSON
Print Name

State of FLORIDA)
)
County of BROWARD)

I, the undersigned, a Notary Public in and for said County, in the State aforesaid, DO HEREBY CERTIFY THAT EHUD MENDELSON personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person, and acknowledged that EHUD MENDELS signed, sealed and delivered the said instrument as his/her/their free and voluntary act, for the uses and purposes therein set forth.

Given under my hand and notarial seal, this 27th day of November, 2023

Signature of Notary Public

SELVIRA FLEURY
Notary Public, State of Florida
Commission# GG 958650
My comm. expires Feb. 16, 2024

(Seal) SELVIRA FLEURY
Printed Name of Notary

My commission expires on February 16, 2024

Google Ex. 1028, p. 006

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5756053

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
GAMBA GROUP LIMITED	10/06/2019

RECEIVING PARTY DATA

Name:	BLUE UMBRELLA LLC
Street Address:	11190 HERON BAY BLVD SUITE 916
City:	CORAL SPRINGS
State/Country:	FLORIDA
Postal Code:	33076

PROPERTY NUMBERS Total: 16

Property Type	Number
Patent Number:	7899583
Patent Number:	7924149
Patent Number:	8836580
Patent Number:	8866673
Patent Number:	8896485
Patent Number:	8941485
Patent Number:	9020687
Patent Number:	9204251
Patent Number:	9204257
Patent Number:	9374673
Patent Number:	9420423
Patent Number:	9491584
Patent Number:	9538332
Patent Number:	9602193
Patent Number:	9674684
Patent Number:	9772193

CORRESPONDENCE DATA

Fax Number:

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone:	9542574319
Email:	umen79@yahoo.com
Correspondent Name:	EHUD MENDELSON
Address Line 1:	11190 HERON BAY BLVD SUITE 916
Address Line 4:	CORAL SPRINGS, DELAWARE 33076

ATTORNEY DOCKET NUMBER:	ASSIGNMENT GAMBA TO BLU8X
NAME OF SUBMITTER:	EHUD MENDELSON
SIGNATURE:	/ehud mendelson/
DATE SIGNED:	10/06/2019
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 3
source=ASSIGNMENT of patents from gamba group to blue umbrella sign and ready#page1.tif
source=ASSIGNMENT of patents from gamba group to blue umbrella sign and ready#page2.tif
source=ASSIGNMENT of patents from gamba group to blue umbrella sign and ready#page3.tif

ASSIGNMENT

WHEREAS, I:

Ehud Mendelson President of **Gamba Group Limited**, a For Profit Corporation organized and existing under the laws of the state of Malta, and having an office and place of business at 262 Triq San Alber, Gzira, Malta, GZR 1152, represent by Ehud Mendelson president of the company which residing, respectively, at: **11190 Heron Bay Blvd. Suite 916, Coral Springs, FL, 33076**,

Which own the patents listed as follow:

Patent#	Application #
7899583	11396843
7924149	12069899
8836580	11429864
8866673	12587042
8896485	11472706
8941485	12932811
9020687	12930735
9204251	14285209
9204257	14285273
9374673	13135421
9420423	15086028
9491584	14285332
9538332	15237727
9602193	14285406
9674684	15397685
9772193	15403146

Google Ex. 1028, p. 009

WHEREAS, **Blue Umbrella Limited Liability company** , a For Profit Corporation organized and existing under the laws of the state of **Nevada** and having an office and place of business at **11190 Heron Bay Blvd. Suite 916, Coral Springs, FL, 33076**,

, is desirous of acquiring the entire interest in said Patents, said United States patents which listed above (page 1) and Currently owns by Gamba Group Limited, and in any patents which may issue thereon

NOW, THEREFORE,

be it known that for and in consideration of **Blue Umbrella Limited Liability company**, and other good and valuable consideration, I do hereby sell, assign, and transfer unto **Blue Umbrella Limited Liability company**, its successors, assigns, and legal representatives, all right, title, and interest in and to said patents listed in page 1 and any improvements thereon for all countries of the world, and in and to said application, including any continuations and divisions thereof, and any substitute applications therefor, and any patents which may issue thereon, and any reissues of the same; and all right, title, and interest in and to every patents application filed on said patents listed in page 1 in any other country, including renewals, revivals, continuations, and divisions thereof, and any substitute applications therefor, and any and all patents which may issue thereon, and any reissues and extensions of the same; and we hereby authorize and request competent authorities to grant and issue any and all patents on said listed in page 1 to **Blue Umbrella Limited Liability company** as the assignee of the entire interest therein; and we further agree to execute upon request of the assignee such additional documents, if any, as are necessary and proper to secure patents protection on said patents throughout all countries of the world, and otherwise to give full effect to and perfect the rights of the assignee under this Assignment.

Google Ex. 1028, p. 010

In Testimony Whereof, I have hereunto signed my name on
The dates indicated hereinafter:

09/20/19
Date

Ehud Mendelson

State of Florida
Country of Broward

Before me a Notary Public for said county, personally appeared Ehud Mendelson, to me know and known to me to be the person who executed the foregoing instrument and acknowledged it to be a free act and deed.

Witness my hand and seal September 20th, 2019.

Notary Public

[Notary Seal]

My Commission expires:
Dec 8, 2019

Google Ex. 1028, p. 011

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.
14/285,332	11/08/2016	9491584	MEN-14-003	9630

31877 7590 10/19/2016

ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

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

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

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

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

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

Ehud Mendelson, Coral Springs, FL;

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

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), 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)

21877 7590 09/07/2016
ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

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.

Allen D. Hertz (Via EFS-web)	(Depositor's name)
	(Signature)
September 19, 2016	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003	9630

TITLE OF INVENTION: HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	12/07/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
LY, NOHI H	2642	455-456300

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 Allen D. Hertz, P.A.
2 Allen D. Hertz
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. **Via EFS Credit Card Process**
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

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

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

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

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

Authorized Signature _____ Date September 19, 2016

Typed or printed name Allen D Hertz Registration No. 50,942

Google Ex. 1028, p. 013

Electronic Patent Application Fee Transmittal

Application Number:	14285332
Filing Date:	22-May-2014
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Filer:	Allen D. Hertz
Attorney Docket Number:	MEN-14-003

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**480**

Electronic Acknowledgement Receipt

EFS ID:	26972354
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	19-SEP-2016
Filing Date:	22-MAY-2014
Time Stamp:	22:34:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$480
RAM confirmation Number	092016INTEFSW22344700
Deposit Account	506593
Authorized User	Allen Hertz

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	MEN-14-003_Mendelson_Hospitality_Issue_Fee_Submission_091916.pdf	376182 d08225f2266c1af18b50ac41e05d89b8b13de432	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30321 acdf8cfc99b997d5d37b64d8928839e1728eff05	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	406503		

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

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

31877 7590 09/07/2016

ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

EXAMINER
LY, NGHI H

ART UNIT	PAPER NUMBER
2642	

DATE MAILED: 09/07/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003	9630

TITLE OF INVENTION: HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	12/07/2016

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.

Google Ex. 1028, p. 018

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)

31877 7590 09/07/2016
ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

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.
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003	9630

TITLE OF INVENTION: HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	12/07/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
LY, NGHI H	2642	455-456300

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

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

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

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

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

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

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

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

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

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Google Ex. 1028, p. 019

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003	9630

31877 7590 09/07/2016

ALLEN D. HERTZ
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12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

EXAMINER	
LY, NGHI H	

ART UNIT	PAPER NUMBER
2642	

DATE MAILED: 09/07/2016

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

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

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

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

Google Ex. 1028, p. 020

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 14/285,332	Applicant(s) MENDELSON, EHUD	
	Examiner NGHI H. LY	Art Unit 2642	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 *07/11/2016*.
   ☐ 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 *1-52*. 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 _____.

/NGHI H LY/
Primary Examiner, Art Unit 2642

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

DETAILED ACTION

Election/Restrictions

1. Claims 6 and 12 have been amended (see Examiner's amendment below). Therefore, the Requirement for Restriction/Election (dated 04/15/2015) has been withdrawn.

EXAMINER'S AMENDMENT

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

Authorization for this examiner's amendment was given in an interview with Allen D. Hertz on 08/30/2016.

The application (**claims 6, 12-20, 23 and 50-52**, filed 07/11/2016) has been amended as follows:

Claim 6 (~~Withdrawn-~~Currently Amended): A method of initiating a service based upon an association with information encoded within a beacon identification signal, the method comprising steps of:

deploying a series of beacons, wherein each beacon of the series of beacons is

located at a known, fixed location about said interior of said hospitality venue;

encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device, detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device;

decoding each received said at least one of said broadcast beacon signal;

automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system.

~~wherein the information decoded from the beacon signal automatically initiates at least one of the following steps:~~

~~(a) a link to access and activate existing software provided by said third party~~

~~application hosted on said existing system based upon the encoded identification of the beacon, and~~

~~(b)~~ wherein the hospitality function is a local based services (LBS) application to provide local based services information to the mobile device, wherein said provided local based services information is provided by said third party application hosted on said existing system and wherein said provided local based services information is associated with said beacon identifying information.

Claim 12 (~~Withdrawn –~~ Currently Amended): A method of guide mapping and navigation of an interior of an enclosed structure and implementation of location based services (LBS) associated with the enclosed structure, the method comprising steps of:

deploying a series of beacons, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons and information associated with a known physical location of said respective beacon;

broadcasting a beacon signal from each beacon of said series of beacons;

determining a location of a mobile device in accordance with following steps:

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device,

decoding each received said at least one of said broadcast beacon signal; ~~and~~

automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system, ~~automatically initiating~~ wherein said hospitality function is a [[an]] local based service (LBS) to identify a current location of said mobile device within said interior of said hospitality venue;

determining [[a]] said current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information associated with a known physical location of said respective beacon collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map.

Claim 13 (~~Withdrawn-~~Original): The method as recited in claim 12, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Claim 14 (~~Withdrawn-~~Original): The method as recited in claim 12, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

Claim 15 (~~Withdrawn-~~Original): The method as recited in claim 12, further comprising a step of: displaying Points Of Interest (POI) associated with each beacon location on said hospitality venue indoor map.

Claim 16 (~~Withdrawn-~~Original): The method as recited in claim 12, further comprising steps of: displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map; selecting a beacon location from each displayed beacon location on said hospitality venue indoor map; and obtaining information associated with said selected beacon.

Claim 17 (~~Withdrawn-~~Original): The method as recited in claim 12, further comprising a step of: utilizing said deployed series of beacons to provide guidance on said mobile device to guide a user to an exit of said hospitality venue during an emergency evacuation procedure.

Claim 18 (~~Withdrawn-~~Original): The method as recited in claim 12, wherein at least a portion of said beacons of said series of beacons employ existing Wi-Fi devices

deployed throughout said hospitality venue.

Claim 19 (~~Withdrawn-~~Original): The method as recited in claim 12, further comprising a step of: overlaying a series a gradient concentric circles onto said hospitality venue indoor map, wherein said series a gradient concentric circles provide a distance relationship between said mobile device and a secondary object, wherein said secondary object is associated with said beacon.

Claim 20 (~~Withdrawn-~~Original): The method as recited in claim 12, further comprising a step of: displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map.

Claim 23. (~~Previously Presented~~ Currently Amended) The method as recited in claim 1, wherein said local based services (LBS) includes emitting an emergency locating signal in an emergency condition, wherein said [[an]] emergency locating signal includes said location of said mobile device, wherein said location of said mobile device is determined using said geographic location information decoded from said received beacon signal.

Claim 50. (~~Withdrawn-~~Original) The method as recited in claim 12, further comprising a step of: automatically initiating a hospitality function, wherein the information decoded from said beacon signal automatically initiates said hospitality function based upon the information decoded from the received beacon signal.

Claim 51. (~~Withdrawn-~~Original) The method as recited in claim 12, further comprising steps of: downloading at least one of a floor plan and a map; and storing

said at least one of a floor plan and a map in said mobile device for use with said hospitality function independent of network connectivity.

Claim 52. (~~Withdrawn-~~Original) The method as recited in claim 12, further comprising steps of: converting said information associated with said known physical location of said respective beacon obtained by said received beacon signal into Global Positioning System (GPS) coordinates and emulate an external GPS data source.

REASONS FOR ALLOWANCE

3. Claims 1-52 are allowed.

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

Claims 1-52 are allowable over the prior art of record for the reasons as stated in Applicant's remarks (dated 07/11/2016).

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

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGHI H. LY whose telephone number is (571)272-7911. The examiner can normally be reached on 9:30am-8:00pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. 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.

Nghi H. Ly
/NGHI H LY/
Primary Examiner, Art Unit 2642

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	**Art Unit**
	NGHI H LY	2642

CPC						
Symbol					**Type**	**Version**
H04W		4	/	04	F	2013-01-01
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CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	52	
/NGHI H LY/ Primary Examiner.Art Unit 2642	08/30/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	11

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	**Art Unit**
	NGHI H LY	2642

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
455	456.3	H	0	4	W	24 / 00 (2009.01.01)						

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
455	456.1	421	414.1	404.2	

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	52	
/NGHI H LY/ Primary Examiner.Art Unit 2642	08/30/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	11

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
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☐ 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	46	17	23	33	39	49								
2	2	47	18	24	34	50	50								
3	3	48	19	25	35	51	51								
4	4	49	20	26	36	52	52								
5	5	11	21	27	37										
40	6	12	22	28	38										
6	7	13	23	29	39										
7	8	14	24	30	40										
8	9	15	25	31	41										
9	10	16	26	32	42										
10	11	17	27	33	43										
41	12	18	28	34	44										
42	13	19	29	35	45										
43	14	20	30	36	46										
44	15	21	31	37	47										
45	16	22	32	38	48										

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 52	
/NGHI H LY/ Primary Examiner.Art Unit 2642 (Primary Examiner)	08/30/2016 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 11

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	**Art Unit**
	NGHI H LY	2642

✓	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	04/13/2015	08/07/2015	02/04/2016	08/30/2016					
1	1	÷	✓	✓	=					
2	2	÷	✓	✓	=					
3	3	÷	✓	✓	=					
4	4	÷	✓	✓	=					
5	5	÷	✓	✓	=					
40	6	÷	N	N	=					
6	7	÷	✓	✓	=					
7	8	÷	✓	✓	=					
8	9	÷	✓	✓	=					
9	10	÷	✓	✓	=					
10	11	÷	✓	✓	=					
41	12	÷	N	N	=					
42	13	÷	N	N	=					
43	14	÷	N	N	=					
44	15	÷	N	N	=					
45	16	÷	N	N	=					
46	17	÷	N	N	=					
47	18	÷	N	N	=					
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12	22			✓	=					
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16	26			✓	=					
17	27			✓	=					
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19	29			✓	=					
20	30			✓	=					
21	31			✓	=					
22	32			✓	=					
23	33			✓	=					
24	34			✓	=					
25	35			✓	=					
26	36			✓	=					

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	Art Unit
	NGHI H LY	2642

✓	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	04/13/2015	08/07/2015	02/04/2016	08/30/2016					
27	37			✓	=					
28	38			✓	=					
29	39			✓	=					
30	40			✓	=					
31	41			✓	=					
32	42			✓	=					
33	43			✓	=					
34	44			✓	=					
35	45			✓	=					
36	46			✓	=					
37	47			✓	=					
38	48			✓	=					
39	49			✓	=					
50	50			N	=					
51	51			N	=					
52	52			N	=					

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:24
L4	0	(automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:26
L5	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:26
L7	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:26
L9	0	(automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:27
L11	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:27
L13	0	(Ehud near3 Mendelson) and (automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2016/08/24 08:28

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		and @ad<"20050412"	IBM_TDB			
L15	0	(automatic$4 near12 (function (front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:34
L17	0	(automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and (automatic$4 near12 (function (front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:35
L19	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and (automatic$4 near12 (function (front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:35
L21	0	(Ehud near3 Mendelson) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and (automatic$4 near12 (function (front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/08/24 08:36

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	0	(automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:24
L3	0	(automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application	US-PGPUB;	OR	ON	2016/08/24 08:26

Google Ex. 1028, p. 037

		softw$5)) and @ad<"20050412"	USPAT			
L6	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:26
L8	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:26
L10	0	(automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:27
L12	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:27
L14	0	(Ehud near3 Mendelson) and (automatic$4 near12 (function) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:28
L16	0	(automatic$4 near12 (function (front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:34
L18	0	(automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and (automatic$4 near12 (function (front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:35
L20	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and (automatic$4 near12 (function	US-PGPUB; USPAT	OR	ON	2016/08/24 08:35

Google Ex. 1028, p. 038

		(front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"				
L22	0	(Ehud near3 Mendelson) and (automatic$4 near12 (link$3 connect$4 call$3 channel path) near22 (application soft$5) near22 beacon$3 near22 decod$3) and (automatic$4 near12 (function (front back) near3 office room adj service ticket$3 conference show emergenc$4 entertainment room near3 guide engineer$3 employee security key payment website uniform adj resource adj locat$4) near22 beacon$3 near22 decod$3 near22 (application softw$5)) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/08/24 08:36

8/24/2016 8:39:29 AM
C:\Users\nly\Documents\EAST\Workspaces\14285332.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	Art Unit
	NGHI H LY	2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W 4/02, H04W 64/00, H04L 29/08657	8/30/2016	nly

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
See search history printout.	8/30/2016	nly

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	456.3, 456.1, 421,414.1,404.2	8/30/2016	nly

SEARCH NOTES		
Search Notes	Date	Examiner
See search history.	8/30/2016	nly

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
455	456.3, 456.1, 421,414.1,404.2	8/30/2016	nly

Google Ex. 1028, p. 040

UNITED STATES PATENT AND TRADEMARK OFFICE

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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
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003

CONFIRMATION NO. 9630

POA ACCEPTANCE LETTER

31877
ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

OC000000085526538

Date Mailed: 09/01/2016

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 05/22/2014.

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**.

/khoang/

Google Ex. 1028, p. 041

Electronic Acknowledgement Receipt

EFS ID:	26318228
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	11-JUL-2016
Filing Date:	22-MAY-2014
Time Stamp:	21:23:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$300
RAM confirmation Number	071216INTEFSW21243900
Deposit Account	506593
Authorized User	Allen Hertz

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (SB06)	fee-info.pdf	30587 f5b972eacdc76572b0315c7a714c080374bd5f86	no	2

Warnings:

Information:

Total Files Size (in bytes):	30587

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Electronic Acknowledgement Receipt

EFS ID:	26318215
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	11-JUL-2016
Filing Date:	22-MAY-2014
Time Stamp:	21:21:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$600
RAM confirmation Number	071216INTEFSW21223800
Deposit Account	506593
Authorized User	Allen Hertz

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		MEN-14-003_Mendelson_Hospitality_FOA_021016_Reply_071116.pdf	1231951 5c9bd241c92ea87c4ad690a04b9b4bb50876d15a	yes	73

Multipart Description/PDF files in .zip description

Document Description	Start	End
Extension of Time	1	1
Request for Continued Examination (RCE)	2	2
Letter Requesting Interview with Examiner	3	3
Response After Final Action	4	6
Claims	7	22
Applicant Arguments/Remarks Made in an Amendment	23	73

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32439 4cabbe89258a0d3b2823d1938fc6a8d758de0b75	no	2

Warnings:

Information:

Total Files Size (in bytes):	1264390

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/30 (07-14)
Approved for use through 07/31/2016. 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.

Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	14/285,332
Filing Date	May 22, 2014
First Named Inventor	Ehud MENDELSON
Art Unit	3721
Examiner Name	Nghi H. LY
Attorney Docket Number	MEN-14-003

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, to any international application that does not comply with the requirements of 35 U.S.C 371, or to any design application. See Instruction Sheet for RCEs (not to be submitted to the USPTO on page 2.)

1. Submission required under 37 CFR 1.114 Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

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

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

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☑ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☐ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

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

   b. ☐ Other _____

3. Fees The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

   The Director is hereby authorized to charge the following fees, any underpayment of fees, or credit any overpayments, to

   a. ☐ Deposit Account No. _____.

      i. ☑ RCE fee required under 37 CFR 1.17(e)

      ii. ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii. ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☑ Payment by credit card (Form PTO-2038 enclosed)

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.

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature		Date	July 11, 2016
Name (Print/Type)	Allen D. Hertz	Registration No.	50,942

CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted to the U.S. Patent and Trademark Office on the date shown below.

Signature			
Name (Print/Type)	Allen D. Hertz	Date	July 11, 2016

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

Doc Code: M865 or FALREQ.INTV

Applicant Initiated Interview Request Form

Application No.: 14/285,332 First Named Applicant: Ehud MENDELSON
Examiner: Nghi H. LY Art Unit: 3721 Status of Application: After Final Office Action / RCE

Tentative Participants:
(1) Nghi H. LY (2) Allen D. Hertz
(3) _____ (4) _____

Proposed Date of Interview: _____ **Proposed Time:** _____ (AM/PM)

Type of Interview Requested:
(1) [✓] Telephonic (2) [ ] Personal (3) [ ] Video Conference

Exhibit To Be Shown or Demonstrated: [✓] YES [ ] NO
If yes, provide brief description: Response to NFOA Filed herewith

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) Claim 1		Monroe, Major, Kanevsky	[ ]	[ ]	[ ]
(2) Claim 6		Monroe, Major, Kanevsky	[ ]	[ ]	[ ]
(3) Claim 12		Monroe, Major, Kanevsky	[ ]	[ ]	[ ]
(4)			[ ]	[ ]	[ ]

[ ] Continuation Sheet Attached [✓] Proposed Amendment or Arguments Attached

Brief Description of Arguments to be Presented: See Attached Response to FOA (w/ RCE), Filed on July 11, 2018

An interview was conducted on the above-identified application on _____

NOTE: This form should be completed and filed by applicant in advance of the interview (see MPEP § 713.01). If this form is signed by a registered practitioner not of record, the Office will accept this as an indication that he or she is authorized to conduct an interview on behalf of the principal (37 CFR 1.32(a)(3)) pursuant to 37 CFR 1.34. This is not a power of attorney to any above named practitioner. See the Instruction Sheet for this form, which is incorporated by reference. By signing this form, applicant or practitioner is certifying that he or she has read the Instruction Sheet. After the interview is conducted, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible. This application will not be delayed from issue because of applicant's failure to submit a written record of this interview.

/Allen D. Hertz/
Applicant/Applicant's Representative Signature

Examiner/SPE Signature

Allen D. Hertz
Typed/Printed Name of Applicant or Representative

50,942
Registration Number, if applicable

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 24 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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In The United States Patent and Trademark Office

Application No.	: 14/285,332	Confirmation No. 9630
Applicant	: Ehud MENDELSON	
Title	: **HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS**	
Filed	: May 22, 2014	
TC/A.U.	: 3721	
Examiner	: Nghi H. LY	Tel: (571) 272-7911
Docket No.	: MEN-14-003	
Customer No.	: 31877	

Mail Stop: AFTER FINAL
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Response to Final Office Action Dated February 10, 2016

Amendment Revised Under 37 C.F.R. § 1.121(b)

In Conjunction With

Request For Continued Examination Under 37 C.F.R. § 1.114

Sir:

Please enter the following amendment and comments into the file of the above-identified patent application, in response to the Final Office Action dated February 10, 2016. The Examiner has established a shortened FIVE (5) MONTH statutory period to respond to the Final Office Action. Applicant is submitting the response on or before Monday, July 11, 2016, the effective FIVE (5) MONTH anniversary of the subject Office Action. Therefore, Applicant believes the response requires a Petition for a TWO (2) MONTH extension and the required petition fee of $300 (Small Entity), both are being submitted herewith.

Applicant submits a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114 herewith. An RCE request form and respective fee for a first request of $600 (Fee Code 2801 - Small

Google Ex. 1028, p. 049

Entity) are submitted herewith. Applicant respectfully requests the Examiner withdraw the FINAL status of the subject Application based upon a timely and complete submission of the RCE. Applicant respectfully requests the Examiner enter the amendments and remarks submitted herewith into the file of the above-identified patent application, in response to the Final Office Action dated February 10, 2016.

Amendments to the Claims are reflected in the listing of claims, which begins on page 03 of this paper, with an amended version of the current claims beginning on page 04 of this paper.

Remarks/Arguments begin on page 20 of this paper.

Request for Rejoinder begins on page 65 of this paper.

Conclusions begin on page 69of this paper.

Google Ex. 1028, p. 050

IN THE CLAIMS

Claims 1-52 are currently pending in the application.

Claims 6, 12-20, and 50-52 have been previously withdrawn.

Claims 1-5, 7-11, and 21-49 remain pending for examination.

Please amend **Claims 1 and 5**.

Please amend Withdrawn **Claims 6 and 12**.

No claims are added.

No claims are withdrawn.

No claims are canceled.

An amended version of the pending claims starts on page 03 in accordance with 37 CFR § 1.121(c)(3) as follows: The status of each Claim is indicated adjacent the Claim Number in accordance with the proper status identifiers: (Original), (Currently Amended), (Canceled), (Previously Presented), (New), (Not Entered), (Withdrawn), and (Withdrawn-Currently Amended) in accordance with 37 CFR § 1.121. Any changes to the claims are shown by strikethrough or within double brackets (for deleted matter) and underlining (for added matter, excluding New Claims).

Thereafter, starting on a separate page, (Page 20), is the Remarks portion in accordance with 37 CFR § 1.111.

Google Ex. 1028, p. 051

Amendments to the Claims:

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

Listing of Claims:

Claim 1 (Currently Amended): A method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

deploying a series of, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue and integrated into an existing hospitality system;

encoding information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

~~wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal.~~

automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon

Google Ex. 1028, p. 052

signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system.

Claim 2 (Original): The method as recited in claim 1, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Claim 3 (Original): The method as recited in claim 1, wherein said hospitality venue is at least one of a hotel, motel, a cruise ship, a resort, a theater, a conference center, a restaurant, and a casino

Claim 4 (Original): The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue.

Claim 5 (Original): The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue, wherein said hospitality system includes access to at least one of:

a hospitality front office,

Google Ex. 1028, p. 053

a hospitality back office,

a food and beverage provider,

room service,

in-room service,

an events and ticketing concierge,

a conference concierge,

a show concierge,

an emergency plan and procedure,

an entertainment system,

an in-room guide and information,

engineering services,

employee control,

security,

room key and access control system, ~~and~~

a payment process,

a website associated with the beacon infrastructure, and

a link to a Uniform Resource Locator (URL) associated with the beacon infrastructure.

Google Ex. 1028, p. 054

Claim 6 (Withdrawn-Currently Amended): A method of initiating a service based upon an association with information encoded within a beacon identification signal, the method comprising steps of:

deploying a series of beacons, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue;

encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device;

decoding each received said at least one of said broadcast beacon signal;

wherein the information decoded from the beacon signal automatically initiates at least one of the following steps:

(a) a link to access and activate existing software provided by said third party application hosted on said existing system based upon the encoded identification of the beacon, and

(b) a local based services (LBS) application to provide local based services information to the mobile device, wherein said provided local based services information is provided by said third party application hosted on said existing system and wherein said provided local based services information is associated with said beacon identifying information.

Google Ex. 1028, p. 055

Claim 7 (Original): The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon signal.

Claim 8 (Original): The method as recited in claim 1, further comprising steps of:

directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal; and

forwarding information associated with at least one of the hospitality venue, an event, food and beverage services, and billing to said mobile device.

Claim 9 (Original): The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue.

Claim 10 (Original): The method as recited in claim 1, further comprising steps of:

initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider;

transmitting a request for marketing information associated with said beacon identifying information from said remote information provider;

obtaining said marketing information associated with said beacon identifying information

Google Ex. 1028, p. 056

from said remote information provider; and

displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Claim 11 (Original): The method as recited in claim 1, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

Claim 12 (Withdrawn - Currently Amended): A method of guide mapping and navigation of an interior of an enclosed structure and implementation of location based services (LBS) associated with the enclosed structure, the method comprising steps of:

deploying a series of beacons, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons and information associated with a known physical location of said respective beacon;

broadcasting a beacon signal from each beacon of said series of beacons;

determining a location of a mobile device in accordance with following steps:

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device,

Google Ex. 1028, p. 057

decoding each received said at least one of said broadcast beacon signal; ~~and~~

automatically initiating an local based service (LBS) to identify a current location of said mobile device within said interior of said hospitality venue;

determining [[a]] said current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information associated with a known physical location of said respective beacon collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map.

Claim 13 (Withdrawn): The method as recited in claim 12, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Claim 14 (Withdrawn): The method as recited in claim 12, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

Claim 15 (Withdrawn): The method as recited in claim 12, further comprising a step of:

Google Ex. 1028, p. 058

displaying Points Of Interest (POI) associated with each beacon location on said hospitality venue indoor map.

Claim 16 (Withdrawn): The method as recited in claim 12, further comprising steps of:

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map;

selecting a beacon location from each displayed beacon location on said hospitality venue indoor map; and

obtaining information associated with said selected beacon.

Claim 17 (Withdrawn): The method as recited in claim 12, further comprising a step of:

utilizing said deployed series of beacons to provide guidance on said mobile device to guide a user to an exit of said hospitality venue during an emergency evacuation procedure.

Claim 18 (Withdrawn): The method as recited in claim 12, wherein at least a portion of said beacons of said series of beacons employ existing Wi-Fi devices deployed throughout said hospitality venue.

Claim 19 (Withdrawn): The method as recited in claim 12, further comprising a step of:

overlaying a series a gradient concentric circles onto said hospitality venue indoor map, wherein said series a gradient concentric circles provide a distance relationship between said

Google Ex. 1028, p. 059

mobile device and a secondary object, wherein said secondary object is associated with said beacon.

Claim 20 (Withdrawn): The method as recited in claim 12, further comprising a step of:

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map.

Claim 21. (Previously Presented) The method as recited in claim 1, wherein within said step of encoding identifying information into a device identification portion of a beacon signal, said identifying information includes information related to a physical location of said beacon.

Claim 22. (Previously Presented) The method as recited in claim 1, wherein said local based services (LBS) are obtained through a direct link to an Internet, wherein said link is initiated by said information decoded from said received beacon signal obtained from said beacon of said series of beacons.

Claim 23. (Previously Presented) The method as recited in claim 1, wherein said local based services (LBS) includes emitting an emergency locating signal in an emergency condition, wherein said an emergency locating signal includes said location of said mobile device, wherein said location of said mobile device is determined using said geographic location information decoded from said received beacon signal.

Google Ex. 1028, p. 060

Claim 24. (Previously Presented) The method as recited in claim 1, further comprising a step of providing local mapping to said user, wherein said local mapping is based upon said geographic location information decoded from said received beacon signal.

Claim 25. (Previously Presented) The method as recited in claim 1, further comprising a step of providing navigation to a user when the user is located within an indoor environment, wherein said indoor navigation is based upon said geographic location information decoded from said received beacon signal.

Claim 26. (Previously Presented) The method as recited in claim 1, wherein said local based services (LBS) includes at least one of:

marketing,

site information,

sales,

product,

events,

specials, and

coupons.

Claim 27. (Previously Presented) The method as recited in claim 1, wherein said local based services (LBS) uses the infrastructure deployment to locate the user in at least one of an

Google Ex. 1028, p. 061

emergency situation or during an E-911 call wherein said location of said mobile device is determined using said information decoded from said received beacon signal.

Claim 28. (Previously Presented) The method as recited in claim 1, further utilizing a user profile in conjunction with said Bluetooth identifier signal as a secure key for use in conjunction with said local based services (LBS).

Claim 29. (Previously Presented) The method as recited in claim 1, further utilizing a user profile in conjunction with said Bluetooth identifier signal as a key for use in conjunction with an access lock of said associated hospitality venue.

Claim 30. (Previously Presented) The method as recited in claim 1, further utilizing a user profile into said Bluetooth identifier signal as a secure key for use in conjunction with near field communications.

Claim 31. (Previously Presented) The method as recited in claim 1, further utilizing a user profile into said Bluetooth identifier signal as a secure key for use in conjunction with near field communications and payments.

Claim 32. (Previously Presented) The method as recited in claim 1, further comprising a step of employing said mobile device as a payment trigger mechanism.

Google Ex. 1028, p. 062

Claim 33. (Previously Presented) The method as recited in claim 1, wherein local based services (LBS) includes at least a contribution to a payment process.

Claim 34. (Previously Presented) The method as recited in claim 1, wherein local based services (LBS) includes at least a contribution to a security portion of a secured payment process.

Claim 35. (Previously Presented) The method as recited in claim 1, further comprising a step of employing said mobile device as a digitally secure payment implement.

Claim 36. (Previously Presented) The method as recited in claim 1, further comprising a step of employing said mobile device as a digitally secure payment implement by including the identifier information of the mobile device.

Claim 37. (Previously Presented) The method as recited in claim 1, further comprising a step of employing said mobile device as a digitally secure payment implement by including the location information obtained from the proximate beacon of the series of beacons and subsequently provided from the mobile device.

Claim 38. (Previously Presented) The method as recited in claim 1, further comprising a step of interacting with a social networking environment.

Google Ex. 1028, p. 063

Claim 39. (Previously Presented) The method as recited in claim 1, further comprising a step of sharing said mobile device with other mobile devices operating as a local social networking environment.

Claim 40. (Previously Presented) The method as recited in claim 1, further comprising a step of including said mobile device into an existing local social networking environment.

Claim 41. (Previously Presented) The method as recited in claim 1, further comprising a step of at least one of creating and sustaining a social networking environment based upon said location of each mobile device within proximity of other mobile devices and said beacon.

Claim 42. (Previously Presented) The method as recited in claim 1, further comprising a step of at least one of creating and sustaining a social networking environment based upon said location of each mobile device within proximity of other mobile devices and said beacon,

wherein said social networking environment is associated with said hospitality venue.

Claim 43. (Previously Presented) The method as recited in claim 1, further comprising a step of informing a second party of a presence of the user within a proximity of one another.

Claim 44. (Previously Presented) The method as recited in claim 1, further comprising a step of displaying a circle overlay onto a local map on a display of said mobile device, wherein said circle is associated with one of said location of said mobile device and said location of said proximate beacon of said series of beacons.

Google Ex. 1028, p. 064

Claim 45. (Previously Presented) The method as recited in claim 1, wherein said local based services (LBS) associated with said local geographic area is at least one of:

a link to a third party application,

a link to existing software,

a link to a website,

communication using a cloud,

presents location information,

presents marketing information,

presents sales information,

presents specials information,

presents coupon information, and

provides emergency based locating.

Claim 46. (Previously Presented) The method as recited in claim 1, wherein said step of automatically initiating said hospitality function includes a step of including user information provided by said mobile device.

Claim 47. (Previously Presented) The method as recited in claim 1, wherein said step of automatically initiating said hospitality function includes a step of including user information provided by said mobile device, wherein said information decoded from said received beacon

Google Ex. 1028, p. 065

signal in conjunction with said user information provided by said mobile device is provided to a hospitality function service provider.

Claim 48. (Previously Presented) The method as recited in claim 1, further comprising a sensor in communication with said beacon, wherein said beacon broadcasts only after activation of said sensor.

Claim 49. (Previously Presented) The method as recited in claim 1, further comprising steps of:

downloading at least one of a floor plan and a map; and

storing said at least one of a floor plan and a map in said mobile device for use with said hospitality function independent of network connectivity.

Claim 50. (Withdrawn) The method as recited in claim 12, further comprising a step of:

automatically initiating a hospitality function, wherein the information decoded from said beacon signal automatically initiates said hospitality function based upon the information decoded from the received beacon signal.

Claim 51. (Withdrawn) The method as recited in claim 12, further comprising steps of:

downloading at least one of a floor plan and a map; and

storing said at least one of a floor plan and a map in said mobile device for use with said hospitality function independent of network connectivity.

Google Ex. 1028, p. 066

Claim 52. (Withdrawn) The method as recited in claim 12, further comprising steps of:

converting said information associated with said known physical location of said respective beacon obtained by said received beacon signal into Global Positioning System (GPS) coordinates and emulate an external GPS data source.

Google Ex. 1028, p. 067

REMARKS

Claims 1-52 are currently pending in the application.

Claims 1-5, 7-11, and 21-49 remain pending for examination.

Claims 6, 12-20, and 50-52 have been previously withdrawn.

Claims 1 and 5 as well as Withdrawn Claims 6 and 12 have been amended herein.

No claims are added.

No claims are canceled.

Request for Examiner's Interview

Applicant respectfully requests an interview with the Examiner to discuss the response. Applicant earnestly believes that an interview with the Examiner would result in expediting the case to an allowance. Applicant desires to discuss the amendments to the rejected claims to determine allowability thereof. Once the Examiner has considered the effect of the response, a telephone call to the undersigned at (561) 716-3915 is respectfully requested. Applicant respectfully notes that, in accordance with MPEP 713.01 and 37 CFR 1.133, "[w]here the reply to a first complete action includes a request for an interview, a telephone consultation to be initiated by the examiner or a video conference…, the examiner, as soon as he or she has considered the effect of the reply, should grant such request if it appears that the interview or consultation would result in expediting the case to allowance."

Applicant respectfully requests an Examiner's Interview prior to any subsequent substantive review of the subject Application. Applicant is submitting a formal request herewith.

Amendments to Independent Claims

Applicant has amended Independent **Claim 1** to more clearly and concisely define the present invention as follows:

"deploying a series of beacons , wherein each beacon of the series of beacons is located at

Google Ex. 1028, p. 068

a known, fixed location about said interior of said hospitality venue and integrated into an existing hospitality system;

encoding information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

~~wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal.~~

automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system."

Support for the amendment is provided in Paragraph [00536], which states:

[00536] "The subject invention creates infrastructure of RF beacons in the facility, hotel, resort, and cruise ship areas to be integrated with the existing hospitality system and provide a

Google Ex. 1028, p. 069

trigger mechanism when the existence of the traveler/guest is detected."

Additional support for the amendment is provided in paragraph [00659], which states:

"[00659] "FIG. 12 presents an exemplary flow diagram illustrating a next generation of marketing tools utilizing the RF beacon (102) infrastructure deployed in a local area. The network obtains a user's profile or preferences (701) as well as a user's behavioral pattern (704) associated with the user's cellular phone (101). The information is conveyed to a business owner (702) for marketing purposes. The profile and/or preferences are filtered to determine applicable local based services (LBS) (703). The information can trigger or initiate an application (304), establish a link to an existing system and software, and the like to provide at least one of local content (503) and indoor navigation (108) to the cellular phone (101) or similar receiving device."

Applicant has amended Independent **Claim 6** to more clearly and concisely define the present invention as follows:

"deploying a series of beacons, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue;

encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile

Google Ex. 1028, p. 070

device;

decoding each received said at least one of said broadcast beacon signal;

wherein the information decoded from the beacon signal automatically initiates at least one of the following steps:

(a) a link to access and activate existing software provided by said third party application hosted on said existing system based upon the encoded identification of the beacon, and

(b) a local based services (LBS) application to provide local based services information to the mobile device, wherein said provided local based services information is provided by said third party application hosted on said existing system and wherein said provided local based services information is associated with said beacon identifying information."

The amendments to Independent **Claim 6** are consistent with those of Independent **Claim 1**. Applicant respectfully applies the support presented above to the subject amendments.

Applicant has amended Independent **Claim 12** to more clearly and concisely define the present invention as follows:

"deploying a series of beacons, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons and information associated with a known physical location of said respective beacon;

broadcasting a beacon signal from each beacon of said series of beacons;

determining a location of a mobile device in accordance with following steps:

Google Ex. 1028, p. 071

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device,

decoding each received said at least one of said broadcast beacon signal; ~~and~~

automatically initiating an local based service (LBS) to identify a current location of said mobile device within said interior of said hospitality venue;

determining [[a]] said current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information associated with a known physical location of said respective beacon collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map."

The amendments to Independent **Claim 12** are consistent with those of Independent **Claim 1**. Applicant respectfully applies the support presented above to the subject amendments.

Status of Application in Accordance with the American Inventor's Act

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

Google Ex. 1028, p. 072

DETAILED ACTION

Claim Objections

1. The Examiner objected to **Claim 23** because of the following informalities: **Claim 23** recites "said an". Appropriate correction is required.

Claim Rejections - 35 USC § 103

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

3. The following is a quotation of pre-AIA 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.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. 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

Google Ex. 1028, p. 073

under pre-AIA 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.

6. The Examiner rejected **Claims 1, 3-5, 7-9, 11, 21, 23, 24, 27, 38, 39, 40, 41, 42, 44, 46, 47, 48 and 49** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392 A1) in view of Major et al (US 5,250,955).

6A. (Examiner's Position): Regarding **Claim 1**, Monroe teaches a method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue (see [0017], *"beacon transmitters, **are** installed at various locations around the monitored facility',* also see [0018], *"gymnasium", "auditorium", "stadium"* and *"campus ground or the like'),*

encoding information into a device identification portion of a beacon signal (also see [0017], *"The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals",* also see fig.4, see box" *105 encoder',* and see box *"**encode**s transmit **beacon ID**"),*

wherein said identifying information identifies each beacon of said series of beacons (also see [0017], *"The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals"),*

broadcasting said beacon signal from each beacon of said series of beacons (also see [0017], *"The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals"),*

scanning for any of said broadcast beacon signals using a mobile device (see *[0061], "the*

Google Ex. 1028, p. 074

*receiver is programmed to **listen** for or **sense** beacons and to store the last one **detected'**,* see [0059] and fig.5, *"beacon receiver* 135' for scanning the broadcast beacon signals, and see Abstract and [0009], *"a small cell phone or*"),

detecting at least one of said broadcast beacon signals (see [0061], *"the receiver is programmed to **listen** for or **sense** beacons and to store the last one **detected'**,* also see [0059] and fig.5, *"beacon receiver* 135' for detecting the broadcast beacon signals),

receiving at least one of said broadcast beacon signal by said mobile device (also see [0061], *"the **receiver** is programmed to **listen** for or **sense** beacons and to store the last one **detected'**.* In addition, see [0059] and fig.5, *"beacon receiver* 135" for detecting the broadcast beacon signals),

wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device (see [0017], *"beacon transmitter§. **are** installed at various locations around the monitored facility",* also see [0018], *"gymnasium", "auditorium", "stadium"* and *"campus ground or the like"),* and

decoding each received said at least one of said broadcast beacon signal (see *[0059], "the beacon ID number is decoded by beacon decoder* 145", and see fig.5, *"beacon **decoder*** 145" and *"beacon receiver 135"),*

Monroe does not specifically disclose wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal.

Major teaches wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal (see Abstract, column 2, lines 40-68, for *"beacon", "decode",* and see column 1 lines 15-20 and Major's claims 1, 2 and 6 for *"automatic".* In addition, see Applicant's remarks, dated *12/10/2015,* pages 19-20 for how Applicant define/support for the newly added *"a hospitality function").*

Google Ex. 1028, p. 075

Therefore, it would *have* been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Major into the system of Monroe in order to provide an accurate indication of the point of crossing for *revenue* generating purposes (see Major, column 1 lines 15-20).

6a. (Applicant's Remarks): Claim 1 is an Independent claim. Applicant has amended Independent **Claim 1** to more clearly and concisely define the present invention as follows:

"deploying a series of, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue and integrated into an existing hospitality system;

encoding information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

~~wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal.~~

automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded

Google Ex. 1028, p. 076

from said beacon signal;

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system."

The present invention is directed towards a system comprising a series of beacons deployed at known locations within an indoor environment within a hospitality venue. Each beacon transmits a beacon signal comprising information encoded into a device identification portion of the signal. Upon receipt of the signal, the receiving device decodes the signal and the decoded information automatically initiates a third party application hosted on an existing system.

Independent **Claim 1**, as previously presented, included a limitation of "wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal." The Examiner is allowed to utilize the broadest interpretation of the limitations to review the claim. The Examiner's interpretation required the introduction of Major to address the subject limitation. This will be addressed in more detail below.

The Applicant has amended Independent **Claim 1** to more clearly and concisely define the present invention to clarify that the receipt of the encoded signal initiates a hospitality function, which includes a third party application hosted on an existing system.

The Examiner admits "Monroe does not specifically disclose wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal."

The Examiner relies upon "Major teaches wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal (see Abstract, column 2, lines 40-68, for *"beacon", "decode",* and see column 1 lines 15-20 and Major's claims 1, 2 and 6 for *"automatic"*. In addition, see

Google Ex. 1028, p. 077

Applicant's remarks, dated *12/10/2015,* pages 19-20 for how Applicant define/support for the newly added *"a hospitality function"*)."

The following are quotes from the sections of Major that the Examiner is relying upon:

Abstract: "A beacon system wherein a beacon station is placed at a landmark such as a state line adjacent a major highway to broadcast information-containing alternating directional signals. In addition, each vehicle may be equipped with a radio receiver, a receiving decoder and a data analysis processor for receiving data signals from the beacon station. The beacon station includes an information encoder for generating first and second alternating but distinct location signals, first and second directional antennas disposed to radiate in opposite directions along the path of travel, the directional antennas having a significant back attenuation, a radio frequency transmitter for broadcasting the two location signals, preferably as data packets, to vehicle-mounted receivers along the path of travel, and an r.f. switcher for switching signal output of the transmitter between the two antennas in synchronization with the two location signals. The data analysis processor associated with each vehicle-carried receiver includes a half-circular buffer operative to capture a succession of packets received from the receiving decoder, to preserve initially-received complete packets of the first location signals and to preserve last-received complete packets of the second location signals. The data analysis processor further includes means for processing the preserved packets in the half-circular buffer to determine the exact crossover point of the landmark marked by location of the transmitter."

Column 1 lines 15-20: "**This invention relates to automatic sensing and recording of an indication of the crossing of a boundary, and more specifically, it relates to a system for recording the passage of a commercial load-carrying vehicle across a state line with an accurate indication of the point of crossing for revenue generating purposes**."

Column 2, lines 40-68: "According to the invention, a beacon system is provided wherein a radio beacon station is placed at a landmark such as a state line adjacent a major highway to broadcast information-containing alternating directional signals. In addition, each vehicle may be equipped with a radio receiver, a receiving decoder and a data analysis processor for receiving

Google Ex. 1028, p. 078

data signals from the beacon station. The beacon station includes an information encoder for generating first and second alternating but distinct location signals, first and second directional antennas disposed to radiate in opposite directions along the path of travel, the directional antennas having a significant back attenuation, a radio frequency transmitter for broadcasting the two location signals, preferably as data packets, to vehicle-mounted receivers along the path of travel, and an r.f. (sic) switcher for switching signal output of the transmitter between the two antennas in synchronization with the two location signals. The data analysis processor associated with each vehicle-carried receiver includes a half-circular buffer operative to capture a succession of packets received from the receiving decoder, to preserve initially-received complete packets of the first location signals and to preserve last-received complete packets of the second location signals. **The data analysis processor further includes means for processing the preserved packets in the half-circular buffer to determine the exact crossover point of the landmark marked by location of the transmitter.**"

Claim 1 of Major: A beacon system for automatically marking and identifying a boundary landmark along a path of travel to a data gathering device in a moving vehicle, comprising:

a radio beacon station placed adjacent the boundary landmark for broadcasting as a first beacon signal a first location signal and as a second beacon signal a second location signal, said first and second location signals being transmitted from a single location on a single frequency alternately in opposite directions along a path of travel; and

a radio receiving means, said radio receiving means including a radio receiver for said single frequency and a data analysis means, said radio receiving means being disposed in the moving vehicle for receiving said first and second location signals from the beacon station as the vehicle approaches and passes the boundary landmark, said data analysis means including means for determining from reception of both the first location signal and the second location signal the point of passing of the boundary landmark.

Google Ex. 1028, p. 079

Claim 2 of Major: A beacon system for automatically marking and identifying a boundary landmark along a path of travel to a data gathering device in a moving vehicle, comprising:

a radio beacon station placed adjacent the boundary landmark for broadcasting as a first beacon signal a first location signal and as a second beacon signal a second location signal, said first and second location signals being transmitted on a single frequency alternately in generally opposite directions along a path of travel, said beacon station including:

first and second directional antennas disposed to radiate in opposite directions along the path of travel, said directional antennas each having significant back attenuation;

a packet modulator means for generating said first and second location signals as data packets carrying alternately different digital information;

a radio frequency transmitter for broadcasting the first and second location signals as different data packets; and

an r.f. switcher for switching signal output of the transmitter between the first and second directional antennas in synchronization with the first and second location signals; and

a radio receiving means, said radio receiving means including a radio receiver for said single frequency and a data analysis means, said radio receiving means being disposed in the moving vehicle for receiving said first and second location signals from the beacon station as the vehicle approaches and passes the boundary landmark, said data analysis means including means for determining from reception of both the first location signal and the second location signal the point of passing of the boundary landmark.

Claim 6 of Major: A beacon system for automatically marking and identifying a boundary landmark along a path of travel to a data gathering device in a moving vehicle, comprising:

Google Ex. 1028, p. 080

a radio beacon station placed adjacent the boundary landmark for broadcasting as a first beacon signal a first location signal and as a second beacon signal a second location signal, said first and second location signals being transmitted on a single frequency alternately in opposite directions along a path of travel, said beacon station including directional antenna means having a first directionality and a second directionality disposed to broadcast in generally opposite directions along the path of travel, said directional antenna means having significant back attenuation with respect to said first and second directionality; and

a radio receiving means, said radio receiving means including a radio receiver for said single frequency and a data analysis means, said radio receiving means being disposed in the moving vehicle for receiving said first and second location signals from the beacon station as the vehicle approaches and passes the boundary landmark, said data analysis means including means for determining from reception of both the first location signal and the second location signal the point of passing of the boundary landmark.

As mentioned above: Independent **Claim 1**, as previously presented, included a limitation of "wherein the information decoded from said beacon signal **automatically initiates a hospitality function** based upon the information decoded from the received beacon signal."

Applicant respectfully asserts that the cited references fail to teach or suggest all the elements of the claimed invention. As the Examiner is aware, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03 (citing *In re Wilson,* 424 F.2d 1382, 1385, 165 US.P.Q. 494,496 (C.C.P.A. 1970). Moreover, in order to establish a *prima facie* case of obviousness, the references alone or in combination must teach or suggest all the limitations of Applicant's claimed invention. *In re Vaeck,* 947 F.2d 488, 20 US.P.Q.2d 1438 (Fed. Cir. 1991).

The Examiner relies upon Major, more specifically, the term "automatically". Applicant respectfully asserts that Major requires that the "Hospitality Function" is running.

Major teaches a system that monitors for a radio signal. Upon receipt of the radio signal,

Google Ex. 1028, p. 081

the "hospitality function" (as established by analogy by the Examiner) records an indication of crossing of a boundary. Applicant respectfully notes, Major requires that the "Hospitality Function" is running in order to accomplish the step of recording an indication of crossing of a boundary.

In the broadest term, it is debatable whether Major teaches a step of "automatically initiating" the "hospitality function" as previously recited in Independent **Claim 1**.

Since this position can be debated on either side, the Applicant is addressing the rejection by amending Independent **Claim 1** (without prejudice) to more clearly and concisely define the present invention to clearly overcome any broad interpretation of what is automatically initiating.

Major is silent pertaining to the function of "*automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal*".

Additionally Major is silent pertaining to the function of "*automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system.*"

Initially, the Examiner relies upon a combination of Monroe and Major to reject Independent **Claim 1**. The Examiner asserts the teachings of Monroe pertaining to a deployment of a series of beacons within a hospitality venue. Monroe teaches a deployment of beacons for use in a system for tracking a user. The user would carry a receiver which would receive the beacon signals and store the beacon signal each time it is received (Paragraph [0017]). More specifically, the teachings of Monroe requires that the mobile device initiate an action.

Monroe further states:

"[0018] In large enclosed areas such as a gymnasium or auditorium multiple beacons may be employed for further refining the location of a sending unit. It is also an important feature of the

Google Ex. 1028, p. 082

invention that GPS technology may be employed in outdoor settings such as a stadium, campus grounds or the like. This is useful independently of the beacon technology, or may be employed in connection with the beacon technology in order to track location of a user both internally and externally while in the monitored area."

The only employment of the beacons is to identify a location of the user. Any initiation of any action is predicated by the user activating an alert on the portable device as taught in Paragraph [0017], which states:

"[0017] In an enhanced embodiment, beacon transmitters are installed at various locations around the monitored facility, again connected to a common facility network. The beacon transmitters are designed to transmit a unique beacon ID signal at regular intervals. The beacon signals may also be generated by a control signal from a system processor on the facility network. These signals may be infrared, RF, ultrasonic or other known format. The personal alarm unit will store the beacon signal each time it is received. **When a signal is initiated from the personal alarm unit it will identify the location of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user.**"

The Examiner additionally relies upon Paragraphs [0059] and [0061], which state:

"[0059] In FIG. 5, an enhanced personal alarm is equipped with a beacon receiver, using infrared, RF, or ultrasonic methods as in the case of the beacon. The personal alarm unit receives and stores the ID number of the nearest beacon, as indicated at beacon receiver **135**. The personal alarm unit receives the identifying signal from the beacon via beacon receiver **135**. The beacon ID number is decoded by beacon decoder **145** and introduced into the unit processor at **150**. As in the embodiment of FIG. 1 the program memory **125** and device ID memory **130** provide device specific identify data to the processor. When one of the switches S**1**, S**2**, or S**3** is depressed, processor **150** formulates a message containing the personal alarm ID, the most recent beacon ID, and an indication of which switch was pressed. In this embodiment the encoder **155** encodes the processor output and introduces it to the transmitter **160** for wireless transmission via the antenna

Google Ex. 1028, p. 083

165. The microphone **140** permits direct audio input to the system from the unit. Audio may be transmitted in analog form, or may be digitized by AID converter **141** and compressed by compressor **142**, thence transmitted digitally. The unit is shown at **170** and includes the activation switches S**1**, S**2**, S**3**, the microphone **140** and the antenna **165**."

Monroe teaches that the signal is simply stored in the receiving device to collect data points. "*The personal alarm unit receives and stores the ID number of the nearest beacon, as indicated at beacon receiver **135**. The personal alarm unit receives the identifying signal from the beacon via beacon receiver **135**. The beacon ID number is decoded by beacon decoder **145** and introduced into the unit processor at **150**. As in the embodiment of FIG. 1 the program memory **125** and device ID memory **130** provide device specific identify data to the processor.*"

Monroe further teaches: "When one of the switches S**1**, S**2**, or S**3** is depressed, processor **150** formulates a message containing the personal alarm ID, the most recent beacon ID, and an indication of which switch was pressed." This clearly distinguishes over any potential for automatically initiating a "hospitality function" based upon the receipt of the signal. The information from the signal is simply stored within the device and any activity is triggered by an action caused by the user and only by the user.

"[0061] It will be noted that the receiver is programmed to listen for or sense beacons and to store the last one detected. Then if a panic button is pressed when the panic button unit IS NOT in range of a beacon, the last know beacon ID will be used for transmission of location. This would perhaps not send the exact location, but would be close because it is the last substantiated location. As shown in FIGS. 6A and 6B, the personal alarm units may operate in either a continuous fashion, or in an as-needed fashion. In FIG. 6A, the personal alarm periodically sends it's unit ID number, last beacon ID number(s), and emergency ID number (if any). In FIG. 6B, the personal alarm transmits only when one of switches S**1** S**3** are activated. The beacon generators do not necessarily need to be networked, which permits that common power be used. Networked beacon generators require network wiring, or wireless network infrastructure. The utility of the system may be greatly enhanced by connecting all the facility's

Google Ex. 1028, p. 084

beacon units to a common network, as depicted in FIG. 7. In this enhancement, the beacon transmitter of FIG. 4 is equipped with a wireless receiver, to receive transmissions from personal alarm units within it's immediate area. Additionally, the beacon transmitter/receiver is connected to a network or LAN serving the facility, allowing emergency transmissions from personal alarm units to be disseminated throughout the network. As before, the beacon transmits its unique beacon ID number into the local area, again using infrared, RF, or ultrasonic methods, as indicated by the antenna **180** and RF transmitter **185**, the IR transmitter **190** and generator **195**, ultrasonic transducer **205** and generator **200**, respectively. The beacon ID memory is provided by a discrete memory circuit **235**. Additionally, the beacon unit of FIG. 7 has a RF receiver **215** with antenna **210**, capable of receiving the transmissions from the personal alarm units of FIG. 1 or FIG. 5, if any, located within its immediate area. The signal received and demodulated by the wireless receiver **215** is decoded at decoder **225** and introduced into the processor **230**. The processor formulates a message containing the personal alarm ID, alarm type, and beacon number transmitted by the personal alarm unit. This message is introduced to the network **245** via the network interface **240** for transmission to the monitoring station **250**. The antenna **255** provides the means for transmitting and receiving signals from the RF transmitter **265** and the RF receiver **270** via a transmitter/receiver switch **260**, permitting reduction of circuit redundancies. Since each beacon unit has it's own wireless receiver for receiving emergency transmissions from the personal alarm units, the beacon units may supplement or replace the facility-wide RF receivers depicted in FIG. 3."

Monroe furthers the teachings of Paragraph [0059] in Paragraph [0061] to accommodate a condition where the personal alarm unit is outside of a broadcast area of the beacons. In this condition, the personal alarm unit transmits a last known beacon location to other personal alarm units within the vicinity of the personal alarm unit transmitting the alarm condition.

Therefore, the only "automatic" function taught by Monroe is the receiving and storage of the beacon locations, wherein the received beacon location information is recorded in an order of receipt (most recent being first).

Google Ex. 1028, p. 085

As mentioned above, the Examiner relies upon Major, more specifically, the term "automatically". Applicant respectfully asserts that Major requires that the "Hospitality Function" is running.

Although the Examiner focused upon the term "automatically", the Examiner was silent in addressing the term "initiating".

Major teaches a system that monitors for a radio signal. Upon receipt of the radio signal, the "hospitality function" (as established by analogy by the Examiner) records an indication of crossing of a boundary. Applicant respectfully notes: Major requires that the "Hospitality Function" is running in order to accomplish the step of recording an indication of crossing of a boundary.

Regarding the disclosure presented in the Abstract: Major teaches "*The data analysis processor associated with each vehicle-carried receiver includes a half-circular buffer operative to capture a succession of packets received from the receiving decoder, to preserve initially-received complete packets of the first location signals and to preserve last-received complete packets of the second location signals. The data analysis processor further includes means for processing the preserved packets in the half-circular buffer to determine the exact crossover point of the landmark marked by location of the transmitter.*" This is no different than the teachings of Monroe, as presented above. As the vehicle passes the beacon, the vehicle-carried receiver receives the beacon signal, which is in turn interpreted and recorded to identify when the vehicle crosses a state line.

Major continues to teach: "*This invention relates to automatic sensing and recording of an indication of the crossing of a boundary, and more specifically, it relates to a system for recording the passage of a commercial load-carrying vehicle across a state line with an accurate indication of the point of crossing for revenue generating purposes.*" (Column 1 lines 15-20). The step of automatically sensing and recording still lacks any contribution to "automatically initiating a hospitality function". Applicant respectfully notes, the function is already operating and therefore can't be initiated (with emphasis).

Google Ex. 1028, p. 086

The Examiner additionally relies upon Claims 1, 2, and 6 of Major for additional support. Claims 1, 2, and 6 of Major are quoted above.

Applicant respectfully asserts, each of Claims 1, 2, and 6 of Major are consistent with the position presented by the Applicant above. More specifically, each of Claims 1, 2, and 6 of Major lack any teaching of automatically initiating a hospitality function. Each of Claims 1, 2, and 6 include: "A beacon system for **automatically marking and identifying a boundary landmark along a path of travel to a data gathering device in a moving vehicle**, comprising"

Applicant respectfully notes, the inclusion of automatically marking and identifying a boundary landmark along a path still fails to teach automatically initiating (with emphasis on initiating) a "hospitality function".

In summary, the present invention includes a series of beacons deployed at known locations about a hospitality environment. A mobile device receives a beacon signal from a beacon located proximate the mobile device and decodes the beacon signal. The beacon signal then causes the mobile device to automatically initiate (trigger) an application. Applicant has amended Independent **Claim 1** to more clearly and concisely define the initiation as follows:

"*automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;*

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system."

Additionally, Applicant addresses the combination. Applicant asserts that the combination lacks motivation. Both Monroe and Major simply teach a process of receiving location information from a beacon and storing the location information until use at a later point in time. The only "automatic function" of Major is the automatic recording of the location at the

Google Ex. 1028, p. 087

time of passing the beacon. Applicant respectfully contends that Major lacks teaching of automatically initiating a hospitality function. Should the Examiner disagree, Applicant respectfully requests the Examiner clearly described his position on how Major automatically initiates a hospitality function.

Monroe is initiated when the user activates any switch on the portable alarm device. There is no need for any automated initiation of a "hospitality application" based upon a receipt of the beacon signal, more specifically, initiating a hospitality function based upon a receipt of the beacon signal.

The Examiner was silent in describing any motivation for combining the teachings of Major (automatic) (as understood and applied by the Examiner) to the teachings of Monroe.

The Examiner relies upon:

"Major teaches wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal (see Abstract, column 2, lines 40-68, for *"beacon", "decode",* and see column 1 lines 15-20 and Major's claims 1, 2 and 6 for *"automatic"*. In addition, see Applicant's remarks, dated *12/10/2015,* pages 19-20 for how Applicant define/support for the newly added *"a hospitality function").*

Therefore, it would *have* been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Major into the system of Monroe in order to provide an accurate indication of the point of crossing for *revenue* generating purposes (see Major, column 1 lines 15-20)."

The Examiner is silent pertaining to the limitation "automatically initiating" (with emphasis on initiating). Additionally, the Examiner is silent pertaining to any motivation besides that it would be obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Major into the system of Monroe in order to provide an accurate indication of the point of crossing for *revenue* generating purposes. Applicant respectfully notes,

Google Ex. 1028, p. 088

that this is simply a recording function and lacks any function of automatically initiating a function. Applicant respectfully notes, Major lacks teach automatically **initiating** revenue generating. Major is again, only recording an accurate time when the vehicle crosses a state line.

Applicant respectfully believes the amendments (made without prejudice) to Independent **Claim 1** clearly overcome the combination of Monroe and Major.

Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al. has been overcome by amendment and remarks submitted herein. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al.

6B. (Examiner's Position): Regarding **Claim 3**, Monroe teaches said hospitality *venue* is at least one of a hotel, motel, a cruise ship (see [0010], *"cockpit", "passenger cabin"*), a resort, a theater, a conference center (see [0018] and [0067], see *"auditorium"*), a restaurant, and a casino (In addition, where to deploy/employ the beacons is obvious or Inventor's choice).

6b. (Applicant's Remarks): Dependent **Claim 3** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6C. (Examiner's Position): Regarding **Claim 4**, Monroe teaches a step of establishing a link between said mobile *device* and a hospitality system associated with said hospitality *venue* (see Abstract and see fig.15).

6c. (Applicant's Remarks): Dependent **Claim 4** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

Google Ex. 1028, p. 089

6D. (Examiner's Position): Regarding **Claim 5**, Monroe teaches a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue (see Abstract and see fig.1S), wherein said hospitality system includes access to at least one of: a hospitality front office, a hospitality back office, a food and beverage provider, room service, in-room service (see [OOSO], *"room"),* an events and ticketing concierge, a conference concierge, a show concierge, an emergency plan and procedure (see [0004], [0005], [0011], [0013] and [0014], *"emergency"),* an entertainment system, an in-room guide and information, engineering services, employee control, security (see Title, *"security system"* and Abstract, *"alarm system",* also see [0020], *"security"* and *"surveillance"),* room key and access control system, and a payment process.

6d. (Applicant's Remarks): Dependent **Claim 5** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6E. (Examiner's Position): Regarding **Claim 7**, Monroe teaches a step of directing said mobile device to transmit a communication notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon signal (see Abstract, *"A beacon generator may be used to identify location of the portable unit",* and see [0017], *"The beacon signals may also be generated by a control signal from a system processor on the facility network. The personal alarm unit will store the beacon signal each time it is received. When a signal is* ***initiated*** *from the personal alarm unit it will identify the* ***location*** *of the sender by transmitting the last stored beacon signal,*

providing an efficient, inexpensive and accurate method of tracking the user", also see [0074], *"if the user* 5654 ***pressed the FIRE pushbutton,*** *the appliance will notify the fire department 540 and the signal will identify the location of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570".* In this case, Monroe's *"initiated"* and/or *"pressed the FIRE pushbutton"* read on Applicant's *"directing").*

Google Ex. 1028, p. 090

6e. (Applicant's Remarks): Dependent **Claim 7** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6F. (Examiner's Position): Regarding **Claim 8**, Monroe teaches directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal (see Abstract, *"A beacon generator may be used to identify location of the portable unit"*, and see [0017], *"The beacon signals may also be generated by a control signal from a system processor on the facility network. The personal alarm unit will store the beacon signal each time it is received. When a signal is **initiated** from the personal alarm unit it will identify the **location** of the sender by transmitting the last stored beacon Signal, providing an efficient, inexpensive and accurate method of tracking the user"*, also see [0074], *"if the user* 5654 ***pressed the FIRE pushbutton,*** *the appliance will notify the fire department 540 and the signal will identify the **location** of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570"*. In this case, Monroe's *"initiated"* and/or *"pressed the FIRE pushbutton"* read on Applicant's *"directing"),* and forwarding information associated with at least one of the hospitality venue (see [0018] and [0067], see *"stadium", "campus ground", "gymnasium", "auditorium"),* an event, food and beverage services, and billing to said mobile device.

6f. (Applicant's Remarks): Dependent **Claim 8** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6G. (Examiner's Position): Regarding **Claim 9**, Monroe teaches a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue (see Abstract, *"A personal alarm system can be worn or carried by the user, may be activated at any time by the user and/or may be automatically*

Google Ex. 1028, p. 091

activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's location within the monitored area". In this case, Monroe's *"activated"* read on Applicant's *"directing").*

6g. (Applicant's Remarks): Dependent **Claim 9** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6H. (Examiner's Position): Regarding **Claim 11**, Monroe teaches a step of utilizing said beacon signal to determine a location of said mobile *device* (see Abstract, *"A personal alarm system can be worn or carried by the user, may be activated at any time by the user and/or may be automatically activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's* ***location*** *within the monitored area",* also see Abstract, *"A beacon generator may be used to identify* ***location*** *of the portable unit",* and see [0017], *"When a signal is* ***initiated*** *from the personal alarm unit it will identify the* ***location*** *of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user",* also see [0074], *"if the user* 5654 ***pressed the FIRE pushbutton,***

the appliance will notify the fire department 540 and the signal will identify the ***location*** *of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570").*

6h. (Applicant's Remarks): Dependent **Claim 11** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6I. (Examiner's Position): Regarding **Claim 21**, the combination of Monroe and Major further teaches within the step of encoding identifying information into a *device* identification portion of a beacon signal, the identifying information includes information related to a physical

Google Ex. 1028, p. 092

location of the beacon (see Major, column 4, lines 35-41).

6i. (Applicant's Remarks): Dependent **Claim 21** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6J. (Examiner's Position): Regarding **Claim 23**, the combination of Monroe and Major further teaches the local based services (LBS) includes emitting an emergency locating signal in an emergency condition, wherein the an emergency locating signal includes the location of the mobile device, wherein the location of the mobile device is determined using the geographic location information decoded from the received beacon signal (see Monroe, [0004], [0005], [0010], [0011], [0013], [0014], [0015], [0028], [0031], [0052], [0057), [0061], [0063], [0064], [0068], [0069], [0074] and [0075]).

6j. (Applicant's Remarks): Dependent **Claim 23** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6K. (Examiner's Position): Regarding **Claim 24**, the combination of Monroe and Major further teaches comprising a step of providing local mapping to the user, wherein the local mapping is based upon the geographic location information decoded from the received beacon signal (see Monroe, [0030] and Monroe's Claim 32).

6k. (Applicant's Remarks): Dependent **Claim 24** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6L. (Examiner's Position): Regarding **Claim 27**, the combination of Monroe and Major further teaches the local based services (LBS) uses the infrastructure deployment to locate the user in at least one of an emergency situation or during an E-911 call wherein the location of the

Google Ex. 1028, p. 093

mobile device is determined using the information decoded from the received beacon signal (see Monroe, [0004], [0005], [0010], [0011], [0013], [0014], [0015], [0028], [0031], [0052], [0057], [0061], [0063], [0064], [0068], [0069], [0074] and [0075]).

6l. (Applicant's Remarks): Dependent **Claim 27** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6M. (Examiner's Position): Regarding **Claim 38**, the combination of Monroe and Major further teaches a step of interacting with a social networking environment (see Monroe, [0024]).

6m. (Applicant's Remarks): Dependent **Claim 38** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6N. (Examiner's Position): Regarding **Claim 39**, the combination of Monroe and Major further teaches a step of sharing the mobile device with other mobile devices operating as a local social networking environment (see Monroe, [0024]).

6n. (Applicant's Remarks): Dependent **Claim 39** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6O. (Examiner's Position): Regarding **Claim 40**, the combination of Monroe and Major further teaches a step of including the mobile device into an existing local social networking environment (see Monroe, [0024]).

6o. (Applicant's Remarks): Dependent **Claim 40** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

Google Ex. 1028, p. 094

6P. (Examiner's Position): Regarding **Claim 41**, the combination of Monroe and Major further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile device within proximity of other mobile devices and the beacon (see Monroe, [0024]).

6p. (Applicant's Remarks): Dependent **Claim 41** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6Q. (Examiner's Position): Regarding **Claim 42**, the combination of Monroe and Major further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile device within proximity of other mobile devices and the beacon, wherein the social networking environment is associated with the hospitality venue (see Monroe, [0024]).

6q. (Applicant's Remarks): Dependent **Claim 42** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6R. (Examiner's Position): Regarding **Claim 44**, the combination of Monroe and Major further teaches a step of displaying a circle overlay onto a local map on a display of the mobile device, wherein the circle is associated with one of the location of the mobile device and the location of the proximate beacon of the series of beacons (see Monroe, [0030] and Monroe's claim 32).

6r. (Applicant's Remarks): Dependent **Claim 44** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6S. (Examiner's Position): Regarding **Claim 46**, the combination of Monroe and Major

Google Ex. 1028, p. 095

further teaches the step of automatically initiating the hospitality function includes a step of including user information provided by the mobile device (see Major, Abstract, column 2, lines 40-68, for "beacon", "decode", and see column 1 lines 15-20 and Major's Claims 1, 2 and 6 for "automatic". In addition, see Applicant's remarks, dated 12/10/2015, pages 19-20 for how Applicant define the newly added "a hospitality function").

6s. (Applicant's Remarks): Dependent **Claim 46** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6T. (Examiner's Position): Regarding **Claim 47**, the combination of Monroe and Major further teaches the step of automatically initiating the hospitality function includes a step of including user information provided by the mobile device, wherein the information decoded from the received beacon signal in conjunction with the user information provided by the mobile device is provided to a hospitality function service provider (see Major, Abstract, column 2, lines 40-68, for "beacon", "decode", and see column 1 lines 15-20 and Major's claims 1, 2 and 6 for "automatic". In addition, see Applicant's remarks, dated 12/10/2015, pages 19-20 for how Applicant define the newly added "a hospitality function").

6t. (Applicant's Remarks): Dependent **Claim 47** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6U. (Examiner's Position): Regarding **Claim 48**, the combination of Monroe and Major further teaches a sensor in communication with the beacon, wherein the beacon broadcasts only after activation of the sensor (see Monroe, [0006] and [0052]).

6u. (Applicant's Remarks): Dependent **Claim 48** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

Google Ex. 1028, p. 096

6V. (Examiner's Position): Regarding **Claim 49**, the combination of Monroe and Major further teaches downloading at least one of a floor plan and a map, and storing the at least one of a floor plan and a map in the mobile device for use with the hospitality function independent of network connectivity (see Monroe, [0030] and Monroe's claim 32).

6v. (Applicant's Remarks): Dependent **Claim 49** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **6w** below.

6w. (Applicant's Summary): Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al has been overcome by amendments and remarks submitted in section 6a above. It necessarily follows that due to their dependency from Independent **Claim 1**, Dependent **Claims 3-5, 7-9, 11, 21, 23, 24, 27, 38, 39, 40, 41, 42, 44, 46, 47, 48 and 49** are also nonobvious in view of Monroe in view of Major et al. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claims 3-5, 7-9, 11, 21, 23, 24, 27, 38, 39, 40, 41, 42, 44, 46, 47, 48 and 49** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al.

7. The Examiner rejected **Claims 2, 26, 28, 29, 30, 31, 38, 39, 40, 41, 42, 43 and 45** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Major et al (US 5,250,955) and further in view of Hoddie (US 2005/0221858A1).

7A. (Examiner's Position): Regarding **Claim 2**, the combination of Monroe and Major teaches the beacon signal is a short range radio frequency, and transmitting said beacon signal as at least one of short range radio frequency (see Monroe, [0017], *"These signals may be infrared. RF. ultrasonic or other known format").* The combination of Monroe and Major does not specifically

Google Ex. 1028, p. 097

disclose the beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Hoddie teaches the beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal (see [0020] and [0034], "Bluetooth", "Wi-Fi").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Hoddie into the system of Monroe and Major in order to provide methods and apparatus for interface negotiation using a device supporting multiple communication interfaces (see Hoddie, Abstract).

7a. (Applicant's Remarks): Dependent **Claim 2** depends from Independent **Claim 1**.

Hoddie teaches a beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal. Hoddie fails to address a system that includes the following limitations:

"*automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;*

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system."

Therefore, the introduction of Hoddie fails to further impact the remarks presented in section 6a above.

Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

Google Ex. 1028, p. 098

7B. (Examiner's Position): Regarding **Claim 26**, the combination of Monroe, Major and Hoddie further teaches the local based services (LBS) includes at least one of: marketing, site information, sales, product, events, specials, and coupons (see Hoddie, [0012]).

7b. (Applicant's Remarks): Dependent **Claim 26** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7C. (Examiner's Position): Regarding **Claim 28**, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile in conjunction with the Bluetooth identifier signal as a secure key for use in conjunction with the local based services (LBS) (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

7c. (Applicant's Remarks): Dependent **Claim 28** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7D. (Examiner's Position): Regarding **Claim 29**, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile in conjunction with the Bluetooth identifier signal as a key for use in conjunction with an access lock of the associated hospitality venue (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

7d. (Applicant's Remarks): Dependent **Claim 29** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7E. (Examiner's Position): Regarding **Claim 30**, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile into the Bluetooth identifier signal as a secure key

Google Ex. 1028, p. 099

for use in conjunction with near field communications (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

7e. (Applicant's Remarks): Dependent **Claim 30** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7F. (Examiner's Position): Regarding **Claim 31**, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile into the Bluetooth identifier signal as a secure key for use in conjunction with near field communications and payments (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

7f. (Applicant's Remarks): Dependent **Claim 31** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7G. (Examiner's Position): Regarding **Claim 38**, the combination of Monroe, Major and Hoddie further teaches a step of interacting with a social networking environment (see the teaching of Monroe in claim 38 above, and/or see Hoddie, [0001], [0014]).

7g. (Applicant's Remarks): Dependent **Claim 38** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7H. (Examiner's Position): Regarding **Claim 39**, the combination of Monroe, Major and Hoddie further teaches a step of sharing the mobile device with other mobile devices operating as a local social networking environment (see the teaching of Monroe in claim 39 above, and/or see Hoddie, [0001], [0014]).

7h. (Applicant's Remarks): Dependent **Claim 39** depends from Independent **Claim 1**.

Google Ex. 1028, p. 100

Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7I. (Examiner's Position): Regarding **Claim 40**, the combination of Monroe, Major and Hoddie further environment (see the teaching of Monroe in claim 40 above, and/or see Hoddie, [0001], [0014]).

7i. (Applicant's Remarks): Dependent **Claim 40** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7J. (Examiner's Position): Regarding **Claim 41**, the combination of Monroe, Major and Hoddie further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile device within proximity of other mobile devices and the beacon (see the teaching of Monroe in claim 41 above, and/or see Hoddie, [0001], [0014]).

7j. (Applicant's Remarks): Dependent **Claim 41** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7K. (Examiner's Position): Regarding **Claim 42**, the combination of Monroe, Major and Hoddie further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile *device* within proximity of other mobile devices and the beacon, wherein the social networking environment is associated with the hospitality *venue* (see the teaching of Monroe in claim 42 above, and/or see Hoddie, [0001], [0014]).

7k. (Applicant's Remarks): Dependent **Claim 42** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

Google Ex. 1028, p. 101

7L. (Examiner's Position): Regarding **Claim 43**, the combination of Monroe, Major and Hoddie further teaches a step of informing a second party of a presence of the user within a proximity of one another (see Hoddie, [0036]).

7l. (Applicant's Remarks): Dependent **Claim 43** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7M. (Examiner's Position): Regarding **Claim 45**, the combination of Monroe, Major and Hoddie further teaches the local based services (LBS) associated with the local geographic area is at least one of: a link to a third party application, a link to existing software, a link to a website, communication using a cloud, presents location information, presents marketing information, presents sales information, presents specials information, presents coupon information, and provides emergency based locating (see Hoddie, [0012]).

7m. (Applicant's Remarks): Dependent **Claim 45** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section **7n** below.

7n. (Applicant's Summary): Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al has been overcome by amendments and remarks submitted in section 6a above. It necessarily follows that due to their dependency from Independent **Claim 1**, Dependent **Claims 2, 26, 28, 29, 30, 31, 38, 39, 40, 41, 42, 43 and 45** are also nonobvious in view of Monroe in view of Major et al and further in view of Hoddie. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claims 2, 26, 28, 29, 30, 31, 38, 39, 40, 41, 42, 43 and 45** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al and further in view of Hoddie.

Google Ex. 1028, p. 102

8. The Examiner rejected **Claim 10** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392 A1) in view of Major et al (US 5,250,955) and further in view of Kanevsky et al (US 2005/0096070 A1).

8A. (Examiner's Position): Regarding **Claim 10**, the combination of Monroe and Major teaches **Claim** 1. The combination of Monroe and Major does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Kanevsky teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see Abstract and [0016], *"beacon signal,* and see [0002], *"beacon signal", "displaying business data").* Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Kanevsky into the system of Monroe and Major so that local cellular providers that receive the beacon signal can determine the cell location of the active device (also see Kanevsky, [0002]).

8a. (Applicant's Remarks): Dependent **Claim 10** depends from Independent **Claim 1**.

The Examiner relies upon the following:

"Kanevsky et al **teaches initiating a process for obtaining marketing information**

Google Ex. 1028, p. 103

associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see Abstract and [0016], *"beacon signal,* and see [0002], *"beacon signal", "displaying business data").*"

Kanevsky et al teaches the following:

Abstract: "A system and method that provides data messages to a passive device. A passive device, for example watch, is registered together with the telephone number of a cellular telephone of a subscriber to the data message service. Since the cellular telephone periodically transmits a beacon signal, the wireless network knows its cell location. Accordingly, the system determines the cell location of the cellular telephone and establishes a communication of the subscribed data to the watch via the local cellular provider for the same cell location as that of the subscriber's cellular telephone."

"[0002] An active cellular device, such as a telephone, a beeper and the like, sends a beacon signal on a periodic basis. Local cellular providers that receive the beacon signal can determine the cell location of the active device. Generally, the cellular provider that receives the signal with the greatest signal strength of power becomes the provider of the cellular service to the active device. The cellular provider sends the address of the active cell device to a central database. When a call is placed to the active device, the central database is accessed to find the most recent cell location of the active device. A wireless telephone connection is then made to the active device via the local service provider for that cell, provided the active device has not moved or stopped sending beacon signals. Because active cellular devices are locatable, they are capable of receiving and displaying data messages of various content, such as weather, news, sports scores, business data, and the like."

"[0016] According to the present invention, a passive device, for example watch **102**, is

Google Ex. 1028, p. 104

registered together with the telephone number of a cellular telephone **106** of subscriber user **110**. Since cellular telephone **106** periodically transmits a beacon signal, the wireless network knows its cell location. Accordingly, the process of the present invention establishes a communication of the subscribed data to watch **102** via the local cellular provider for the same cell location as that of cellular telephone **106** of subscriber **110**."

Again, the cited reference simply teaches a method of determining a location, and lacks any teachings of a system that automatically initiates a hospitality function, more specifically, Kanevsky et al fails to address a system that includes the following limitations:

"*automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;*

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system."

Therefore, the introduction of Kanevsky et al fails to further impact the remarks presented in section 6a above.

Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al has been overcome by amendments and remarks submitted in section 6a above. It necessarily follows that due to its dependency from Independent **Claim 1**, Dependent **Claim 10** is also nonobvious in view of Monroe in view of Major et al and further in view of Kanevsky et al. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claim 10** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al and further in view of Kanevsky et al.

Google Ex. 1028, p. 105

9. The Examiner rejected **Claims 10, 22, 25, 26, 32, 33, 34, 35, 36, 37, 45 and 48** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392 A1) in view of Major et al (US 5,250,955) and further in view of Johnson (US 2005/0187819 A1).

9A. (Examiner's Position): Regarding **Claim 10**, the combination of Monroe and Major teaches **Claim** 1. The combination of Monroe and Major does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Johnson teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile *device* (see [0057], [0093], [0097], [0105] and [0113], *"beacon signal", "price", "sell", "displaying"*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Johnson into the system of Monroe and Major in order to measure the effect of advertisements placed in shopping carts and with using such measurements to determine levels of payment for such advertisements (also see Johnson, [0002]).

9a. (Applicant's Remarks): Dependent **Claim 10** depends from Independent **Claim 1**.

The Examiner relies upon the following:

"Johnson teaches initiating a process for obtaining marketing information associated with

Google Ex. 1028, p. 106

said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile *device* (see [0057], [0093], [0097], [0105] and [0113], *"beacon signal", "price", "sell", "displaying"*)."

Johnson teaches the following:

"[0057] Referring to FIGS. 1 and 2, the point-of-sale terminal **12** includes a transducer **70** through which a beacon signal is emitted to be detected by the transceiver **22** within the shopping cart **14** is brought into position adjacent the point-of-sale terminal **12**. When this beacon signal is detected by the transceiver **22** within the shopping cart **14**, the shopping cart **14** responds by transmitting data regarding advertisements that have been displayed within the display unit **16**. Preferably, the transceivers **22**, **43** are arranged so that communications are established between the shopping cart **14** and the point-of-sale terminal **12** only when the shopping cart **14** is moved into place adjacent the point-of-sale terminal **14**, with the resulting communications not effecting other shopping carts or other point-of-sale terminals. This is accomplished, for example, by modulating an infrared light beam with a data signal to provide line-of-sight communication over a short distance."

"[0093] When it is determined in step **286** that the end of the display of an advertisement has not been reached, it is then determined in step **294** whether a message has been received through the transceiver **242** from the store computer system **220**. If it has, a further determination is made in step **296** of whether the message indicates that the data last transmitted from the shopping cart **222** represents a valid barcode for an item to be sold within the store. If it has, data received within the message describing the item, including its price, is displayed on the display screen **236** and written to the transaction data structure **244** in step **298**. Then, in step **300**, the price of the item is added to a total also stored within the transaction data structure **244**. On the other hand, when it is determined in step **296** that the message does not indicate that the data last

Google Ex. 1028, p. 107

transmitted represents a valid barcode for an item to be sold within the store, a further determination is made in step **302** of whether the message indicates that the message indicates such a code is incorrect barcode data. If it does, an error indication is then displayed in step **306**. Otherwise, the shopping cart **222** preferably performs another function according to the message from the store computer system **220** in step **306**."

"[0097] Referring to FIGS. 8 and 12, after starting in step **328**, the subroutine **326** proceeds to step **330**, in which it is determined whether a message has been received from a cart **222**. When it is determined that such a message has been received, the subroutine **326** proceeds to step **332**, in which a further determination is made of whether the message is barcode data, transmitted from the cart **222** in step **268**, as explained above in reference to FIG. 11. If it is, a determination is made in step **334** of whether the barcode data matches data stored in the identifier data field **130** of the item data structure **66**. If such a match is found, data from the data record **188** in which the barcode data is matched, within the manufacturer data field **192**, the description data field **194**, and the price data field **196** is returned to the cart **222** in step **336**, for display and use in preparing a sales receipt. Then, in step **338**, data from the advertisement history data structure **250** of the shopping cart **222**, transmitted to the store computer system along with the barcode data in step **268**, is compared with the barcode data, and, preferably, additionally with the data from the manufacturer data field **192**, to determine whether the item identified by the barcode matches one of the advertisements that has been displayed in the shopping cart **222**. If it does, within each data record **198** of the advertisement data structure **87**, shown in FIG. 9, for an advertisement found to match data associated with the item, a value of one is added to the numeric value stored within the counting data field **200** in step **340**."

"[0113] When the shopping cart **404** is in position adjacent the point-of-sale terminal **402**, a beacon signal received in step **106** thus causes the shopping cart **404** to transmit advertisement history data, together with a code identifying the particular point-of-sale terminal **402** to the store computer system **406**. Preferably, this data is transmitted only once, before the process of checking out items is begun. If the beacon signal is transmitted on a continuous or periodic basis, the process of erasing the advertisement history in step **114**, followed by a subsequent

Google Ex. 1028, p. 108

determination in step **108** that there is no data in the advertisement history data structure, prevents an additional transmission of such data. Alternately, a command to transmit a beacon signal to start this data transmission process may be provided as an input at the point-of-sale terminal **402** before beginning the process or scanning barcodes to check out items."

Johnson requires that the application be running on the shopping cart as well as the network system. Therefore, Johnson, like the previously cited references, lacks any disclosure pertaining to automatically initiating a hospitality function, more specifically, Johnson fails to address a system that includes the following limitations:

"*automatically initiating an interactive link between said mobile device and a third party application hosted on an existing system based upon the information decoded from said beacon signal, wherein said initiation of said interactive link is triggered from said information decoded from said beacon signal;*

automatically initiating a hospitality function, wherein said initiation of said hospitality function is triggered from said information decoded from said beacon signal, said hospitality function being interactive with said third party application hosted on said existing system."

Therefore, the introduction of Johnson fails to further impact the remarks presented in section 6a above.

Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9B. (Examiner's Position): Regarding **Claim 22**, the combination of Monroe, Major and Johnson further teaches the local based services (LBS) are obtained through a direct link to an Internet, wherein the link is initiated by the information decoded from the received beacon signal obtained from the beacon of the series of beacons (see Johnson, [0019]).

Google Ex. 1028, p. 109

9b. (Applicant's Remarks): Dependent **Claim 22** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9C. (Examiner's Position): Regarding **Claim 25**, the combination of Monroe, Major and Johnson further teaches a step of providing navigation to a user when the user is located within an indoor environment, wherein the indoor navigation is based upon the geographic location information decoded from the received beacon signal (see Johnson, [0008] and [0012]).

9c. (Applicant's Remarks): Dependent **Claim 25** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9D. (Examiner's Position): Regarding **Claim 26**, the combination of Monroe, Major and Johnson further teaches the local based services (LBS) includes at least one of: marketing, site information, sales, product, events, specials, and coupons (see Johnson, [0004], [0009] and [0010]).

9d. (Applicant's Remarks): Dependent **Claim 26** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9E. (Examiner's Position): Regarding **Claim 32**, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a payment trigger mechanism (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

9e. (Applicant's Remarks): Dependent **Claim 32** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

Google Ex. 1028, p. 110

9F. (Examiner's Position): Regarding **Claim 33**, the combination of Monroe, Major and Johnson further teaches local based services (LBS) includes at least a contribution to a payment process (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

9f. (Applicant's Remarks): Dependent **Claim 33** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9G. (Examiner's Position): Regarding **Claim 34**, the combination of Monroe, Major and Johnson further teaches local based services (LBS) includes at least a contribution to a security portion of a secured payment process (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

9g. (Applicant's Remarks): Dependent **Claim 34** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9H. (Examiner's Position): Regarding **Claim 35**, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a digitally secure payment implement (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

9h. (Applicant's Remarks): Dependent **Claim 35** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9I. (Examiner's Position): Regarding **Claim 36**, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a digitally secure payment implement by including the identifier information of the mobile device (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

Google Ex. 1028, p. 111

9i. (Applicant's Remarks): Dependent **Claim 36** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9J. (Examiner's Position): Regarding **Claim 37**, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a digitally secure payment implement by including the location information obtained from the proximate beacon of the series of beacons and subsequently provided from the mobile device (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

9j. (Applicant's Remarks): Dependent **Claim 37** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9K. (Examiner's Position): Regarding **Claim 45**, the combination of Monroe, Major and Johnson further teaches the local based services (LBS) associated with the local geographic area is at least one of: a link to a third party application, a link to existing software, a link to a website, communication using a cloud, presents location information, presents marketing information, presents sales information, presents specials information, presents coupon information, and provides emergency based locating (see Johnson, [0004], [0009] and [0010]).

9k. (Applicant's Remarks): Dependent **Claim 45** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9L. (Examiner's Position): Regarding **Claim 48**, the combination of Monroe, Major and Johnson further teaches the combination of Monroe and Major further teaches a sensor in communication with the beacon, wherein the beacon broadcasts only after activation of the sensor (see the teaching of Monroe in **Claim 48** above, and/or see Johnson, [0004], [0016] and

Google Ex. 1028, p. 112

[0061]).

9l. (Applicant's Remarks): Dependent **Claim 48** depends from Independent **Claim 1**. Applicant respectfully directs the Examiner to the Applicant's Summary in section 9m below.

9m. (Applicant's Summary): Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al has been overcome by amendments and remarks submitted in section 6a above. It necessarily follows that due to their dependency from Independent **Claim 1**. Dependent **Claims 10, 22, 25, 26, 32, 33, 34, 35, 36, 37, 45, and 48** are also nonobvious in view of Monroe in view of Major et al and further in view of Johnson. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claims 10, 22, 25, 26, 32, 33, 34, 35, 36, 37, 45, and 48** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Major et al and further in view of Johnson.

Request for Rejoinder of Claims

10a. (Applicant's Remarks): Regarding Independent Claim 6:

Claim 6 is an Independent claim.

Applicant has amended Independent **Claim 6** to more clearly and concisely define the present invention with the inclusion of the following limitations:

"A method of initiating a service based upon an association with information encoded within a beacon identification signal, the method comprising steps of:

deploying a series of beacons, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue;

Google Ex. 1028, p. 113

encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device;

decoding each received said at least one of said broadcast beacon signal;

wherein the information decoded from the beacon signal automatically initiates at least one of the following steps:

(a) a link to access and activate existing software provided by said third party application hosted on said existing system based upon the encoded identification of the beacon, and

(b) a local based services (LBS) application to provide local based services information to the mobile device, wherein said provided local based services information is provided by said third party application hosted on said existing system and wherein said provided local based services information is associated with said beacon identifying information."

Applicant earnestly believes the amendments to Independent **Claim 6** are consistent with the amendments submitted in Independent **Claim 1**. The amendments are consistent with the arguments presented in section 6a above. Therefore, Applicant earnestly believes Independent **Claim 6** should be allowable and should be rejoined herein.

Google Ex. 1028, p. 114

10b. (Applicant's Remarks): Regarding Independent Claim 12:

Claim 12 is an Independent claim.

Applicant has amended Independent **Claim 12** to more clearly and concisely define the present invention with the inclusion of the following limitations:

"A method of guide mapping and navigation of an interior of an enclosed structure and implementation of location based services (LBS) associated with the enclosed structure, the method comprising steps of:

deploying a series of beacons, wherein each beacon of the series of beacons is located at a known, fixed location about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons and information associated with a known physical location of said respective beacon;

broadcasting a beacon signal from each beacon of said series of beacons;

determining a location of a mobile device in accordance with following steps:

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device,

decoding each received said at least one of said broadcast beacon signal; ~~and~~

automatically initiating an local based service (LBS) to identify a current location of said mobile device within said interior of said hospitality venue;

Google Ex. 1028, p. 115

determining [[a]] said current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information associated with a known physical location of said respective beacon collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map."

Applicant earnestly believes the amendments to Independent **Claim 12** are consistent with the amendments submitted in Independent **Claim 1**. The amendments are consistent with the arguments presented in section 6a above. Therefore, Applicant earnestly believes Independent **Claim 12** should be allowable and should be rejoined herein.

10c. (Applicant's Remarks): Regarding Dependent Claims 13 through 20:

Claim 12 is an Independent claim.

Each of Dependent **Claims 13 through 20** depends directly from Independent **Claim 12**.

10d. (Applicant's Remarks): Regarding Dependent Claims 50 through 52:

Claim 12 is an Independent claim.

Each of Dependent **Claims 50 through 52** depends directly from Independent **Claim 12**.

Google Ex. 1028, p. 116

Conclusions

The Subject Final Office Action was mailed on February 10, 2016. The Examiner established a shortened statutory period of THREE (3) MONTHS from the date of mailing of the Final Office Action. Applicant has responded on or before the effective FIVE (5) MONTH anniversary of Monday, July 11, 2016. Therefore, Applicant believes the response requires a Petition for a TWO (2) MONTH extension and the required petition fee of $300 (Small Entity), both are being submitted herewith.

Applicant is submitting a timely Request for Continued Examination (RCE), including the required fee of $600 (Fee Code 2081 - Small Entity) herewith. Applicant respectfully requests the Examiner withdraw the Final Status of the pending application.

Applicant earnestly believes the response is complete.

Applicant earnestly believes that no new matter has been introduced.

Fifty-Two (52) total claims, including Three (3) Independent claims remain pending in this application. Applicant has previously paid for Fifty-Two (52) total claims and Three (3) Independent claims. Therefore Applicant believes the amendment has not necessitated any new excess claims fee.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes the response is filed with the appropriate fees due at this time. However, if any additional fees are required in connection with the filing of this paper, permission is given to charge account number 506593 in the name of Allen D. Hertz, P.A.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims, and/or drawings, then it is respectfully asked that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance.

Google Ex. 1028, p. 117

Respectfully submitted,
Allen D. Hertz
(Customer No. 31877)

By _____
Allen D. Hertz
Reg. No.50,942
Allen D Hertz, P.A.
12784 Tulipwood Circle
Boca Raton, FL 33428
Tel.: (561) 883-0115
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Attachments:
Petition for Extension of Time (2 Month)
Petition Fee of $300 (2 Month)(Small Entity)
RCE Form
First RCE Fee of $600 (Small Entity)
Request for Examiner's Amendment

Google Ex. 1028, p. 118

Electronic Patent Application Fee Transmittal

Application Number:	14285332
Filing Date:	22-May-2014
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Filer:	Allen D. Hertz
Attorney Docket Number:	MEN-14-003

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - months with $0 paid		1	0	0
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
		Total in USD ($)		**600**

Electronic Acknowledgement Receipt

EFS ID:	26318215
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	11-JUL-2016
Filing Date:	22-MAY-2014
Time Stamp:	21:21:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$600
RAM confirmation Number	071216INTEFSW21223800
Deposit Account	5267
Authorized User	Allen Hertz

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		MEN-14-003_Mendelson_Hospitality_FOA_021016_Reply_071116.pdf	1231951 5c9bd241c92ea87c4ad690a04b9b4bb50876d15a	yes	73

Multipart Description/PDF files in .zip description

Document Description	Start	End
Extension of Time	1	1
Request for Continued Examination (RCE)	2	2
Letter Requesting Interview with Examiner	3	3
Response After Final Action	4	6
Claims	7	22
Applicant Arguments/Remarks Made in an Amendment	23	73

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32439 4cabbe89258a0d3b2823d1938fc6a8d758de0b75	no	2

Warnings:

Information:

Total Files Size (in bytes):	1264390

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/AIA/22 (03-13)
Approved for use through 7/31/2016. 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.

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

Docket Number (Optional): MEN-14-003

Application Number: 14/285,332

Filed: December 16, 2011

For: HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

Art Unit: 3721

Examiner: Nghi H. LY

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

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

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

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

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

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

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

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

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 506593

☑ Payment made via EFS-Web.

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

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 50,942.

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

Signature	July 11, 2016 (Date)
Allen D. Hertz (Typed or printed name)	561-716-3915 (Telephone Number)

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

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 8 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Electronic Patent Application Fee Transmittal

Application Number:	14285332
Filing Date:	22-May-2014
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Filer:	Allen D. Hertz
Attorney Docket Number:	MEN-14-003

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 2 months with $0 paid	2252	1	300	300
Miscellaneous:				
			Total in USD ($)	**300**

Electronic Acknowledgement Receipt

EFS ID:	26318228
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	11-JUL-2016
Filing Date:	22-MAY-2014
Time Stamp:	21:23:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$300
RAM confirmation Number	071216INTEFSW21243900
Deposit Account	5267
Authorized User	Allen Hertz

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (SB06)	fee-info.pdf	30587 f5b972eacdc76572b0315c7a714c080374bd5f86	no	2

Warnings:

Information:

Total Files Size (in bytes):	30587

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 NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003	9630

31877 7590 02/10/2016

ALLEN D. HERTZ
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12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

EXAMINER
LY, NGHI H

ART UNIT	PAPER NUMBER
2642	

MAIL DATE	DELIVERY MODE
02/10/2016	PAPER

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

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

Office Action Summary	Application No. 14/285,332	Applicant(s) MENDELSON, EHUD	
	Examiner NGHI H. LY	Art Unit 2642	AIA (First Inventor to File) Status No

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *12/10/2015*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *1-52* is/are pending in the application.

5a) Of the above claim(s) *6,12-20 and 50-52* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-5,7-11 and 21-49* is/are rejected.

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

9)☒ Claim(s) *6,12-20 and 50-52* are subject to restriction and/or election requirement.

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

Application Papers

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

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

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

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

DETAILED ACTION

Claim Objections

1. Claim 23 is objected to because of the following informalities: Claim 23 recites "said an". Appropriate correction is required.

Claim Rejections - 35 USC § 103

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

3. The following is a quotation of pre-AIA 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.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. 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 pre-AIA 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.

6. Claims 1, 3-5, 7-9, 11, 21, 23, 24, 27, 38, 39, 40, 41, 42, 44, 46, 47, 48 and 49 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Major et al (US 5,250,955).

Regarding claim 1, Monroe teaches a method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue (see [0017], "*beacon transmitter**s** **are** installed at various locations around the monitored facility*", also see [0018], "*gymnasium*", "*auditorium*", "*stadium*" and "*campus ground or the like*"),

encoding information into a device identification portion of a beacon signal (also see [0017], "*The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals*", also see fig.4, see box "*105 encoder*", and see box "***encode** & transmit **beacon ID***"),

wherein said identifying information identifies each beacon of said series of beacons (also see [0017], "*The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals*"),

broadcasting said beacon signal from each beacon of said series of beacons (also see [0017], "*The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals*"),

scanning for any of said broadcast beacon signals using a mobile device (see [0061], "*the receiver is programmed to **listen** for or **sense** beacons and to store the last one **detected***", see [0059] and fig.5, "*beacon receiver 135*" for scanning the broadcast beacon signals, and see Abstract and [0009], "*a small cell phone or pager*"),

detecting at least one of said broadcast beacon signals (see [0061], "*the receiver is programmed to **listen** for or **sense** beacons and to store the last one **detected***", also see [0059] and fig.5, "*beacon receiver 135*" for detecting the broadcast beacon signals),

receiving at least one of said broadcast beacon signal by said mobile device (also see [0061], "*the **receiver** is programmed to **listen** for or **sense** beacons and to store the last one **detected***". In addition, see [0059] and fig.5, "*beacon receiver 135*" for detecting the broadcast beacon signals),

wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device (see [0017], "*beacon transmitter**s** **are** installed at various locations around the monitored facility*", also see [0018], "*gymnasium*", "*auditorium*", "*stadium*" and "*campus ground or the like*"), and

decoding each received said at least one of said broadcast beacon signal (see [0059], "*the beacon ID number is decoded by beacon decoder 145*", and see fig.5, "*beacon **decoder** 145*" and "*beacon receiver 135*"),

Monroe does not specifically disclose wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal.

Major teaches wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal (see Abstract, column 2, lines 40-68, for "*beacon*", "*decode*", and see column 1 lines 15-20 and Major's claims 1, 2 and 6 for "*automatic*". In addition, see Applicant's remarks, dated 12/10/2015, pages 19-20 for how Applicant define/support for the newly added "*a hospitality function*").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Major into the system of Monroe in order to provide an accurate indication of the point of crossing for revenue generating purposes (see Major, column 1 lines 15-20).

Regarding claim 3, Monroe teaches said hospitality venue is at least one of a hotel, motel, a cruise ship (see [0010], "*cockpit*", "*passenger cabin*"), a resort, a theater, a conference center (see [0018] and [0067], see "*auditorium*"), a restaurant, and a casino (In addition, where to deploy/employ the beacons is obvious or Inventor's choice).

Regarding claim 4, Monroe teaches a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue (see Abstract and see fig.15).

Regarding claim 5, Monroe teaches a step of establishing a link between said

mobile device and a hospitality system associated with said hospitality venue (see Abstract and see fig.15), wherein said hospitality system includes access to at least one of: a hospitality front office, a hospitality back office, a food and beverage provider, room service, in-room service (see [0050], "*room*"), an events and ticketing concierge, a conference concierge, a show concierge, an emergency plan and procedure (see [0004], [0005], [0011], [0013] and [0014], "*emergency*"), an entertainment system, an in-room guide and information, engineering services, employee control, security (see Title, "*security system*" and Abstract, "*alarm system*", also see [0020], "*security*" and "*surveillance*"), room key and access control system, and a payment process.

Regarding claim 7, Monroe teaches a step of directing said mobile device to transmit a communication notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon signal (see Abstract, "*A beacon generator may be used to identify location of the portable unit*", and see [0017], "*The beacon signals may also be generated by a control signal from a system processor on the facility network. The personal alarm unit will store the beacon signal each time it is received. When a signal is **initiated** from the personal alarm unit it will identify the **location** of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user*", also see [0074], "*if the user 5654 **pressed the FIRE pushbutton**, the appliance will notify the fire department 540 and the signal will identify the location of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals*

sent over the intervening network 570". In this case, Monroe's *"initiated*" and/or "*pressed the FIRE pushbutton*" read on Applicant's "*directing*").

Regarding claim 8, Monroe teaches directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal (see Abstract, "*A beacon generator may be used to identify location of the portable unit*", and see [0017], "*The beacon signals may also be generated by a control signal from a system processor on the facility network. The personal alarm unit will store the beacon signal each time it is received. When a signal is **initiated** from the personal alarm unit it will identify the **location** of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user*", also see [0074], "*if the user 5654 **pressed the FIRE pushbutton**, the appliance will notify the fire department 540 and the signal will identify the **location** of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570*". In this case, Monroe's *"initiated*" and/or "*pressed the FIRE pushbutton*" read on Applicant's "*directing*"), and forwarding information associated with at least one of the hospitality venue (see [0018] and [0067], see "*stadium*", "*campus ground*", "*gymnasium*", "*auditorium*"), an event, food and beverage services, and billing to said mobile device.

Regarding claim 9, Monroe teaches a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue (see Abstract, "*A personal alarm system can be worn*

or carried by the user, may be activated at any time by the user and/or may be automatically activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's location within the monitored area". In this case, Monroe's "*activated*" read on Applicant's "*directing*").

Regarding claim 11, Monroe teaches a step of utilizing said beacon signal to determine a location of said mobile device (see Abstract, "*A personal alarm system can be worn or carried by the user, may be activated at any time by the user and/or may be automatically activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's **location** within the monitored area*", also see Abstract, "*A beacon generator may be used to identify **location** of the portable unit*", and see [0017], "*When a signal is **initiated** from the personal alarm unit it will identify the **location** of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user*", also see [0074], "*if the user 5654 **pressed the FIRE pushbutton**, the appliance will notify the fire department 540 and the signal will identify the **location** of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570*").

Regarding claim 21, the combination of Monroe and Major further teaches within the step of encoding identifying information into a device identification portion of a beacon signal, the identifying information includes information related to a physical location of the beacon (see Major, column 4, lines 35-41).

Regarding claim 23, the combination of Monroe and Major further teaches the

local based services (LBS) includes emitting an emergency locating signal in an emergency condition, wherein the an emergency locating signal includes the location of the mobile device, wherein the location of the mobile device is determined using the geographic location information decoded from the received beacon signal (see Monroe, [0004], [0005], [0010], [0011], [0013], [0014], [0015], [0028], [0031], [0052], [0057], [0061], [0063], [0064], [0068], [0069], [0074] and [0075]).

Regarding claim 24, the combination of Monroe and Major further teaches comprising a step of providing local mapping to the user, wherein the local mapping is based upon the geographic location information decoded from the received beacon signal (see Monroe, [0030] and Monroe's claim 32).

Regarding claim 27, the combination of Monroe and Major further teaches the local based services (LBS) uses the infrastructure deployment to locate the user in at least one of an emergency situation or during an E-911 call wherein the location of the mobile device is determined using the information decoded from the received beacon signal (see Monroe, [0004], [0005], [0010], [0011], [0013], [0014], [0015], [0028], [0031], [0052], [0057], [0061], [0063], [0064], [0068], [0069], [0074] and [0075]).

Regarding claim 38, the combination of Monroe and Major further teaches a step of interacting with a social networking environment (see Monroe, [0024]).

Regarding claim 39, the combination of Monroe and Major further teaches a step of sharing the mobile device with other mobile devices operating as a local social networking environment (see Monroe, [0024]).

Regarding claim 40, the combination of Monroe and Major further teaches a step

of including the mobile device into an existing local social networking environment (see Monroe, [0024]).

Regarding claim 41, the combination of Monroe and Major further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile device within proximity of other mobile devices and the beacon (see Monroe, [0024]).

Regarding claim 42, the combination of Monroe and Major further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile device within proximity of other mobile devices and the beacon, wherein the social networking environment is associated with the hospitality venue (see Monroe, [0024]).

Regarding claim 44, the combination of Monroe and Major further teaches a step of displaying a circle overlay onto a local map on a display of the mobile device, wherein the circle is associated with one of the location of the mobile device and the location of the proximate beacon of the series of beacons (see Monroe, [0030] and Monroe's claim 32).

Regarding claim 46, the combination of Monroe and Major further teaches the step of automatically initiating the hospitality function includes a step of including user information provided by the mobile device (see Major, Abstract, column 2, lines 40-68, for "beacon", "decode", and see column 1 lines 15-20 and Major's claims 1, 2 and 6 for "automatic". In addition, see Applicant's remarks, dated 12/10/2015, pages 19-20 for how Applicant define the newly added "a hospitality function").

Regarding claim 47, the combination of Monroe and Major further teaches the step of automatically initiating the hospitality function includes a step of including user information provided by the mobile device, wherein the information decoded from the received beacon signal in conjunction with the user information provided by the mobile device is provided to a hospitality function service provider (see Major, Abstract, column 2, lines 40-68, for "beacon", "decode", and see column 1 lines 15-20 and Major's claims 1, 2 and 6 for "automatic". In addition, see Applicant's remarks, dated 12/10/2015, pages 19-20 for how Applicant define the newly added "a hospitality function").

Regarding claim 48, the combination of Monroe and Major further teaches a sensor in communication with the beacon, wherein the beacon broadcasts only after activation of the sensor (see Monroe, [0006] and [0052]).

Regarding claim 49, the combination of Monroe and Major further teaches downloading at least one of a floor plan and a map, and storing the at least one of a floor plan and a map in the mobile device for use with the hospitality function independent of network connectivity (see Monroe, [0030] and Monroe's claim 32).

7. Claims 2, 26, 28, 29, 30, 31, 38, 39, 40, 41, 42, 43 and 45 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Major et al (US 5,250,955) and further in view of Hoddie (US 2005/0221858A1).

Regarding claim 2, the combination of Monroe and Major teaches the beacon signal is a short range radio frequency, and transmitting said beacon signal as at least one of short range radio frequency (see Monroe, [0017], "*These signals may be infrared, RF, ultrasonic or other known format*"). The combination of Monroe and Major

does not specifically disclose the beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Hoddie teaches the beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal (see [0020] and [0034], “Bluetooth”, “Wi-Fi”).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Hoddie into the system of Monroe and Major in order to provide methods and apparatus for interface negotiation using a device supporting multiple communication interfaces (see Hoddie, Abstract).

Regarding claim 26, the combination of Monroe, Major and Hoddie further teaches the local based services (LBS) includes at least one of: marketing, site information, sales, product, events, specials, and coupons (see Hoddie, [0012]).

Regarding claim 28, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile in conjunction with the Bluetooth identifier signal as a secure key for use in conjunction with the local based services (LBS) (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

Regarding claim 29, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile in conjunction with the Bluetooth identifier signal as a key for use in conjunction with an access lock of the associated hospitality venue (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

Regarding claim 30, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile into the Bluetooth identifier signal as a secure key for use in conjunction with near field communications (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

Regarding claim 31, the combination of Monroe, Major and Hoddie further teaches utilizing a user profile into the Bluetooth identifier signal as a secure key for use in conjunction with near field communications and payments (see Hoddie, [0001], [0011], [0012], [0013], [0014], [0016], [0020] and [0034]).

Regarding claim 38, the combination of Monroe, Major and Hoddie further teaches a step of interacting with a social networking environment (see the teaching of Monroe in claim 38 above, and/or see Hoddie, [0001], [0014]).

Regarding claim 39, the combination of Monroe, Major and Hoddie further teaches a step of sharing the mobile device with other mobile devices operating as a local social networking environment (see the teaching of Monroe in claim 39 above, and/or see Hoddie, [0001], [0014]).

Regarding claim 40, the combination of Monroe, Major and Hoddie further teaches a step of including the mobile device into an existing local social networking environment (see the teaching of Monroe in claim 40 above, and/or see Hoddie, [0001], [0014]).

Regarding claim 41, the combination of Monroe, Major and Hoddie further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile device within proximity of other

mobile devices and the beacon (see the teaching of Monroe in claim 41 above, and/or see Hoddie, [0001], [0014]).

Regarding claim 42, the combination of Monroe, Major and Hoddie further teaches a step of at least one of creating and sustaining a social networking environment based upon the location of each mobile device within proximity of other mobile devices and the beacon, wherein the social networking environment is associated with the hospitality venue (see the teaching of Monroe in claim 42 above, and/or see Hoddie, [0001], [0014]).

Regarding claim 43, the combination of Monroe, Major and Hoddie further teaches a step of informing a second party of a presence of the user within a proximity of one another (see Hoddie, [0036]).

Regarding claim 45, the combination of Monroe, Major and Hoddie further teaches the local based services (LBS) associated with the local geographic area is at least one of: a link to a third party application, a link to existing software, a link to a website, communication using a cloud, presents location information, presents marketing information, presents sales information, presents specials information, presents coupon information, and provides emergency based locating (see Hoddie, [0012]).

8. Claim 10 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Major et al (US 5,250,955) and further in view of Kanevsky et al (US 2005/0096070A1).

Regarding claim 10, the combination of Monroe and Major teaches claim 1. The combination of Monroe and Major does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Kanevsky teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see Abstract and [0016], "*beacon signal*", and see [0002], "*beacon signal*", "*displaying business data*").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Kanevsky into the system of Monroe and Major so that local cellular providers that receive the beacon signal can determine the cell location of the active device (also see Kanevsky, [0002]).

9. Claims 10, 22, 25, 26, 32, 33, 34, 35, 36, 37, 45 and 48 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Major et al (US 5,250,955) and further in view of Johnson (US 2005/0187819A1).

Regarding claim 10, the combination of Monroe and Major teaches claim 1. The combination of Monroe and Major does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Johnson teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see [0057], [0093], [0097], [0105] and [0113], "*beacon signal*", "*price*", "*sell*", "*displaying*").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Johnson into the system of

Monroe and Major in order to measure the effect of advertisements placed in shopping carts and with using such measurements to determine levels of payment for such advertisements (also see Johnson, [0002]).

Regarding claim 22, the combination of Monroe, Major and Johnson further teaches the local based services (LBS) are obtained through a direct link to an Internet, wherein the link is initiated by the information decoded from the received beacon signal obtained from the beacon of the series of beacons (see Johnson, [0019]).

Regarding claim 25, the combination of Monroe, Major and Johnson further teaches a step of providing navigation to a user when the user is located within an indoor environment, wherein the indoor navigation is based upon the geographic location information decoded from the received beacon signal (see Johnson, [0008] and [0012]).

Regarding claim 26, the combination of Monroe, Major and Johnson further teaches the local based services (LBS) includes at least one of: marketing, site information, sales, product, events, specials, and coupons (see Johnson, [0004], [0009] and [0010]).

Regarding claim 32, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a payment trigger mechanism (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

Regarding claim 33, the combination of Monroe, Major and Johnson further teaches local based services (LBS) includes at least a contribution to a payment process (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

Regarding claim 34, the combination of Monroe, Major and Johnson further teaches local based services (LBS) includes at least a contribution to a security portion of a secured payment process (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

Regarding claim 35, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a digitally secure payment implement (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

Regarding claim 36, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a digitally secure payment implement by including the identifier information of the mobile device (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

Regarding claim 37, the combination of Monroe, Major and Johnson further teaches a step of employing the mobile device as a digitally secure payment implement by including the location information obtained from the proximate beacon of the series of beacons and subsequently provided from the mobile device (see Johnson, [0002], [0007], [0008], [0015], [0046], [0061], [0107] and [0108]).

Regarding claim 45, the combination of Monroe, Major and Johnson further teaches the local based services (LBS) associated with the local geographic area is at least one of: a link to a third party application, a link to existing software, a link to a website, communication using a cloud, presents location information, presents marketing information, presents sales information, presents specials information, presents coupon information, and provides emergency based locating (see Johnson,

[0004], [0009] and [0010]).

Regarding claim 48, the combination of Monroe, Major and Johnson further teaches the combination of Monroe and Major further teaches a sensor in communication with the beacon, wherein the beacon broadcasts only after activation of the sensor (see the teaching of Monroe in claim 48 above, and/or see Johnson, [0004], [0016] and [0061]).

Response to Arguments

10. Applicant's arguments with respect to claims 1-5, 7-11 and 21-49 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGHI H. LY whose telephone number is (571)272-7911. The examiner can normally be reached on 9:30am-8:00pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on (571) 272-7915. 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.

Nghi H. Ly
/NGHI H LY/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 14/285,332	Applicant(s)/Patent Under Reexamination MENDELSON, EHUD	
	Examiner NGHI H. LY	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5,250,955 A	10-1993	Major; Harvey W.	G01S1/68	342/386
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

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

NON-PATENT DOCUMENTS

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

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

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	Art Unit
	NGHI H LY	2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W 4/02, H04W 64/00, H04L 29/08657	2/4/2016	nly

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
See search history printout.	2/4/2016	nly

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	456.3, 456.1, 421,414.1,404.2	2/4/2016	nly

SEARCH NOTES		
Search Notes	Date	Examiner
See search history.	2/4/2016	nly

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
455	456.3, 456.1, 421,414.1,404.2	2/4/2016	nly

Google Ex. 1028, p. 151

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	Art Unit
	NGHI H LY	2642

✓	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	04/13/2015	08/07/2015	02/04/2016						
	1	÷	✓	✓						
	2	÷	✓	✓						
	3	÷	✓	✓						
	4	÷	✓	✓						
	5	÷	✓	✓						
	6	÷	N	N						
	7	÷	✓	✓						
	8	÷	✓	✓						
	9	÷	✓	✓						
	10	÷	✓	✓						
	11	÷	✓	✓						
	12	÷	N	N						
	13	÷	N	N						
	14	÷	N	N						
	15	÷	N	N						
	16	÷	N	N						
	17	÷	N	N						
	18	÷	N	N						
	19	÷	N	N						
	20	÷	N	N						
	21			✓						
	22			✓						
	23			✓						
	24			✓						
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	29			✓						
	30			✓						
	31			✓						
	32			✓						
	33			✓						
	34			✓						
	35			✓						
	36			✓						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	**Art Unit**
	NGHI H LY	2642

✓	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	04/13/2015	08/07/2015	02/04/2016						
	37			✓						
	38			✓						
	39			✓						
	40			✓						
	41			✓						
	42			✓						
	43			✓						
	44			✓						
	45			✓						
	46			✓						
	47			✓						
	48			✓						
	49			✓						
	50			N						
	51			N						
	52			N						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S30	0	decod$3 near12 beacon near12 automatica$4 near12 hospital$4 and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 06:43
S31	0	decod$3 near12 beacon near12 (automatica$4 self) near12 hospital$4 and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 06:44
S32	1	(information data) near12 beacon near12 (automatica$4 self) near12 hospital$4 and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 06:45
S40	1	(information data) near12 beacon near12 (automatica$4 self) near12 (hospital$4 friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 09:42
S41	0	(information data) near12 beacon near12 (automatica$4 self) near12 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 09:43
S42	1	(information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 09:45
S43	25	(information data) near22 beacon near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 09:48
S44	4	(information data) near22 beacon near22	US-PGPUB;	OR	ON	2016/02/04

Google Ex. 1028, p. 154

		(automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			09:57
S50	1	(information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 11:04
S51	52	(information data) near12 beacon near12 (automatic$5) near12 (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking car automobile vehicle) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 11:11
S52	1	(information data) near12 beacon near9 decod$3 near12 (automatic$5) near12 (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking car automobile vehicle) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 11:12
S56	4	(information data) with beacon with decod$3 with (automatic$5) with (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking car automobile vehicle) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 11:29
S61	0	(Ehud near3 Mendelson) and ((information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3)).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 16:30
S62	1	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 16:30
S63	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (information data) near12 beacon near12 (automatic$5) near12 (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking car automobile vehicle) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 16:31
S64	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls.	US-PGPUB; USPAT; USOCR;	OR	ON	2016/02/04 16:31

		455/414.1.ccls. 455/404.2.ccls.) and (information data) near22 beacon near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
S65	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/04 16:32

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S34	0	decod$3 near12 beacon near12 automatica$4 near12 hospital$4 and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 06:44
S35	0	decod$3 near12 beacon near12 (automatica$4 self) near12 hospital$4 and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 06:44
S36	1	(information data) near12 beacon near12 (automatica$4 self) near12 hospital$4 and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 06:45
S45	1	(information data) near12 beacon near12 (automatica$4 self) near12 (hospital$4 friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 09:42
S46	0	(information data) near12 beacon near12 (automatica$4 self) near12 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 09:43
S47	1	(information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 09:45
S48	24	(information data) near22 beacon near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 09:48
S49	2	(information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3)	US-PGPUB; USPAT	OR	ON	2016/02/04 09:57
S57	1	(information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 11:04
S58	26	(information data) near12 beacon near12 (automatic$5) near12 (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking car automobile vehicle) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 11:11
S59	0	(information data) near12 beacon near9 decod$3 near12 (automatic$5) near12 (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking	US-PGPUB; USPAT	OR	ON	2016/02/04 11:12

Google Ex. 1028, p. 156

		car automobile vehicle) and @ad<"20050412"				
S60	3	(information data) with beacon with decod$3 with (automatic$5) with (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking car automobile vehicle) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 11:29
S66	0	(Ehud near3 Mendelson) and ((information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3)).clm.	US-PGPUB; USPAT	OR	ON	2016/02/04 16:30
S67	1	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3)	US-PGPUB; USPAT	OR	ON	2016/02/04 16:30
S68	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (information data) near12 beacon near12 (automatic$5) near12 (hotel motel airport restaurant advertis$5 customer store bank department shop$4 bank facility track$3 dating monitor$3 child elder parking car automobile vehicle) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 16:31
S69	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (information data) near22 beacon near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 16:31
S70	0	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and (information data) near22 beacon near22 (automatica$4 self) near22 (hospitality friend$4 welcom$4 cordial$3) and @ad<"20050412"	US-PGPUB; USPAT	OR	ON	2016/02/04 16:32

2/4/2016 4:34:31 PM
C:\Users\nly\Documents\EAST\Workspaces\14285332.wsp

Google Ex. 1028, p. 157

In The United States Patent and Trademark Office

Application No.	: 14/285,332	Confirmation No. 9630
Applicant	: Ehud MENDELSON	
Title	: **HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS**	
Filed	: May 22, 2014	
TC/A.U.	: 3721	
Examiner	: Nghi H. LY	Tel: (571) 272-7911
Docket No.	: MEN-14-003	
Customer No.	: 31877	

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

Response to Non-Final Office Action Dated August 11, 2015

Amendment Revised Under 37 C.F.R. § 1.121(b)

Sir:

Please enter the following amendment and comments into the file of the above-identified patent application, in response to the Non-Final Office Action dated August 11, 2015. The Examiner has established a shortened FOUR (4) MONTH statutory period to respond to the Non-Final Office Action. Applicant is submitting the response on or before Friday, December 11, 2015, the actual FOUR (4) MONTH anniversary of the subject Office Action. Therefore, Applicant believes the response requires a Petition for a ONE (1) MONTH extension and the required petition fee of $100 (Small Entity), both are being submitted herewith.

Amendments to the Claims are reflected in the listing of claims, which begins on page 02 of this paper, with an amended version of the current claims beginning on page 03 of this paper.

Remarks/Arguments begin on page 18 of this paper.

Conclusions begin on page 71 of this paper.

Google Ex. 1028, p. 158

IN THE CLAIMS

Claims 1-20 are currently pending in the application.

Please amend **Claims 1 and 6**.

Please amend Withdrawn **Claim 12**.

Please withdraw **Claims 12-20 and 50-52**.

Please add **Claims 21-52**.

No claims are canceled.

An amended version of the pending claims starts on page 03 in accordance with 37 CFR § 1.121(c)(3) as follows: The status of each Claim is indicated adjacent the Claim Number in accordance with the proper status identifiers: (Original), (Currently Amended), (Canceled), (Previously Presented), (New), (Not Entered), (Withdrawn), and (Withdrawn-Currently Amended) in accordance with 37 CFR § 1.121. Any changes to the claims are shown by strikethrough or within double brackets (for deleted matter) and underlining (for added matter, excluding New Claims).

Thereafter, starting on a separate page, (Page 18), is the Remarks portion in accordance with 37 CFR § 1.111.

Google Ex. 1028, p. 159

Amendments to the Claims:

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

Listing of Claims:

Claim 1 (Currently Amended): A method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

~~determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal;~~

wherein the information decoded from said beacon signal automatically initiates ~~initiating~~ a hospitality function based upon the ~~determined identity~~ information decoded from ~~of the beacon associated with~~ the received beacon signal.

Google Ex. 1028, p. 160

Claim 2 (Original): The method as recited in claim 1, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Claim 3 (Original): The method as recited in claim 1, wherein said hospitality venue is at least one of a hotel, motel, a cruise ship, a resort, a theater, a conference center, a restaurant, and a casino

Claim 4 (Original): The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue.

Claim 5 (Original): The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue, wherein said hospitality system includes access to at least one of:

a hospitality front office,

a hospitality back office,

a food and beverage provider,

room service,

in-room service,

an events and ticketing concierge,

Google Ex. 1028, p. 161

a conference concierge,

a show concierge,

an emergency plan and procedure,

an entertainment system,

an in-room guide and information,

engineering services,

employee control,

security,

room key and access control system, and

a payment process.

Claim 6 (Withdrawn-Currently Amended): A method of initiating a service based upon an association with information encoded within a beacon identification signal ~~a location within a venue~~, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

Google Ex. 1028, p. 162

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device;

decoding each received said at least one of said broadcast beacon signal;

wherein the information decoded from the beacon signal automatically initiates ~~initiating determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal; and completing~~ at least one of the following steps:

(a) ~~initiating~~ a link to access and activate existing software based upon the encoded identification of the beacon, and

(b) ~~initiating~~ a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information.

Claim 7 (Original): The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon signal.

Claim 8 (Original): The method as recited in claim 1, further comprising steps of:

directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal; and

forwarding information associated with at least one of the hospitality venue, an event, food and beverage services, and billing to said mobile device.

Google Ex. 1028, p. 163

Claim 9 (Original): The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue.

Claim 10 (Original): The method as recited in claim 1, further comprising steps of:

initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider;

transmitting a request for marketing information associated with said beacon identifying information from said remote information provider;

obtaining said marketing information associated with said beacon identifying information from said remote information provider; and

displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Claim 11 (Original): The method as recited in claim 1, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

Claim 12 (Withdrawn - Currently Amended): A method of guide mapping and navigation of an interior of an enclosed structure and implementation of location based services (LBS) associated with the enclosed structure, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal,

Google Ex. 1028, p. 164

wherein said identifying information identifies each beacon of said series of beacons and information associated with a known physical location of said respective beacon;

broadcasting a beacon signal from each beacon of said series of beacons;

determining a location of a mobile device in accordance with following steps:

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device,

decoding each received said at least one of said broadcast beacon signal; and

determining a current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information associated with a known physical location of said respective beacon collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map.

Claim 13 (Withdrawn): The method as recited in claim 12, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

Google Ex. 1028, p. 165

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Claim 14 (Withdrawn): The method as recited in claim 12, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

Claim 15 (Withdrawn): The method as recited in claim 12, further comprising a step of:

displaying Points Of Interest (POI) associated with each beacon location on said hospitality venue indoor map.

Claim 16 (Withdrawn): The method as recited in claim 12, further comprising steps of:

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map;

selecting a beacon location from each displayed beacon location on said hospitality venue indoor map; and

obtaining information associated with said selected beacon.

Claim 17 (Withdrawn): The method as recited in claim 12, further comprising a step of:

utilizing said deployed series of beacons to provide guidance on said mobile device to guide a user to an exit of said hospitality venue during an emergency evacuation procedure.

Google Ex. 1028, p. 166

Claim 18 (Withdrawn): The method as recited in claim 12, wherein at least a portion of said beacons of said series of beacons employ existing Wi-Fi devices deployed throughout said hospitality venue.

Claim 19 (Withdrawn): The method as recited in claim 12, further comprising a step of:

overlaying a series a gradient concentric circles onto said hospitality venue indoor map, wherein said series a gradient concentric circles provide a distance relationship between said mobile device and a secondary object, wherein said secondary object is associated with said beacon.

Claim 20 (Withdrawn): The method as recited in claim 12, further comprising a step of:

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map.

Claim 21. (New) The method as recited in claim 1, wherein within said step of encoding identifying information into a device identification portion of a beacon signal, said identifying information includes information related to a physical location of said beacon.

Claim 22. (New) The method as recited in claim 1, wherein said local based services (LBS) are obtained through a direct link to an Internet, wherein said link is initiated by said information decoded from said received beacon signal obtained from said beacon of said series of beacons.

Google Ex. 1028, p. 167

Claim 23. (New) The method as recited in claim 1, wherein said local based services (LBS) includes emitting an emergency locating signal in an emergency condition, wherein said an emergency locating signal includes said location of said mobile device, wherein said location of said mobile device is determined using said geographic location information decoded from said received beacon signal.

Claim 24. (New) The method as recited in claim 1, further comprising a step of providing local mapping to said user, wherein said local mapping is based upon said geographic location information decoded from said received beacon signal.

Claim 25. (New) The method as recited in claim 1, further comprising a step of providing navigation to a user when the user is located within an indoor environment, wherein said indoor navigation is based upon said geographic location information decoded from said received beacon signal.

Claim 26. (New) The method as recited in claim 1, wherein said local based services (LBS) includes at least one of:

marketing,

site information,

sales,

product,

events,

Google Ex. 1028, p. 168

specials, and

coupons.

Claim 27. (New) The method as recited in claim 1, wherein said local based services (LBS) uses the infrastructure deployment to locate the user in at least one of an emergency situation or during an E-911 call wherein said location of said mobile device is determined using said information decoded from said received beacon signal.

Claim 28. (New) The method as recited in claim 1, further utilizing a user profile in conjunction with said Bluetooth identifier signal as a secure key for use in conjunction with said local based services (LBS).

Claim 29. (New) The method as recited in claim 1, further utilizing a user profile in conjunction with said Bluetooth identifier signal as a key for use in conjunction with an access lock of said associated hospitality venue.

Claim 30. (New) The method as recited in claim 1, further utilizing a user profile into said Bluetooth identifier signal as a secure key for use in conjunction with near field communications.

Claim 31. (New) The method as recited in claim 1, further utilizing a user profile into said Bluetooth identifier signal as a secure key for use in conjunction with near field communications and payments.

Google Ex. 1028, p. 169

Claim 32. (New) The method as recited in claim 1, further comprising a step of employing said mobile device as a payment trigger mechanism.

Claim 33. (New) The method as recited in claim 1, wherein local based services (LBS) includes at least a contribution to a payment process.

Claim 34. (New) The method as recited in claim 1, wherein local based services (LBS) includes at least a contribution to a security portion of a secured payment process.

Claim 35. (New) The method as recited in claim 1, further comprising a step of employing said mobile device as a digitally secure payment implement.

Claim 36. (New) The method as recited in claim 1, further comprising a step of employing said mobile device as a digitally secure payment implement by including the identifier information of the mobile device.

Claim 37. (New) The method as recited in claim 1, further comprising a step of employing said mobile device as a digitally secure payment implement by including the location information obtained from the proximate beacon of the series of beacons and subsequently provided from the mobile device.

Google Ex. 1028, p. 170

Claim 38. (New) The method as recited in claim 1, further comprising a step of interacting with a social networking environment.

Claim 39. (New) The method as recited in claim 1, further comprising a step of sharing said mobile device with other mobile devices operating as a local social networking environment.

Claim 40. (New) The method as recited in claim 1, further comprising a step of including said mobile device into an existing local social networking environment.

Claim 41. (New) The method as recited in claim 1, further comprising a step of at least one of creating and sustaining a social networking environment based upon said location of each mobile device within proximity of other mobile devices and said beacon.

Claim 42. (New) The method as recited in claim 1, further comprising a step of at least one of creating and sustaining a social networking environment based upon said location of each mobile device within proximity of other mobile devices and said beacon,

wherein said social networking environment is associated with said hospitality venue.

Claim 43. (New) The method as recited in claim 1, further comprising a step of informing a second party of a presence of the user within a proximity of one another.

Google Ex. 1028, p. 171

Claim 44. (New) The method as recited in claim 1, further comprising a step of displaying a circle overlay onto a local map on a display of said mobile device, wherein said circle is associated with one of said location of said mobile device and said location of said proximate beacon of said series of beacons.

Claim 45. (New) The method as recited in claim 1, wherein said local based services (LBS) associated with said local geographic area is at least one of:

a link to a third party application,

a link to existing software,

a link to a website,

communication using a cloud,

presents location information,

presents marketing information,

presents sales information,

presents specials information,

presents coupon information, and

provides emergency based locating.

Claim 46. (New) The method as recited in claim 1, wherein said step of automatically initiating said hospitality function includes a step of including user information provided by said mobile device.

Google Ex. 1028, p. 172

Claim 47. (New) The method as recited in claim 1, wherein said step of automatically initiating said hospitality function includes a step of including user information provided by said mobile device, wherein said information decoded from said received beacon signal in conjunction with said user information provided by said mobile device is provided to a hospitality function service provider.

Claim 48. (New) The method as recited in claim 1, further comprising a sensor in communication with said beacon, wherein said beacon broadcasts only after activation of said sensor.

Claim 49. (New) The method as recited in claim 1, further comprising steps of:

downloading at least one of a floor plan and a map; and

storing said at least one of a floor plan and a map in said mobile device for use with said hospitality function independent of network connectivity.

Claim 50. (New-Withdrawn) The method as recited in claim 12, further comprising a step of:

automatically initiating a hospitality function, wherein the information decoded from said beacon signal automatically initiates said hospitality function based upon the information decoded from the received beacon signal.

Claim 51. (New-Withdrawn) The method as recited in claim 12, further comprising steps of:

Google Ex. 1028, p. 173

downloading at least one of a floor plan and a map; and

storing said at least one of a floor plan and a map in said mobile device for use with said hospitality function independent of network connectivity.

Claim 52. (New-Withdrawn) The method as recited in claim 12, further comprising steps of:

converting said information associated with said known physical location of said respective beacon obtained by said received beacon signal into Global Positioning System (GPS) coordinates and emulate an external GPS data source.

Google Ex. 1028, p. 174

REMARKS

Claims 1-52 are currently pending in the application.

Claims 1-52 remain pending for examination.

Claims 12-20 and 50-52 have been withdrawn.

Claims 1, 6, and 12 have been amended herein.

Claims 21-52 have been added herein.

No claims are canceled.

Request for Examiner's Interview

Applicant respectfully requests an interview with the Examiner to discuss the response. Applicant earnestly believes that an interview with the Examiner would result in expediting the case to an allowance. The Examiner has already indicated allowable subject matter. Applicant desires to discuss the amendments to the rejected claims to determine allowability thereof. Once the Examiner has considered the effect of the response, a telephone call to the undersigned at (561) 716-3915 is respectfully requested. Applicant respectfully notes that, in accordance with MPEP 713.01 and 37 CFR 1.133, "[w]here the reply to a first complete action includes a request for an interview, a telephone consultation to be initiated by the examiner or a video conference…, the examiner, as soon as he or she has considered the effect of the reply, should grant such request if it appears that the interview or consultation would result in expediting the case to allowance."

Amendments to Independent Claims

Applicant has amended Independent **Claim 1** to more clearly and concisely define the present invention as follows:

"deploying a series of beacons about said interior of said hospitality venue;

encoding ~~identifying~~ information into a device identification portion of a beacon signal,

Google Ex. 1028, p. 175

wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

~~determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal;~~

wherein the information decoded from said beacon signal automatically initiates ~~initiating~~ a hospitality function based upon the ~~determined identity~~ information decoded from ~~of the beacon associated with~~ the received beacon signal."

Support for the amendment is provided in paragraph [00104], which states:

"[00104] The navigation solution is designed for global use and is not limited to malls, stores, amusement parks, museums, sports stadiums etc. It can be implemented in parking garages or parking spaces metered or not, the tags/beacons can be implemented anywhere and in any place **to trigger and initiate existing and local application** and even link to exiting system and existing software"

Additional support for the amendment is provided in paragraph [00126], which states:

"[00126] The beacons ID can trigger a link to existing software and aware the local system of the user existence – such as:

Google Ex. 1028, p. 176

A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

The pedestrian reach an advertising area or billboard that can recognize the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

A customer is entering a store/bank/facility front would be identified/recognized for additional information or services.

The RF beacons/tags can serve to track employee time, including check-in and checkout times from designate area.

The local RF beacons associate with the user mobile can be part of local dating system.

The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

The location of the user as associate with the local beacons can be interface with social networking .

The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking.

The RF beacon can be installed or be a part of a vehicle to provide car application like

Google Ex. 1028, p. 177

payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically."

Applicant has amended Independent **Claim 6** to more clearly and concisely define the present invention as follows:

"decoding each received said at least one of said broadcast beacon signal;

wherein the information decoded from the beacon signal automatically initiates ~~initiating determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal; and completing~~ at least one of the following steps:

(a) ~~initiating~~ a link to access and activate existing software based upon the encoded identification of the beacon, and

(b) ~~initiating~~ a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information.

The amendments to Independent **Claim 6** are consistent with those of Independent **Claim 1**. Applicant respectfully applies the support presented above to the subject amendments.

Applicant has amended Independent **Claim 12** to more clearly and concisely define the present invention as follows:

"encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons and information associated with a known physical location of said respective beacon; …

determining a current location of said mobile device within said interior of said

Google Ex. 1028, p. 178

hospitality venue, wherein said current location of said mobile device is determined based upon information associated with a known physical location of said respective beacon collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map."

Support is provided in **Claim 1** of 14/285,209 (Issued as 9,204,251) and 14/285,273 (Issued as 9,204,257).

Status of Application in Accordance with the American Inventor's Act

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

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (**Claims 1-5 and 7-11**) in the reply filed on 06/15/2015 is acknowledged. The traversal is on the ground(s) that "Applicant earnestly believes **Claims 1-20**, as amended, all read upon the elected Species.

Applicant has amended **Claims 1, 6, and 12** to address the respective restriction election requirement and more clearly and concisely define the present invention.

Applicant earnestly believes **Claims 1-20** are in condition for examination" (see Applicant's remarks, page 19, dated 06/15/2015).

Google Ex. 1028, p. 179

This is not found persuasive because each amended **Claims 1, 6 and 12** (filed on 06/15/2015) discloses an invention that's different from another:

*The amended **Claim 1** recites:*

"initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal".

*The amended **Claim 6** recites:*

"(a) initiating a link to access and activate existing software based upon the encoded identification of the beacon, and

(b) initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information".

*The amended **Claim 12** recites:*

"determining a location of a mobile device in accordance with following steps: scanning for any of said broadcast beacon signals using a mobile device, detecting at least one of said broadcast beacon signals, receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and determining a current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information collected from said received beacon signal; determining an indoor map associated with said hospitality venue; displaying said hospitality venue indoor map; and displaying said current location of said mobile device on said hospitality venue indoor map".

The requirement is still deemed proper and is therefore made FINAL.

1a. (Applicant's Remarks): Applicant respectfully requests that the Examiner reconsider his position, as Independent **Claim 6** includes the key limitations of Independent **Claim 1**.

Google Ex. 1028, p. 180

More specifically, Independent **Claims 6 and 12** both include the following limitations:

"encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device;

decoding each received said at least one of said broadcast beacon signal;"

In **Claim 1**:

"wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal.

In **Claim 6**:

wherein the information decoded from the beacon signal automatically initiates at least one of the following steps:

(a) a link to access and activate existing software based upon the encoded identification of the beacon, and

(b) a local based services (LBS) application to provide local based services information

Google Ex. 1028, p. 181

to the mobile device, wherein said provide local based services information is associated with said beacon identifying information."

Applicant earnestly believes the limitations of Independent **Claim 6** are simply a more limited set of the limitations of Independent **Claim 1**.

Applicant respectfully requests the Examiner reconsider and rejoin Independent **Claim 6**.

Regarding Independent **Claim 12**: Independent **Claim 12** includes elements

A) "encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons and information associated with a known physical location of said respective beacon;"

B) "determining a location of a mobile device in accordance with following steps:

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal; and

determining a current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information associated with a known physical location of said respective beacon collected from said received beacon signal;"

C) "determining an indoor map associated with said hospitality venue;

Google Ex. 1028, p. 182

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map."

Applicant respectfully asserts:

The limitations identified as "A" above are analogous to the limitations of:

"encoding information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;"

The limitations identified as "B" above are analogous to the limitations of:

"scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;"

The limitations identified as "C" above are analogous to the limitations of:

a step of initiating a Location Based Services application.

Applicant additionally notes, the limitations of Independent **Claim 12** are consistent with those in previously allowed (and now issued) Applications that were examined by the same Examiner, including 14/285,209 (Issued as 9,204,251) and 14/285,273 (Issued as 9,204,257).

Applicant has withdrawn **Claims 12-20** in accordance with the Examiner's position above.

Google Ex. 1028, p. 183

Applicant respectfully requests the Examiner reconsider and rejoin Independent **Claim 12**.

Claim Rejections - USC § 102

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

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

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. The Examiner rejected **Claims 1, 3-5, 7-9 and 11** under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe (US 2003/0067392 A1).

4A. (Examiner's Position): Regarding **Claim 1**, Monroe teaches a method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of: deploying a series of beacons about said interior of said hospitality venue (see [0017], *"beacon transmitters. are installed at various locations around the monitored facility'*, also see *[0018], "gymnasium", "auditorium", "stadium"* and *"campus ground or the like"),*

encoding identifying information into a device identification portion of a beacon signal (also see [0017], *"The beacon transmitters are designed to transmit a unique beacon ID signal at regular intervals"*, also see fig A, see box" *105 encoder"*, and see box *"encode & transmit*

Google Ex. 1028, p. 184

beacon ID'),

wherein said identifying information identifies each beacon of said series of beacons (also see [0017], *"The beacon transmitters are designed to transmit a unique beacon ID signal at regular intervals"),*

broadcasting said beacon signal from each beacon of said series of beacons (also see [0017], *"The beacon transmitters are designed to transmit a unique beacon ID signal at regular intervals"),*

scanning for any of said broadcast beacon signals using a mobile device (see [0061], *"the receiver is programmed to listen for or sense beacons and to store the last one detected',* see [0059] and fig.5, *"beacon receiver* 135' for scanning the broadcast beacon signals, and see Abstract and [0009], *"a small cell phone or* ~'),

detecting at least one of said broadcast beacon signals (see [0061], *"the receiver is programmed to listen for or sense beacons and to store the last one detected',* also see [0059] and fig.5, *"beacon receiver* 135' for detecting the broadcast beacon signals),

receiving at least one of said broadcast beacon signal by said mobile device (also see [0061], *"the receiver is programmed to listen for or sense beacons and to store the last one detected'.* In addition, see [0059] and fig.5, *"beacon receiver* 135' for detecting the broadcast beacon signals),

wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device (see [0017], *"beacon transmits. are installed at various locations around the monitored facility',* also see [0018], *"gymnasium", "auditorium", "stadium"* and *"campus ground or the like"),* and decoding each received said at least one of said broadcast beacon signal (see [0059] and fig.5, *"beacon decoder* 145' and *"beacon receiver 135'),*

determining an identify of said beacon from said series of beacons based upon said received (see [0059), "a *beacon receiver', "the beacon 10 number is decoded by beacon decoder*

Google Ex. 1028, p. 185

145", also see [0017), *"The beacon transmitter§.i1.!§. designed to transmit* a *unique beacon ID signal at regular intervals",* also see figA, see box" *105 encoder",* and see box *"encode* & *transmit beacon 10'),*

decoded beacon signal (also see [0059], *"the beacon 10 number is decoded by beacon decoder* 145', and fig.5, *"beacon decoder* 145', *"beacon receiver 135'),*

initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal (also see [0059], *"When one of the switches* 51.52. *or* 53 *is depressed, processor 150 formulates a message containing the personal alarm ID. the most recent beacon 10, and an indication of which switch was pressed. In this embodiment the encoder* 155 *encodes the processor output and introduces it to the transmitter 160 for wireless transmission via the antenna 165. The microphone 140 permits direct audio input to the system from the unit. Audio may be transmitted in analog form. or may be digitized by AID converter* 141 *and compressed by compressor* 142. *thence transmitted digitally. The unit is shown at 170 and includes the activation switches S1. S2. S3. the microphone 140 and the antenna* 165'. In addition, see [0061]).

4a. (Applicant's Remarks): Claim 1 is an Independent claim.

Applicant has amended Independent Claim 1 to more clearly and concisely define the present invention as follows:

"deploying a series of beacons about said interior of said hospitality venue;

encoding ~~identifying~~ information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

Google Ex. 1028, p. 186

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

~~determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal;~~

wherein the information decoded from said beacon signal automatically initiates ~~initiating~~ a hospitality function based upon the ~~determined identity~~ information decoded from ~~of the beacon associated with~~ the received beacon signal."

Applicant earnestly believes the amendments to Independent **Claim 1** overcome the rejection set forth by the Examiner based upon the following:

The claim more clearly and concisely recites the limitation of "*wherein the information decoded from said beacon signal automatically initiates a hospitality function based upon the information decoded from the received beacon signal*".

Applicant respectfully asserts that the cited references fail to teach or suggest all the elements of the claimed invention. As the Examiner is aware, "[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art." M.P.E.P. § 2143.03 (citing *In re Wilson,* 424 F.2d 1382, 1385, 165 US.P.Q. 494,496 (C.C.P.A. 1970). Moreover, in order to establish a *prima facie* case of obviousness, the references alone or in combination must teach or suggest all the limitations of Applicant's claimed invention. *In re Vaeck,* 947 F.2d 488, 20 US.P.Q.2d 1438 (Fed. Cir. 1991).

The Examiner relies upon the following:

"When one of the switches 51, 52, *or* 53 *is depressed, processor 150 formulates a message containing the personal alarm ID, the most recent beacon 10, and an indication of*

Google Ex. 1028, p. 187

which switch was pressed. In this embodiment the encoder 155 *encodes the processor output and introduces it to the transmitter 160 for wireless transmission via the antenna 165. The microphone 140 permits direct audio input to the system from the unit. Audio may be transmitted in analog for. or may be digitized by AID converter* 141 *and compressed by compressor* 142. *thence transmitted digitally. The unit is shown at 170 and includes the activation switches S1, S2, S3, the microphone 140 and the antenna* 165'. In addition, see [0061]).

The present invention is directed towards a system that receives information from a beacon, decodes the signal to obtain the information, then that information automatically initiates (triggers) an Application (a hospitality based function – **Claim 1**) (a link or a location based service – **Claim 6**)

Independent **Claim 1** clearly asserts that the hospitality function is automatically initiated by the by the information decoded from the beacon signal. Applicant earnestly believes this limitation distinguishes the present invention over the art of record, as Monroe requires activation by depressing a switch. Monroe is silent regarding a system that automatically initiates a function based upon the information decoded from the beacon signal. Additionally, the claim includes the limitation that the information is provided in the device identification portion of a beacon signal.

Regarding the inclusion of the information within the identification signal:

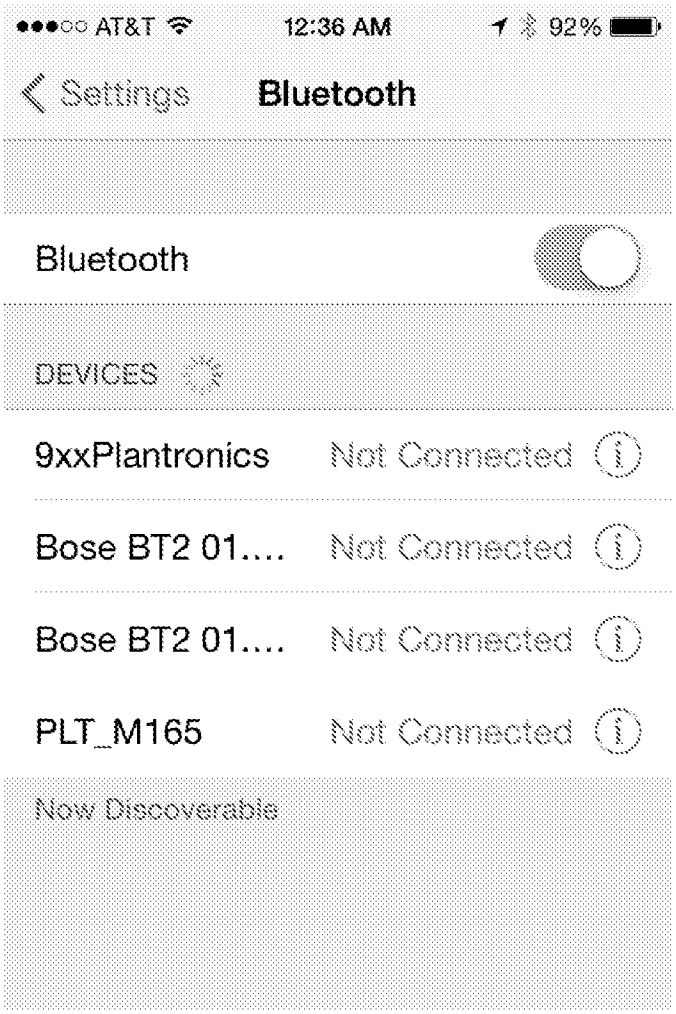
Applicant respectfully asserts, Monroe fails to teach the inclusion of information specifically within the identifier portion of the signal, wherein the information initiates a function upon receipt thereof.

The identifier packet or identifier portion of the signal is the portion of the signal that is received prior to establishing a bi-directional pairing. A bidirectional pairing for both a Bluetooth system and a Wi-Fi signal requires acceptance by the receiving party.

To provide clarity to the Examiner regarding the identifier packet, Applicant has inserted two examples below of pairing screens. The first is representative of a Bluetooth pairing screen.

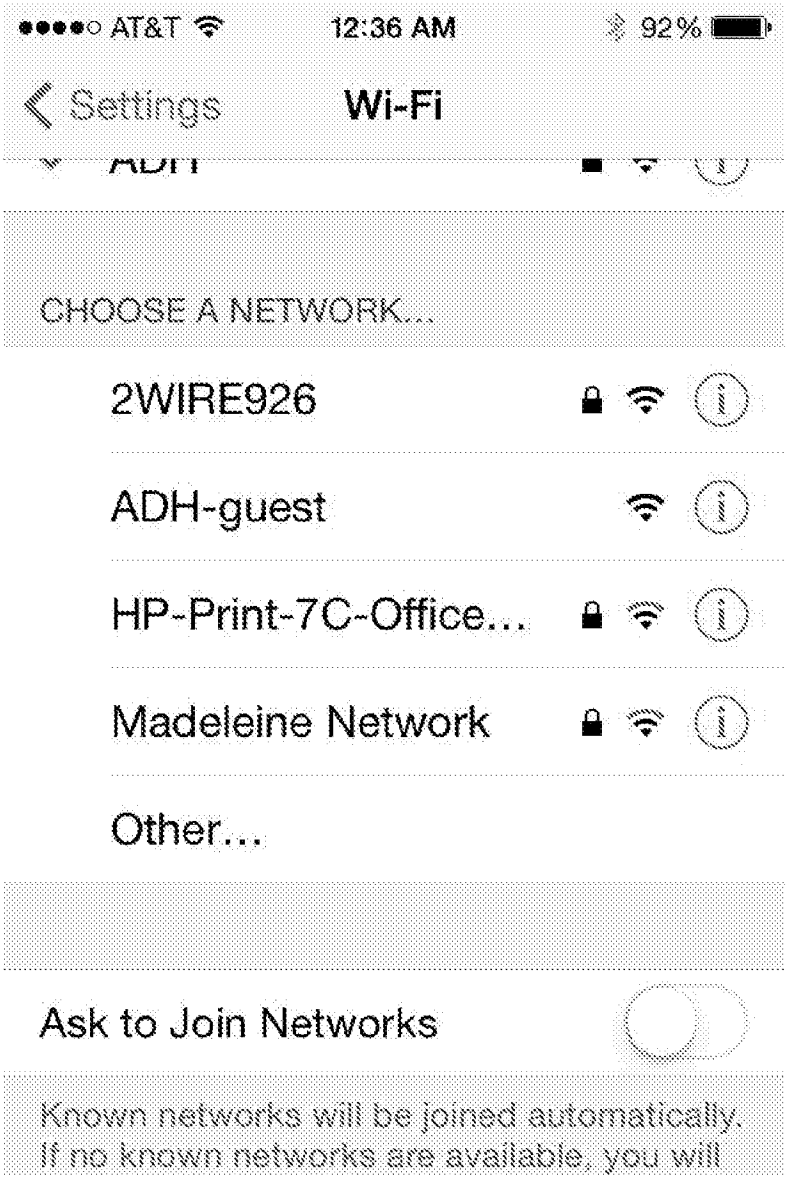
Google Ex. 1028, p. 188

The second is representative of a Wi-Fi pairing screen.



Example 1: Bluetooth pairing Screen

Google Ex. 1028, p. 189



Example 2: WiFi pairing Screen

In the first example:

The first Bluetooth unique ID of the transmitter is “9xxPlantronics”.

The second Bluetooth unique ID of the transmitter is “Bose BT2 01…”

Google Ex. 1028, p. 190

The third Bluetooth unique ID of the transmitter is also "Bose BT2 01…"

The fourth Bluetooth unique ID of the transmitter is "PLT_M165".

In the second example:

The first Wi-Fi unique ID of the transmitter is "2WIRE926".

The second Wi-Fi unique ID of the transmitter is "ADH-Guest"

The third Wi-Fi unique ID of the transmitter is also "HP-Print-7C-Office…"

The fourth Wi-Fi unique ID of the transmitter is "Madeleine Network".

The above presents examples of the unique ID of the transmitter.

Applicant respectfully notes, the unique beacon ID, as taught by Monroe, differs from the present invention, which includes information within (or preferably as) the unique ID of the transmitter. More specifically, the information transmitted by the beacon, in accordance with the present invention, is designed to automatically initiate (trigger) an application. The unique beacon ID, as taught by Monroe, has no association with initiating an application, service, or other associated function.

In an example associated with the present invention, the identifier would state: "Function: www.Hospitality_Service.com/map1234". This would automatically initiate a mapping process using map1234. The system would not rely upon an activity from the user to initiate the respective Hospitality Function / Location Based Service, more specifically, the mapping.

In a second example associated with the present invention, the identifier would state:

Google Ex. 1028, p. 191

"Function: www.Cruise_Ship_A.com/Events1234". This would provide a list of all events that are associated with the reference 1234 occurring on Cruise Ship "A". Again, the system would not rely upon an activity from the user to initiate the respective Hospitality Function / Location Based Service.

In a third example associated with the present invention, the identifier would state: "Function: www.Department_Store_A.com/SalesABC". This would provide a list of all items on sale that are associated with the reference ABC at Department Store "A". Again, the system would not rely upon an activity from the user to initiate the respective Hospitality Function / Location Based Service.

In a third example associated with the present invention, the identifier would state: "Location: Department Store X, Isle 4, 10 Feet West". This would provide an exact known location of the beacon to the user within the known store. Again, the system would utilize the signal strength and/or triangulation the further refine the precise location of the mobile device (the user).

Applicant respectfully directs the Examiner to the reasons for allowance in 12/932,811 (Issued as USPN 8,941,485).

The Notice of Allowance states:

"The following is an examiner's statement of reasons for allowance: there are no prior arts teaching or suggesting of a method of deploying an infrastructure to enabling indoor and outdoor navigation and local based services (LBS): {*analogous to the step of deploying a series of beacons about said interior of said hospitality venue*} in a facility area needing precise location accuracy: the method comprises the steps of

displaying the position on the facility area/map on the mobile device display; navigating between waypoints associated with each RF beacon by using on the are facility area map; and

initiating receipt of local content, LBS services and applications according to the

Google Ex. 1028, p. 192

determine current determined by at least one of the location of the mobile device: [*analogous to the step of initiating the LBS / hospitality based function*], the RF beacon identifier (10), and pre-define preference encoded into the mobile device, whereby said the content can be is deliver by a 3ra party over the at least one of an Internet and cellular communication network."

Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe has been overcome by Amendments and remarks submitted herein. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe.

4B. (Examiner's Position): Regarding **Claim 3**, Monroe teaches said hospitality venue is at least one of a hotel, motel, a cruise ship (see [0010], *"cockpit', "passenger cabin"),* a resort, a theater,

a conference center (see [0018] and [0067], see *"auditorium"),* a restaurant, and a casino (In addition, where to deploy/employ the beacons is obvious or Inventor's choice).

4b. (Applicant's Remarks): Dependent **Claim 3** depends from Independent **Claim 1**.

Applicant respectfully directs the Examiner to Applicant's Summary presented in section 4i below.

4C. (Examiner's Position): Regarding **Claim 4**, Monroe teaches a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue (see Abstract and see fig.15).

4c. (Applicant's Remarks): Dependent **Claim 4** depends from Independent **Claim 1**.

Google Ex. 1028, p. 193

Applicant respectfully directs the Examiner to Applicant's Summary presented in section 4i below.

4D. (Examiner's Position): Regarding **Claim 5**, Monroe teaches a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue (see Abstract and see fig.15), wherein said hospitality system includes access to at least one of: a hospitality front office, a hospitality back office, a food and beverage provider, room service, in-room service (see [0050], *"room"),* an events and ticketing concierge, a conference concierge, a show concierge, an emergency plan and procedure (see [0004], [0005], [0011], [0013] and [0014], *"emergency'),* an entertainment system, an in-room guide and information, engineering services, employee control, security (see Title, *"security system"* and Abstract, *"alarm system",* also see [0020], *"security'* and *"surveillance"),* room key and access control system, and a payment process.

4d. (Applicant's Remarks): Dependent **Claim 5** depends from Independent **Claim 1**.

Applicant respectfully directs the Examiner to Applicant's Summary presented in section 4i below.

4E. (Examiner's Position): Regarding **Claim 7**, Monroe teaches a step of directing said mobile device to transmit a communication 'notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon Signal (see Abstract, "A *beacon generator may be used to identify location of the portable unit',* and see [0017], *"The beacon signals may also be generated by a control signal from a system* processor *on the facility network. The personal alarm unit will store the beacon signal each time it is received. When* a *signal is initiated from the personal alarm unit it will identify the location of the sender by transmitting the last stored beacon Signal, providing an efficient, inexpensive and accurate method of tracking the user',* also see *[0074], "if the user* 5654 *pressed the FIRE pushbutton, the*

Google Ex. 1028, p. 194

appliance will notify the fire department 540 and the signal will identify the location of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570". In this case, Monroe's *"initiated"* and/or *"pressed the FIRE pushbutton"* read on Applicant's *"directing').*

4e. (Applicant's Remarks): Dependent **Claim 7** depends from Independent **Claim 1**.

Applicant respectfully directs the Examiner to Applicant's Summary presented in section 4i below.

4F. (Examiner's Position): Regarding **Claim 8**, Monroe teaches directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal (see Abstract, *"A beacon generator may be used to identify location of the portable unit,* and see [0017], *"The beacon Signals may also be generated by a control signal from a system processor on the facility network. The personal alarm unit will store the beacon signal each time it is received. When a signal is initiated from the personal alarm unit it will identify the location of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user',* also see [0074], *"if the user* 5654 *pressed the FIRE pushbutton, the appliance will notify the fire department 540 and the signal will identify the location of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570'.* In this case, Monroe's *"initiated"* and/or *"pressed the FIRE pushbutton"* read on Applicant's *"directing"),* and forwarding information associated with at least one of the hospitality venue (see [0018] and [0067], see *"stadium", "campus ground', "gymnasium", "auditorium"),* an event, food and beverage services, and billing to said mobile device.

4f. (Applicant's Remarks): Dependent **Claim 8** depends from Independent **Claim 1**.

Applicant respectfully directs the Examiner to Applicant's Summary presented in section

Google Ex. 1028, p. 195

4i below.

4G. (Examiner's Position): Regarding **Claim 9**, Monroe teaches a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue (see Abstract, *"A personal alarm system can be worn or carried by the user, may be activated at any time by the user and/or may be automatically activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's location within the monitored area".* In this case, Monroe's *"activated'* read on Applicant's *"directing").*

4g. (Applicant's Remarks): Dependent **Claim 9** depends from Independent **Claim 1**.

Applicant respectfully directs the Examiner to Applicant's Summary presented in section 4i below.

4H. (Examiner's Position): Regarding **Claim 11**, Monroe teaches a step of utilizing said beacon signal to determine a location of said mobile device (see Abstract, *"A personal alarm system can be worn or carried by the user, may be activated at any time by the user and/or may be automatically activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's location within the monitored area",* also see Abstract, *"A beacon generator may be used to identify location of the portable unt',* and see [0017], *"When a signal is initiated from the personal alarm unit it will identify the location of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user',* also see [0074], *"if the user* 5654 *pressed the FIRE pushbutton, the appliance will notify the fire department* 540 *and the signal will identify the location of the of the person reporting the fire* as *well* as *the identity of the personal alarm unit sending the message via signals sent over the intervening network 57a').*

Google Ex. 1028, p. 196

4h. (Applicant's Remarks): Dependent **Claim 11** depends from Independent **Claim 1**.

Applicant respectfully directs the Examiner to Applicant's Summary presented in section 4i below.

4i. (Applicant's Summary): Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe has been overcome by amendments and remarks submitted in section 4a above. It necessarily follows that due to their dependency from Independent **Claim 1**; Dependent **Claims 3-5, 7-9 and 11** are also nonobvious over Monroe. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claims 3-5, 7-9 and 11** under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe.

Claim Rejections* - 35 *USC* § *103

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

6. The following is a quotation of pre-AIA 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.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Google Ex. 1028, p. 197

8. 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 pre-AIA 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.

9. The Examiner rejected **Claim 2** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392 A1) in view of Hoddie (US 2005/0221858 A1).

9A. (Examiner's Position): Regarding **Claim 2**, Monroe teaches the beacon signal is a short range radio frequency, and transmitting said beacon signal as at least one of short range radio frequency (see [0017], *"These signals may be infrared, RF, ultrasonic or other known format).* Monroe does not specifically disclose the beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Hoddie teaches the beacon signal is at least one of a Bluetooth signal and a Wi-Fi Signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal (see [0020] and [0034], "Bluetooth", "Wi-Fi").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Hoddie into the system of Monroe in order to

Google Ex. 1028, p. 198

provide methods and apparatus for interface negotiation using a device supporting multiple communication interfaces (see Hoddie, Abstract).

9a. (Applicant's Remarks): Dependent **Claim 2** depends from Independent **Claim 1**.

Applicant respectfully notes, Hoddie fails to teach the limitations of:

including information in the device identification portion of a beacon signal, and

using the information decoded from the beacon signal to automatically initiate Location Based Services (LBS), hospitality based functions, and the like.

Therefore, Applicant earnestly believes the remarks presented in section 4a respective to Independent **Claim 1** are not affected by the introduction of Hoddie.

Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe has been overcome by amendments and remarks submitted in section 4a above. It necessarily follows that due to its dependency from Independent **Claim 1**; Dependent **Claim 2** is also nonobvious over Monroe in view of Hoddie. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claim 2** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Hoddie.

10. The Examiner rejected **Claim 10** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Kanevsky, et al. (US 2005/0096070A1).

10A. (Examiner's Position): Regarding **Claim 10**, Monroe teaches **Claim 1**. Monroe does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained

Google Ex. 1028, p. 199

marketing information associated with said beacon identifying information on said mobile device.

Kanevsky teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see Abstract and [0016], *"beacon signal,* and see [0002], *"beacon signal", "displaying business data").*

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Kanevsky into the system of Monroe so that local cellular providers that receive the beacon signal can determine the cell location of the active device (also see Kanevsky, [0002]).

10a. (Applicant's Remarks): Dependent **Claim 10** depends from Independent **Claim 1**.

Kanevsky, et al. teaches the following:

Abstract: A system and method that provides data messages to a passive device. A passive device, for example watch, is registered together with the telephone number of a cellular telephone of a subscriber to the data message service. Since the cellular telephone periodically transmits a beacon signal, the wireless network knows its cell location. Accordingly, the system determines the cell location of the cellular telephone and establishes a communication of the subscribed data to the watch via the local cellular provider for the same cell location as that of the subscriber's cellular telephone.

[0002] (Background) An active cellular device, such as a telephone, a beeper and the like, sends a beacon signal on a periodic basis. Local cellular providers that receive the beacon signal can determine the cell location of the active device. Generally, the cellular provider that receives

Google Ex. 1028, p. 200

the signal with the greatest signal strength of power becomes the provider of the cellular service to the active device. The cellular provider sends the address of the active cell device to a central database. When a call is placed to the active device, the central database is accessed to find the most recent cell location of the active device. A wireless telephone connection is then made to the active device via the local service provider for that cell, provided the active device has not moved or stopped sending beacon signals. Because active cellular devices are locatable, they are capable of receiving and displaying data messages of various content, such as weather, news, sports scores, business data, and the like.

[0016] According to the present invention, a passive device, for example watch **102**, is registered together with the telephone number of a cellular telephone **106** of subscriber user **110**. Since cellular telephone **106** periodically transmits a beacon signal, the wireless network knows its cell location. Accordingly, the process of the present invention establishes a communication of the subscribed data to watch **102** via the local cellular provider for the same cell location as that of cellular telephone **106** of subscriber **110**.

Applicant respectfully notes, Kanevsky, et al. fails to teach the limitations of:

including information in the device identification portion of a beacon signal, and

using the information decoded from the beacon signal to automatically initiate Location Based Services (LBS), hospitality based functions, and the like.

It is additionally noted that Kanevsky, et al. requires bi-directional communication with the "beacon" as indicated by the underlined section presented in Paragraph [0016] above. Conversely, the present invention includes the information in the identification portion of the signal, and therefore accomplishes the desired process using a unidirectional communication.

Therefore, Applicant earnestly believes the remarks presented in section 4a respective to Independent **Claim 1** are not affected by the introduction of Kanevsky, et al.

Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35

Google Ex. 1028, p. 201

U.S.C. 102(b) as being anticipated by Monroe has been overcome by amendments and remarks submitted in section 4a above. It necessarily follows that due to its dependency from Independent **Claim 1**; Dependent **Claim 10** is also nonobvious over Monroe in view of Kanevsky, et al. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claim 10** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Kanevsky, et al.

11. The Examiner rejected **Claim 10** is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Johnson (US 2005/0187819 A1).

11A. (Examiner's Position): Regarding **Claim 10**, Monroe teaches **Claim 1**. Monroe does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Johnson teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see [0057], [0093], [0097], [0105] and [0113], *"beacon signal', "price", "self', "displaying").*

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Johnson into the system of Monroe in order to

Google Ex. 1028, p. 202

measure the effect of advertisements placed in shopping carts and with using such measurements to determine levels of payment for such advertisements (also see Johnson, [0002]).

11a. (Applicant's Remarks): Dependent **Claim 10** depends from Independent **Claim 1**.

Johnson teaches the following:

[0057] Referring to FIGS. 1 and 2, the point-of-sale terminal **12** includes a transducer **70** through which a beacon signal is emitted to be detected by the transceiver **22** within the shopping cart **14** is brought into position adjacent the point-of-sale terminal **12**. When this beacon signal is detected by the transceiver **22** within the shopping cart **14**, the shopping cart **14** responds by transmitting data regarding advertisements that have been displayed within the display unit **16**. Preferably, the transceivers **22**, **43** are arranged so that communications are established between the shopping cart **14** and the point-of-sale terminal **12** only when the shopping cart **14** is moved into place adjacent the point-of-sale terminal **14**, with the resulting communications not effecting other shopping carts or other point-of-sale terminals. This is accomplished, for example, by modulating an infrared light beam with a data signal to provide line-of-sight communication over a short distance.

[0093] When it is determined in step **286** that the end of the display of an advertisement has not been reached, it is then determined in step **294** whether a message has been received through the transceiver **242** from the store computer system **220**. If it has, a further determination is made in step **296** of whether the message indicates that the data last transmitted from the shopping cart **222** represents a valid barcode for an item to be sold within the store. If it has, data received within the message describing the item, including its price, is displayed on the display screen **236** and written to the transaction data structure **244** in step **298**. Then, in step **300**, the price of the item is added to a total also stored within the transaction data structure **244**. On the other hand, when it is determined in step **296** that the message does not indicate that the data last transmitted represents a valid barcode for an item to be sold within the store, a further determination is made in step **302** of whether the message indicates that the message indicates such a code is incorrect barcode data. If it does, an error indication is then displayed in step **306**. Otherwise, the shopping

Google Ex. 1028, p. 203

cart **222** preferably performs another function according to the message from the store computer system **220** in step **306**.

[0097] Referring to FIGS. 8 and 12, after starting in step **328**, the subroutine **326** proceeds to step **330**, in which it is determined whether a message has been received from a cart **222**. When it is determined that such a message has been received, the subroutine **326** proceeds to step **332**, in which a further determination is made of whether the message is barcode data, transmitted from the cart **222** in step **268**, as explained above in reference to FIG. 11. If it is, a determination is made in step **334** of whether the barcode data matches data stored in the identifier data field **130** of the item data structure **66**. If such a match is found, data from the data record **188** in which the barcode data is matched, within the manufacturer data field **192**, the description data field **194**, and the price data field **196** is returned to the cart **222** in step **336**, for display and use in preparing a sales receipt. Then, in step **338**, data from the advertisement history data structure **250** of the shopping cart **222**, transmitted to the store computer system along with the barcode data in step **268**, is compared with the barcode data, and, preferably, additionally with the data from the manufacturer data field **192**, to determine whether the item identified by the barcode matches one of the advertisements that has been displayed in the shopping cart **222**. If it does, within each data record **198** of the advertisement data structure **87**, shown in FIG. 9, for an advertisement found to match data associated with the item, a value of one is added to the numeric value stored within the counting data field **200** in step **340**.

[0105] Referring to FIGS. 10 and 13, the alternative display unit **350** may additionally be used with a shopping cart including a barcode reader for checking out items as they are placed within the cart. When this is done, the advertisement history data file **250** is not used, with its function being replaced by evaluating the output of the contacts **360** to determine the advertisement messages that have been presented. A display screen **236**, which may be a small screen presenting a single line of data, is retained to provide for the presentation of data describing the items scanned and their prices.

[0113] When the shopping cart **404** is in position adjacent the point-of-sale terminal **402**, a

Google Ex. 1028, p. 204

beacon signal received in step **106** thus causes the shopping cart **404** to transmit advertisement history data, together with a code identifying the particular point-of-sale terminal **402** to the store computer system **406**. Preferably, this data is transmitted only once, before the process of checking out items is begun. If the beacon signal is transmitted on a continuous or periodic basis, the process of erasing the advertisement history in step **114**, followed by a subsequent determination in step **108** that there is no data in the advertisement history data structure, prevents an additional transmission of such data. Alternately, a command to transmit a beacon signal to start this data transmission process may be provided as an input at the point-of-sale terminal **402** before beginning the process or scanning barcodes to check out items.

Applicant respectfully notes, Johnson (including the disclosure within Paragraphs [0057], [0093], [0097], [0105] and [0113] as identified by the Examiner) fails to teach the limitations of:

including information in the device identification portion of a beacon signal, and

using the information decoded from the beacon signal to automatically initiate Location Based Services (LBS), hospitality based functions, and the like.

It is additionally noted that Johnson requires bi-directional communication with the beacon. Conversely, the present invention includes the information in the identification portion of the signal, and therefore accomplishes the desired process using a unidirectional communication.

Therefore, Applicant earnestly believes the remarks presented in section 4a respective to Independent **Claim 1** are not affected by the introduction of Johnson.

Applicant earnestly believes the rejection of Independent **Claim 1** under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe has been overcome by amendments and remarks submitted in section 4a above. It necessarily follows that due to its dependency from Independent **Claim 1**; Dependent **Claim 10** is also nonobvious over Monroe in view of Johnson. Applicant respectfully requests the Examiner reconsider and withdraw the rejection of Dependent **Claim 10** under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Johnson.

Google Ex. 1028, p. 205

Support for New Claims

12a. (Applicant's Remarks): Dependent **Claim 21** depends from Independent **Claim 1**.

Dependent **Claim 22** includes limitations of "wherein within said step of encoding identifying information into a device identification portion of a beacon signal, said identifying information includes information related to a physical location of said beacon."

Support for the limitations introduced in Dependent **Claim 22** is provided in **Claim 1** of 14/285,209 (Issued as 9,204,251) and 14/285,273 (Issued as 9,204,257), which includes a limitation of:

"encoding geographic location information associated with said known geographic location of said deployed beacon into an identification portion of a beacon signal, wherein each geographic location information is unique and identifies said known geographic location of each associated deployed beacon of said series of beacons;".

12b. (Applicant's Remarks): Dependent **Claim 22** depends from Independent **Claim 1**.

Dependent **Claim 22** includes limitations of "wherein said local based services (LBS) are obtained through a link to an Internet, wherein said link is initiated by said geographic location information obtained from said beacon of said series of beacons."

Support for the limitations is provided in FIG. 1 (element 106) and the associated portion of the Specification found in Col. 17, Line 59 through Col. 18, Line 42 of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which states:

"FIG. 1 is illustrates the implementation of the infrastructure of the tags/beacons in a mall application according to an embodiment of the present invention, each of the Bluetooth/Wi-Fi tags/beacons (**102**) contain the name of the waypoint (Macy's for example) and the location of the

Google Ex. 1028, p. 206

tags/beacons are known and load in a list with the map of the facility (**101**) into the user mobile device (**100**), the list allow matching of the tags/beacons signal (names) (**102**) to the known list loaded with the map (**101**) to determine the proximity to the tag/beacon providing accuracy to less than 1 m the tags/beacons (**102**) can be install in the area in each location designated as way point store/rest room/special sales special location etc. The user can load the map (**101**) at the entrance (**103**) or pre load from the Internet or other lbs or mapping providers, the beacons can be installed also in the parking area (**104**) and with additional sensor to determine existence of the parking car in the parking area can provide the user with parking navigation to empty parking, the user mobile phone (**100**) with loaded local map of the facility (**101**) that contain the local area list of a known Wi-Fi or Bluetooth beacons/tags (**102**) in the area, the mobile phone will use a special indoor navigation application that will allow scanning the exact list of the area RF Wi-Fi or Bluetooth beacons/tags and determine the exact location of the mobile user by proximity to the finding beacons/tag, the tags/beacons (**102**) broadcast there ID that can be the exact name and the exact location name known location on the map, the mobile device (**100**) with the tag/beacon name or ID will trigger content delivery from 3rd party over the Internet or cellular or a cloud (**104**) such providers will now will know the user location and can provide him with the right content additional to the mapping like advertising, sales offer, special deals coupons or other information all trigger by the location determination done by the infrastructure of the tags/beacons, more over it will allow a real time creating of smart shoppers power and real time protected consumer/student/guest/employee environment where a real-time group of real time physically existing people can share like a real "social networking" environment for application. Like "face book" like or create private social environment to include all the exact people in the area/building/cruise ship/mall/store/school close proximity and people that are attached to one of the known list of the local area RF beacons/tags, especially for consumers that can be know now who is in the area and no need for the "poor man" navigation method of the "check-in" to tell the store/consumers that you are here. Now they can know and there is benefit to the user/guest and to the mall/store/hotel/building area owner, the setup of real time physical group can serve as add-on to exiting social network part of (**106**)."

Google Ex. 1028, p. 207

12c. (Applicant's Remarks): Dependent **Claim 23** depends from Independent **Claim 1**.

Dependent **Claim 23** includes limitations of "wherein said local based services (LBS) includes emitting an emergency locating signal in an emergency condition, wherein said an emergency locating signal includes said location of said mobile device, wherein said location of said mobile device is determined using said geographic location information decoded from said received beacon signal."

Support for the limitations is provided in Paragraph [00157] and [00158], which states:

"[00157] The navigation system foresees this limitation of GPS based systems, and is intended for an environment that is potentially much less "friendly" to RF signals, the environment inside a building that first responders encounter may contain smoke, dust, or flames, and is intended to leverage advances in RF/Bluetooth tag/beacon technology. The navigation system will exploit the capability of storing critical building information, such as the floor maps and the emergency escape plans, for retrieval and navigational assistance via a Bluetooth enabled cellular phone, when and where it is needed."

"[00158] Moreover the navigation system can serve as a navigator for the emergency exit route when and where needed. Each user can load the emergency exit floor plan and escape with the knowledge of his exact location in that route."

12d. (Applicant's Remarks): Dependent **Claim 24** depends from Independent **Claim 1**.

Dependent **Claim 24** includes limitations of "further comprising a step of providing local mapping to said user, wherein said local mapping is based upon said geographic location information decoded from said received beacon signal."

Google Ex. 1028, p. 208

Support for the limitations is provided in Paragraphs [00210], [00310], and [00331], which state:

"[00210] The overlay displays over an existing navigation system, portable device or cellular phone without GPS support providing a circle that shown the location accuracy of the user on the local map."

"[00310] The navigation system can bring a new life to the navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the user a navigation to his desire location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. A new unique way to bring the customers to the product in sale . . ., direct the customer directly to the isle and to the product that you want to move. The store will also have an option to deliver more content (advertising, sale, coupons, promo etc ...) to the user when he approaches the store or is already inside via push technology to the user's Bluetooth enabled cellular phone."

"[00331] The navigation system can bring a new life to the Navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the user a navigation to his desired location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. The store will also have an option to deliver more content (advertising, sale, coupons, promo etc.) to the user when he approach the store or is already inside via push or

Google Ex. 1028, p. 209

Internet to the user's Bluetooth enabled cellular phone."

12e. (Applicant's Remarks): Dependent **Claim 25** depends from Independent **Claim 1**.

Dependent **Claim 25** includes limitations of "further comprising a step of providing navigation to a user when the user is located within an indoor environment, wherein said indoor navigation is based upon said geographic location information decoded from said received beacon signal."

Support for the limitations is provided in Paragraphs [00210], [00310], and [00331], which are quoted in section 12d above.

12f. (Applicant's Remarks): Dependent **Claim 26** depends from Independent **Claim 1**.

Dependent **Claim 26** includes limitations of "wherein said local based services (LBS) includes at least one of:

marketing, (Paragraph [00310]

site information, (Paragraph [00310]

sales, (Paragraph [00310]

product, (Paragraph [00310]

events, (Paragraph [00333]

specials, and (Paragraph [00221], [00310]

coupons. (Paragraph [00221]

Support for the limitations is provided in the paragraphs indicated above.

Google Ex. 1028, p. 210

12g. (Applicant's Remarks): Dependent **Claim 27** depends from Independent **Claim 1**.

Dependent **Claim 27** includes limitations of "wherein said local based services (LBS) uses the infrastructure deployment to locate the user in at least one of an emergency situation or during an E-911 call wherein said location of said mobile device is determined using said geographic location information decoded from said received beacon signal."

Support for the limitations is provided in FIG. 9 and the associated portion of the Specification (found in Col. 21, Lines 4-18) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which states:

"FIG. 9 is illustrates the mall directory as part of the option of mall applications according to an embodiment of the present invention referring to FIG. 9, it's illustrates the indoor application in the user mobile phone as a buttons each represent the indoor programs to be available describe in FIG. 8, from (**801**) parking and return 2 parking, (**802**) the directory, (**803**) the search and find (**804**) represent navigation request between the known way points, (**805**) the sales, specials, coupons, (**806**) will provide the user with emergency and notification and exit route and emergency procedure that so important to building/area in case of emergency (9/11, Virginia tech etc.) To a secure panic button (**807**) that can trigger locate the user (like 911 call) in the area by the security personal and (**808**) button provides information and event info. About the area/facility/mall/store."

12h. (Applicant's Remarks): Dependent **Claim 28** depends from Independent **Claim 1**.

Dependent **Claim 28** includes limitations of "further utilizing a user profile into said Bluetooth identifier signal as a secure key for use in conjunction with said local based services (LBS)."

Google Ex. 1028, p. 211

Support for the limitations is provided in FIG. 5 and the associated portion of the Specification (found in Col. 20, Lines 8-28) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which states:

"FIG. 5 is a flowchart illustrating of option secure user preferences/profile according to an embodiment of the present invention, the user chose preference/profile to be input and encode into Bluetooth/Wi-Fi naming as a secure key (**501**), the user mobile phone with special navigation application scan the proximity area (**502**), in the area/facility where the user can trigger receiving the area map or use pre load before access the area, the area/facility map the decoding key will be process (**503**) and will set user preference and sales segments, an optional behavioral log (**504**) will be add to (**503**) to provide profile, preference and behavioral information about the user all under the user control and without reveille the user ID or effect his privacy, it is like bringing the web sales into the reality and give the user ability to receive a direct local content according to his preference that will be deliver (**505**) to his mobile phone according to his profile/preference, the content/ad or sales/deals offer are deliver by 3rd party using communication method Internet or cellular that trigger by the associated infrastructure tags/beacons that determine the location and being pick by the 3rd party for LBS application."

12i. (Applicant's Remarks): Dependent **Claim 29** depends from Independent **Claim 1**.

Dependent **Claim 29** includes limitations of "further utilizing a user profile in conjunction with said Bluetooth identifier signal as a key for use in conjunction with an access lock of said associated hospitality venue."

Support for the limitations is provided in Paragraph [000537], which states:

[0001] "Example of some of the benefits and functionality to the hospitality system are:

Automatic check-in and interface to the front office system and billing folio

Google Ex. 1028, p. 212

Link to key system or even replace the room key.

Recognize guest in-room, turn on Air condition and light – and turn off when the guest leaves the room to save electricity can be setup to automatic or manual.

Hotel resort cruise ship navigation.

Allow local messaging without Internet and or cellular communication based on local chat (especially fit to the cruise ships).

Allow push messaging to the guest by local services or by remote (when Internet is available).

Replace and ad-on to the guest in –room package of the area guide and deals and coupons.

Option of VIP services where the guest can be recognized automatically around the hotel, resort, and cruise ship for his profile preferences just by being in the area – providing personal treatment and services.

Room can be set to be open or close to clean according to guest or housekeeping existence.

Housekeeping management room status attended worksheet and productivity report.

Increase security to the guest and to the hotel resort.

Allow the creation of profile preference of the guest companies group.

Provide check-in to a restaurant interface to a POS system bar system and menu selections.

Provide automatic ticketing and seat selection.

Guest loyalty, membership program incentive.

Google Ex. 1028, p. 213

Increase security and provide add on to the security plan of the hotel, resort, and cruise ship to be part of the emergency evacuation and emergency procedure."

The room key is one example of an access lock of an associated hospitality venue.

12j. (Applicant's Remarks): Dependent **Claim 30** depends from Independent **Claim 1**.

Dependent **Claim 30** includes limitations of "further utilizing a user profile into said Bluetooth identifier signal as a secure key for use in conjunction with near field communications."

Applicant respectfully directs the Examiner to section 12i above for support respective to New **Claim 30**.

12k. (Applicant's Remarks): Dependent **Claim 31** depends from Independent **Claim 1**.

Dependent **Claim 31** includes limitations of "further utilizing a user profile into said Bluetooth identifier signal as a secure key for use in conjunction with near field communications and payments."

Support for the limitations is provided in FIG. 5 and the associated portion of the Specification (found in Col. 20, Lines 8-28) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which is quoted in sections 12h and 12i presented above.

12l. (Applicant's Remarks): Dependent **Claim 32** depends from Independent **Claim 1**.

Dependent **Claim 32** includes limitations of "further comprising a step of employing said mobile device as a payment trigger mechanism."

Google Ex. 1028, p. 214

Support for the limitations is provided in Col 4, Lines 44-47 of Parent US Application 12/930,735, issued as US Patent 9,020,687 on April 28, 2015, which states:

"The user may wish to use his car ID as replacement or add-on for payment such as toll roads, pay to park or at the gas station using his car ID wirelessly as a payment trigger mechanism."

12m. (Applicant's Remarks): Dependent **Claim 33** depends from Independent **Claim 1**.

Dependent **Claim 33** includes limitations of "wherein local based services (LBS) includes at least a contribution to a payment process."

Support for the limitations is provided in Paragraph [00403] (as filed), which states:

"[00403] It provides important practical implementation of the Technique and on its usability within the complex set of social phenomena that characterize situated interaction in a public places without compromising the user privacy. Its effectiveness and simplicity can make it easily adoptable for applications like local social networking interactions, near field communication like secure transactions, payment methods, secure recognized methods and trigger secure processes and delivery of direct content according to the user profile or preference, all again without compromised user privacy and provides the user with complete control all the time. The method can be integrated and provide privacy and secure transaction to empower application that may otherwise exploit user ID, his profile and privacy as such the method can provides a secure payments transactions."

12n. (Applicant's Remarks): Dependent **Claim 34** depends from Independent **Claim 1**.

Dependent **Claim 34** includes limitations of "wherein local based services (LBS) includes at least a contribution to a security portion of a secured payment process."

Google Ex. 1028, p. 215

Support for the limitations is provided in Paragraph [00403] (as filed), which is quoted in section 12l above.

12o. (Applicant's Remarks): Dependent **Claim 35** depends from Independent **Claim 1**.

Dependent **Claim 35** includes limitations of "further comprising a step of employing said mobile device as a digitally secure payment implement."

Support for the limitations is provided in Claims 7 and 10 of Parent US Application 12/930,735, issued as US Patent 9,020,687 on April 28, 2015, which state:

"7. The method according to claim 1, further comprising a step of initiating at least one telematics application utilizing the one of the vehicle ID or the VIN, wherein the at least one telematics application is one of:

a return 2 parking application,

an access and security control,

a protection add-on to prevent car theft,

a scanning control mechanism enabling authorities to scan an area for stolen cars using a wireless scanning device that communicates with the RF beacon associated with the vehicle,

a local tracking and add-on to the car GPS navigation for more precise accuracy when needed, and

a digital secure payment method that can be use for gas or parking payment using the one of the vehicle ID or the VIN."

Google Ex. 1028, p. 216

"10. The method according to claim 1, further comprising a step of utilizing the one of the vehicle ID or the VIN obtained from the RF beacon associated with the vehicle to initiate electronic payment for at least one of tolls, parking, and payment of gas, wherein the payment is processed through an account associated with the one of the vehicle ID or the VIN."

12p. (Applicant's Remarks): Dependent **Claim 36** depends from Independent **Claim 1**.

Dependent **Claim 36** includes limitations of "further comprising a step of employing said mobile device as a digitally secure payment implement by including the identifier information of the mobile device."

Support for the limitations is provided in Claims 7 and 10 of Parent US Application 12/930,735, issued as US Patent 9,020,687 on April 28, 2015, which is quoted in section 12o above.

12q. (Applicant's Remarks): Dependent **Claim 37** depends from Independent **Claim 1**.

Dependent **Claim 37** includes limitations of "further comprising a step of employing said mobile device as a digitally secure payment implement by including the location information obtained from the proximate beacon of the series of beacons and subsequently provided from the mobile device."

Support for the limitations is provided in **Claims 7 and 10** of Parent US Application 12/930,735, issued as US Patent 9,020,687 on April 28, 2015, which is quoted in section 12o above, as well as in a section of the Specification (Col. 4, Lines 44-47) thereof, which states:

"The user may wish to use his car ID as replacement or add-on for payment such as toll roads, pay to park or at the gas station using his car ID wirelessly as a payment trigger mechanism."

Google Ex. 1028, p. 217

12r. (Applicant's Remarks): Dependent **Claim 38** depends from Independent **Claim 1**.

Dependent **Claim 38** includes limitations of "further comprising a step of interacting with a social networking environment."

Support for the limitations is provided in FIG. 1 and the associated portion of the Specification (found in Col. 17, Line 59 through Col. 18, Line 42) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which states:

"FIG. 1 is illustrates the implementation of the infrastructure of the tags/beacons in a mall application according to an embodiment of the present invention, each of the Bluetooth/Wi-Fi tags/beacons (**102**) contain the name of the waypoint (Macy's for example) and the location of the tags/beacons are known and load in a list with the map of the facility (**101**) into the user mobile device (**100**), the list allow matching of the tags/beacons signal (names) (**102**) to the known list loaded with the map (**101**) to determine the proximity to the tag/beacon providing accuracy to less than 1 m the tags/beacons (**102**) can be install in the area in each location designated as way point store/rest room/special sales special location etc. The user can load the map (**101**) at the entrance (**103**) or pre load from the Internet or other lbs or mapping providers, the beacons can be installed also in the parking area (**104**) and with additional sensor to determine existence of the parking car in the parking area can provide the user with parking navigation to empty parking, the user mobile phone (**100**) with loaded local map of the facility (**101**) that contain the local area list of a known Wi-Fi or Bluetooth beacons/tags (**102**) in the area, the mobile phone will use a special indoor navigation application that will allow scanning the exact list of the area RF Wi-Fi or Bluetooth beacons/tags and determine the exact location of the mobile user by proximity to the finding beacons/tag, the tags/beacons (**102**) broadcast there ID that can be the exact name and the exact location name known location on the map, the mobile device (**100**) with the tag/beacon name or ID will trigger content delivery from 3rd party over the Internet or cellular or a cloud (**104**) such providers will now will know the user location and can provide him with the right content additional to the mapping like advertising, sales offer, special deals coupons or other

Google Ex. 1028, p. 218

information all trigger by the location determination done by the infrastructure of the tags/beacons, more over it will allow a real time creating of smart shoppers power and real time protected consumer/student/guest/employee environment where a real-time group of real time physically existing people can share like a real "social networking" environment for application. Like "face book" like or create private social environment to include all the exact people in the area/building/cruise ship/mall/store/school close proximity and people that are attached to one of the known list of the local area RF beacons/tags, especially for consumers that can be know now who is in the area and no need for the "poor man" navigation method of the "check-in" to tell the store/consumers that you are here. Now they can know and there is benefit to the user/guest and to the mall/store/hotel/building area owner, the setup of real time physical group can serve as add-on to exiting social network part of (**106**)."

12s. (Applicant's Remarks): Dependent **Claim 39** depends from Independent **Claim 1**.

Dependent **Claim 39** includes limitations of "further comprising a step of sharing said mobile device with other mobile devices operating as a local social networking environment."

Support for the limitations is provided in FIG. 1 and the associated portion of the Specification (found in Col. 17, Line 59 through Col. 18, Line 42) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which is quoted in section 12r above.

12t. (Applicant's Remarks): Dependent **Claim 40** depends from Independent **Claim 1**.

Dependent **Claim 40** includes limitations of "further comprising a step of including said mobile device into an existing local social networking environment."

Google Ex. 1028, p. 219

Support for the limitations is provided in FIG. 1 and the associated portion of the Specification (found in Col. 17, Line 59 through Col. 18, Line 42) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which is quoted in section 12r above.

12u. (Applicant's Remarks): Dependent **Claim 41** depends from Independent **Claim 1**.

Dependent **Claim 41** includes limitations of "further comprising a step of at least one of creating and sustaining a social networking environment based upon said location of each mobile device within proximity of other mobile devices and said beacon."

Support for the limitations is provided in FIG. 1 and the associated portion of the Specification (found in Col. 17, Line 59 through Col. 18, Line 42) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which is quoted in section 12r above.

12v. (Applicant's Remarks): Dependent **Claim 42** depends from Independent **Claim 1**.

Dependent **Claim 42** includes limitations of "further comprising a step of at least one of creating and sustaining a social networking environment based upon said location of each mobile device within proximity of other mobile devices and said beacon,

wherein said social networking environment is associated with said hospitality venue."

Support for the limitations is provided in FIG. 1 (element 106) and the associated portion of the Specification found in Col. 17, Line 59 through Col. 18, Line 42 of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which states:

Google Ex. 1028, p. 220

"FIG. 1 is illustrates the implementation of the infrastructure of the tags/beacons in a mall application according to an embodiment of the present invention, each of the Bluetooth/Wi-Fi tags/beacons (**102**) contain the name of the waypoint (Macy's for example) and the location of the tags/beacons are known and load in a list with the map of the facility (**101**) into the user mobile device (**100**), the list allow matching of the tags/beacons signal (names) (**102**) to the known list loaded with the map (**101**) to determine the proximity to the tag/beacon providing accuracy to less than 1 m the tags/beacons (**102**) can be install in the area in each location designated as way point store/rest room/special sales special location etc. The user can load the map (**101**) at the entrance (**103**) or pre load from the Internet or other lbs or mapping providers, the beacons can be installed also in the parking area (**104**) and with additional sensor to determine existence of the parking car in the parking area can provide the user with parking navigation to empty parking, the user mobile phone (**100**) with loaded local map of the facility (**101**) that contain the local area list of a known Wi-Fi or Bluetooth beacons/tags (**102**) in the area, the mobile phone will use a special indoor navigation application that will allow scanning the exact list of the area RF Wi-Fi or Bluetooth beacons/tags and determine the exact location of the mobile user by proximity to the finding beacons/tag, the tags/beacons (**102**) broadcast there ID that can be the exact name and the exact location name known location on the map, the mobile device (**100**) with the tag/beacon name or ID will trigger content delivery from 3rd party over the Internet or cellular or a cloud (**104**) such providers will now will know the user location and can provide him with the right content additional to the mapping like advertising, sales offer, special deals coupons or other information all trigger by the location determination done by the infrastructure of the tags/beacons, more over it will allow a real time creating of smart shoppers power and real time protected consumer/student/guest/employee environment where a real-time group of real time physically existing people can share like a real "social networking" environment for application. Like "face book" like or create private social environment to include all the exact people in the area/building/cruise ship/mall/store/school close proximity and people that are attached to one of the known list of the local area RF beacons/tags, especially for consumers that can be know now who is in the area and no need for the "poor man" navigation method of the "check-in" to tell the store/consumers that you are here. Now they can know and there is benefit to the user/guest and

Google Ex. 1028, p. 221

to the mall/store/hotel/building area owner, the setup of real time physical group can serve as add-on to exiting social network part of (**106**)."

12w. (Applicant's Remarks): Dependent **Claim 43** depends from Independent **Claim 1**.

Dependent **Claim 43** includes limitations of "further comprising a step of informing a second party of a presence of the user within a proximity of one another.

Support for the limitations is provided in FIG. 1 and the associated portion of the Specification (found in Col. 17, Line 59 through Col. 18, Line 42) of Parent US Application 12/932,811, issued as US Patent 8,941,485 on January 15, 2015, which is quoted in section 12r above.

12x. (Applicant's Remarks): Dependent **Claim 44** depends from Independent **Claim 1**.

Dependent **Claim 44** includes limitations of "further comprising a step of displaying a circle overlay onto a local map on a display of said mobile device, wherein said circle is associated with one of said location of said mobile device and said location of said proximate beacon of said series of beacons.

Support for Dependent **Claim 44** is provided in Paragraph [00152] of Pending Parent Application Serial Number 13/135,421, which states:

"[00152] Turning to Fig.6, the drawing illustrates a use of the disclosed method in searching for a user initiate an emergency/help/panic button in a building 601 even from outside of the building. In an emergency situation the mobile phone 100 would emit an emergency beacon, which would be scanned from outside by the scanner 200 with the screen 402. The scanned and decoded data 403 would be shown on the screen 402 or on the external computer or screen 405, with a circle 406 that shows the detected devices around the area."

Google Ex. 1028, p. 222

Additional support for **Claim 44** is provided in Application Serial Number 12/587,042, filed on Oct 1, 2009, which issued as US Patent 8,866,673 on Oct 21, 2014, all of which is incorporated by reference.

Additional Support for Dependent **Claim 44** is provided in FIG. 11 and the associated portion of the Specification (Col. 22, Lines 26-40), which states:

"FIG. 11 is illustrates of the return2parking method according to an embodiment of the present invention referring to FIG. 11, a long range Bluetooth with set ID (**1100**) with range over 1000 m will be install inside the parked car (**1101**) as a separate device (**1100**) or part of the car by manufacture and have an antenna (**1102**) built in the car to provide the signal broadcasting of the car ID, that car ID will be scan by the return2parking application to the user cell phone (**100**) and the scanning result will be display inside a circle represent range (**1103**) and (**1104**) where each circle represent the range to the car where (**1105**) represent the direction to the parked car, the user can find his parking car inside a garage out side an area to the accuracy of less then 10 m directly to his cell phone (**100**) without need for Internet bandwidth or even Internet or cellular communication."

12y. (Applicant's Remarks): Dependent **Claim 45** depends from Independent **Claim 1**.

Dependent **Claim 45** includes limitations of "wherein said local based services (LBS) associated with said local geographic area is at least one of:

a link to a third party application, (US 8,941,485 – Col. 18, Lines 18-21)

a link to existing software, (Paragraph [00232])

a link to a website, (Paragraph [00436], [00521])

communication using a cloud, (US 8,941,485 – Col. 18, Lines 18-21)

presents location information, (Paragraph [00112])

Google Ex. 1028, p. 223

presents marketing information, (Paragraph [00310], [00331], [00382])

presents sales information, (Paragraph [00382])

presents specials information, (Paragraph [00382])

presents coupon information, and (Paragraph [00403])

provides emergency based locating." (Paragraph [00440])

Support for the limitations is provided in each of the above identified paragraphs of the subject Application.

12z. (Applicant's Remarks): Dependent **Claim 46** depends from Independent **Claim 1**.

Dependent **Claim 46** includes limitations of "wherein said step of automatically initiating said hospitality function includes a step of including user information provided by said mobile device."

Support for Dependent **Claim 46** is provided in Paragraph [00629] of the Specification, which states:

"[00629] In yet another application, Scanning For Life (817), the cellular phone (101) converts into a beacon in a condition where two-direction communication networks are unavailable by either lack of installation or an outage. The beacon repetitiously transmits a beacon signal using at least one of cellular transmissions, Bluetooth transmissions, and Wi-Fi Transmissions. Search and rescue parties utilize a portable receiver to scan for and locate the Scanning for Life beacon signal. The beacon signal can optionally include embedded information associated with the cellular phone (101), **which can include specific information associated with the user of the cellular phone** (101)."

Google Ex. 1028, p. 224

12aa. (Applicant's Remarks): Dependent **Claim 47** depends from Independent **Claim 1**.

Dependent **Claim 47** includes limitations of "wherein said step of automatically initiating said hospitality function includes a step of including user information provided by said mobile device, wherein said information decoded from said received beacon signal in conjunction with said user information provided by said mobile device is provided to a hospitality function service provider."

The limitations of Dependent **Claim 47** are similar to those of Dependent Claim 46. Applicant respectfully directs the Examiner to section 12z above for support for Dependent **Claim 47**.

12ab. (Applicant's Remarks): Dependent **Claim 48** depends from Independent **Claim 1**.

Dependent **Claim 48** includes limitations of "further comprising a sensor in communication with said beacon, wherein said beacon broadcasts only after activation of said sensor."

Support for Dependent **Claim 48** is provided in Column 14, Lines 17-19 of Issued Parent Patent Number 7,899,583, which states:

"The RF sensor **510** will detect **540** the empty parking space and only then 520 will broadcast **550** to the parking detectors **560**." (Column 14, Lines 17-19)

The parking detectors **560** are sensors. The broadcast is accomplished ONLY after activation of the sensor.

12ac. (Applicant's Remarks): Dependent **Claim 49** depends from Independent **Claim 1**.

Dependent **Claim 49** includes limitations of "further comprising steps of:

Google Ex. 1028, p. 225

downloading at least one of a floor plan and a map; and

storing said at least one of a floor plan and a map in said mobile device for use with said hospitality function independent of network connectivity."

Support for Dependent **Claim 49** is provided in paragraph [0075], which states:

[0075] "The navigation system will enable remote planning based on downloaded local floor-plans the floor mapping or floor images – the indoor view images of the local building facility, or local navigation, when the location's floor plan can be triggered to down- loaded at the destination. An example of this would be at the entrance of a shopping mall, a department store, an amusement park, a museum, a parking garage, a downtown area of a city, and the like."

12ad. (Applicant's Remarks): Dependent **Claim 50** depends from Independent **Claim 12**.

Dependent **Claim 50** includes limitations of "automatically initiating a hospitality function, wherein the information decoded from said beacon signal automatically initiates said hospitality function based upon the information decoded from the received beacon signal."

Support for Dependent **Claim 50** is provided in Independent Claim 1. Applicant respectfully directs the Examiner to the Amendments to the Independent Claim section presented above.

12ae. (Applicant's Remarks): Dependent **Claim 51** depends from Independent **Claim 12**.

Dependent **Claim 51** includes limitations of "further comprising steps of:

downloading at least one of a floor plan and a map; and

Google Ex. 1028, p. 226

storing said at least one of a floor plan and a map in said mobile device for use with said hospitality function independent of network connectivity."

The limitations are the same as those provided within Claim 49. Support is presented in section 12ac above. Applicant respectfully directs the Examiner to section 12ac above for support of the limitations of Dependent **Claim 51**.

12af. (Applicant's Remarks): Dependent **Claim 52** depends from Independent **Claim 12**.

Dependent **Claim 52** includes limitations of "further comprising steps of:

converting said information associated with said known physical location of said respective beacon obtained by said received beacon signal into Global Positioning System (GPS) coordinates and emulate an external GPS data source."

Support for the limitations introduced in Claim 52 are supported in Paragraph [00152] of the Specification, which state:

[00152] In the indoor application, instead of GPS, the system uses known waypoint positions that are manually detected and identified as a demonstration of the concept of using another sensing method, such as RF tags/beacon, to detect and identify the location and the waypoints. Theoretically, it would be possible to convert the waypoint positions into GPS coordinates and emulate an external GPS data source."

Applicant earnestly believes the limitations in the New Claims are properly supported and do not introduce any new matter.

Google Ex. 1028, p. 227

Conclusions

The Subject Non-Final Office Action was mailed on August 11, 2015. The Examiner established a shortened statutory period of THREE (3) MONTHS from the date of mailing of the Non-Final Office Action. Applicant has responded on or before the actual FOUR (4) MONTH anniversary of Friday, December 11, 2015. Therefore, Applicant believes the response requires a Petition for a ONE (1) MONTH extension and the required petition fee of $100 (Small Entity), both are being submitted herewith.

Applicant earnestly believes the response is complete.

Applicant earnestly believes that no new matter has been introduced.

Fifty-Two (52) total claims, including Three (3) Independent claims remain pending in this application. Applicant has previously paid for Twenty (20) total claims and Three (3) Independent claims. Therefore Applicant believes the amendment has necessitated an excess claims fee for an additional Thirty-Two (32) claims, each excess claim having an excess claim fee of $40 (Small Entity), for a total excess claims fee of $1280 (Small Entity) being due and is current submitted herewith.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes the response is filed with the appropriate fees due at this time. However, if any additional fees are required in connection with the filing of this paper, permission is given to charge account number 506593 in the name of Allen D. Hertz, P.A.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims, and/or drawings, then it is respectfully asked that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance.

Google Ex. 1028, p. 228

Respectfully submitted,
Allen D. Hertz
(Customer No. 31877)

By _____
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Attachments:
Petition for Extension of Time (One Month)
Petition Fee of $100 (Small Entity)
Excess Claims Fee of $1280 for Thirty-Two (32) Claims over the previously paid quantity

Google Ex. 1028, p. 229

Electronic Patent Application Fee Transmittal

Application Number:	14285332
Filing Date:	22-May-2014
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Filer:	Allen D. Hertz
Attorney Docket Number:	MEN-14-003

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	32	40	1280
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 1 month with $0 paid	2251	1	100	100
Miscellaneous:				
			Total in USD ($)	**1380**

Electronic Acknowledgement Receipt

EFS ID:	24328104
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	10-DEC-2015
Filing Date:	22-MAY-2014
Time Stamp:	17:43:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1380
RAM confirmation Number	4916
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		MEN-14-003_Mendelson_Hospitality_NFOA_081115_Reply_121015.pdf	779649 e049ec2427031762b0dae8ab487adea5c8a754e7	yes	73

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Extension of Time	1	1
Amendment/Req. Reconsideration-After Non-Final Reject	2	3
Claims	4	18
Applicant Arguments/Remarks Made in an Amendment	19	73

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32400 c8e00954d157f8c48f535e464634f11762961f33	no	2

Warnings:

Information:

Total Files Size (in bytes):	812049

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/AIA/22 (03-13)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): MEN-14-003

Application Number: 14/285,332

Filed: December 16, 2011

For: HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

Art Unit: 3721

Examiner: Nghi H. LY

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

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

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

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

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

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

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

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

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 506593

☑ Payment made via EFS-Web.

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

I am the:

☐ applicant.

☑ attorney or agent of record. Registration number 50,942

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

Signature	December 10, 2015
	Date
Allen D. Hertz	561-716-3915
Typed or printed name	Telephone Number

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

☑ * Total of 1 forms are submitted.

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

PTO/SB/06 (09-11)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/285,332	Filing Date 05/22/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

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

APPLICATION AS AMENDED – PART II

AMENDMENT	12/10/2015	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 52	Minus	** 20	= 32	X $40 =	1280
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**1280**

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

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

LIE
/PATRICIA F. LEWIS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/285,332	Filing Date 05/22/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

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

APPLICATION AS AMENDED – PART II

AMENDMENT **12/10/2015**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 52	Minus	** 20	= 32	X $40 =	1280
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**1280**

AMENDMENT

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

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

LIE
/PATRICIA F. LEWIS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003	9630

31877 7590 08/11/2015

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EXAMINER	
LY, NGHI H	

ART UNIT	PAPER NUMBER
2642	

MAIL DATE	DELIVERY MODE
08/11/2015	PAPER

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

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

Office Action Summary	Application No. 14/285,332	Applicant(s) MENDELSON, EHUD	
	Examiner NGHI H. LY	Art Unit 2642	AIA (First Inventor to File) Status No

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *06/15/2015*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *1-5 and 7-11* is/are pending in the application.

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

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-5 and 7-11* is/are rejected.

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

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

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

Application Papers

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

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

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

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

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of **Group I** (claims 1-5 and 7-11) in the reply filed on 06/15/2015 is acknowledged. The traversal is on the ground(s) that "*Applicant earnestly believes **Claims 1-20**, as amended, all read upon the elected Species. Applicant has amended **Claims 1, 6, and 12** to address the respective restriction election requirement and more clearly and concisely define the present invention. Applicant earnestly believes **Claims 1-20** are in condition for examination*" (see Applicant's remarks, page 19, dated 06/15/2015).

This is not found persuasive because each amended claims 1, 6 and 12 (filed on 06/15/2015) discloses an invention that's different from another:

*The amended claim **1** recites:*

"initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal".

*The amended claim **6** recites:*

"(a) initiating a link to access and activate existing software based upon the encoded identification of the beacon, and

(b) initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information".

*The amended claim **12** recites:*

"**determining a location of a mobile device in accordance with following steps**: scanning for any of said broadcast beacon signals using a mobile device, detecting at least one of said broadcast beacon signals, receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and **determining a current location of said mobile device within said interior of said hospitality venue**, wherein said **current location of said mobile device is determined based upon information collected from said received beacon signal**; **determining an indoor map associated with said hospitality venue; displaying said hospitality venue indoor map**; and **displaying said current location of said mobile device on said hospitality venue indoor map**".

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

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

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

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3-5, 7-9 and 11 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Monroe (US 2003/0067392A1).

Regarding claim 1, Monroe teaches a method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of: deploying a series of beacons about said interior of said hospitality venue (see [0017], "*beacon transmitter**s** **are** installed at various locations around the monitored facility*", also see [0018], "*gymnasium*", "*auditorium*", "*stadium*" and "*campus ground or the like*"),

encoding identifying information into a device identification portion of a beacon signal (also see [0017], "*The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals*", also see fig.4, see box "*105 encoder*", and see box "***encode** & transmit **beacon ID***"),

wherein said identifying information identifies each beacon of said series of beacons (also see [0017], "*The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals*"),

broadcasting said beacon signal from each beacon of said series of beacons (also see [0017], "*The beacon transmitters are designed to transmit a **unique beacon ID** signal at regular intervals*"),

scanning for any of said broadcast beacon signals using a mobile device (see [0061], "*the receiver is programmed to **listen** for or **sense** beacons and to store the last one **detected***", see [0059] and fig.5, "*beacon receiver 135*" for scanning the broadcast beacon signals, and see Abstract and [0009], "*a small cell phone or pager*"),

detecting at least one of said broadcast beacon signals (see [0061], "*the receiver is programmed to **listen** for or **sense** beacons and to store the last one **detected***", also see [0059] and fig.5, "*beacon receiver 135*" for detecting the broadcast beacon signals),

receiving at least one of said broadcast beacon signal by said mobile device (also see [0061], "*the **receiver** is programmed to **listen** for or **sense** beacons and to store the last one **detected***". In addition, see [0059] and fig.5, "*beacon receiver 135*" for detecting the broadcast beacon signals),

wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device (see [0017], "*beacon transmitter**s** **are** installed at various locations around the monitored facility*", also see [0018], "*gymnasium*", "*auditorium*", "*stadium*" and "*campus ground or the like*"), and

decoding each received said at least one of said broadcast beacon signal (see [0059] and fig.5, "*beacon **decoder** 145*" and "*beacon receiver 135*"),

determining an identify of said beacon from said series of beacons based upon said received (see [0059], "*a beacon receiver*", "*the beacon ID number is decoded by beacon decoder 145*", also see [0017], "*The beacon transmitter**s** **are** designed to transmit a **unique beacon ID** signal at regular intervals*", also see fig.4, see box "*105 encoder*", and see box "***encode** & transmit **beacon ID***"),

decoded beacon signal (also see [0059], "*the beacon ID number is decoded by beacon decoder 145*", and fig.5, "*beacon **decoder** 145*", "*beacon receiver 135*"),

initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal (also see [0059], "*When one of the **switches S1, S2, or S3 is depressed**, processor 150 formulates a message containing the personal alarm ID, the most recent beacon ID, and an indication of which switch was pressed. In this embodiment the **encoder 155 encodes the processor output and introduces it to the transmitter 160 for wireless transmission via the antenna 165**. The microphone 140 permits direct audio input to the system from the unit. **Audio may be transmitted in analog form, or may be digitized by AID converter 141 and compressed by compressor 142, thence transmitted digitally**. The unit is shown at 170 and includes the activation switches S1, S2, S3, the microphone 140 and the antenna 165*". In addition, see [0061]).

Regarding claim 3, Monroe teaches said hospitality venue is at least one of a hotel, motel, a cruise ship (see [0010], "*cockpit*", "*passenger cabin*"), a resort, a theater,

a conference center (see [0018] and [0067], see "*auditorium*"), a restaurant, and a casino (In addition, where to deploy/employ the beacons is obvious or Inventor's choice).

Regarding claim 4, Monroe teaches a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue (see Abstract and see fig.15).

Regarding claim 5, Monroe teaches a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue (see Abstract and see fig.15), wherein said hospitality system includes access to at least one of: a hospitality front office, a hospitality back office, a food and beverage provider, room service, in-room service (see [0050], "*room*"), an events and ticketing concierge, a conference concierge, a show concierge, an emergency plan and procedure (see [0004], [0005], [0011], [0013] and [0014], "*emergency*"), an entertainment system, an in-room guide and information, engineering services, employee control, security (see Title, "*security system*" and Abstract, "*alarm system*", also see [0020], "*security*" and "*surveillance*"), room key and access control system, and a payment process.

Regarding claim 7, Monroe teaches a step of directing said mobile device to transmit a communication notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon signal (see Abstract, "*A beacon generator may be used to identify location of the portable unit*", and see [0017], "*The beacon signals may also be generated by a control signal from a system processor on the facility network. The personal alarm unit will store the beacon signal*

*each time it is received. When a signal is **initiated** from the personal alarm unit it will identify the **location** of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user*", also see [0074], "*if the user 5654 **pressed the FIRE pushbutton**, the appliance will notify the fire department 540 and the signal will identify the location of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570*". In this case, Monroe's *"initiated*" and/or "*pressed the FIRE pushbutton*" read on Applicant's "*directing*").

Regarding claim 8, Monroe teaches directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal (see Abstract, "*A beacon generator may be used to identify location of the portable unit*", and see [0017], "*The beacon signals may also be generated by a control signal from a system processor on the facility network. The personal alarm unit will store the beacon signal each time it is received. When a signal is **initiated** from the personal alarm unit it will identify the **location** of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user*", also see [0074], "*if the user 5654 **pressed the FIRE pushbutton**, the appliance will notify the fire department 540 and the signal will identify the **location** of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570*". In this case, Monroe's *"initiated*" and/or "*pressed the FIRE pushbutton*" read on Applicant's "*directing*"), and forwarding information associated with

at least one of the hospitality venue (see [0018] and [0067], see "*stadium*", "*campus ground*", "*gymnasium*", "*auditorium*"), an event, food and beverage services, and billing to said mobile device.

Regarding claim 9, Monroe teaches a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue (see Abstract, "*A personal alarm system can be worn or carried by the user, may be activated at any time by the user and/or may be automatically activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's location within the monitored area*". In this case, Monroe's *"activated"* read on Applicant's "*directing*").

Regarding claim 11, Monroe teaches a step of utilizing said beacon signal to determine a location of said mobile device (see Abstract, "*A personal alarm system can be worn or carried by the user, may be activated at any time by the user and/or may be automatically activated to send a signal to any remote monitoring station on the network. The device identifies the user as well as the user's **location** within the monitored area*", also see Abstract, "*A beacon generator may be used to identify **location** of the portable unit*", and see [0017], "*When a signal is **initiated** from the personal alarm unit it will identify the **location** of the sender by transmitting the last stored beacon signal, providing an efficient, inexpensive and accurate method of tracking the user*", also see [0074], "*if the user 5654 **pressed the FIRE pushbutton**, the appliance will notify the fire department 540 and the signal will identify the **location***

of the of the person reporting the fire as well as the identity of the personal alarm unit sending the message via signals sent over the intervening network 570").

Claim Rejections - 35 USC § 103

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

6. The following is a quotation of pre-AIA 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.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. 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 pre-AIA 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.

9. Claim 2 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Hoddie (US 2005/0221858A1).

Regarding claim 2, Monroe teaches the beacon signal is a short range radio frequency, and transmitting said beacon signal as at least one of short range radio frequency (see [0017], "*These signals may be infrared, RF, ultrasonic or other known format*"). Monroe does not specifically disclose the beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Hoddie teaches the beacon signal is at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of: transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal (see [0020] and [0034], "Bluetooth", "Wi-Fi").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Hoddie into the system of Monroe in order to provide methods and apparatus for interface negotiation using a device supporting multiple communication interfaces (see Hoddie, Abstract).

10. Claim 10 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Kanevsky et al (US 2005/0096070A1).

Regarding claim 10, Monroe teaches claim 1. Monroe does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Kanevsky teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see Abstract and [0016], "*beacon signal*", and see [0002], "*beacon signal*", "*displaying business data*").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Kanevsky into the system of Monroe so that local cellular providers that receive the beacon signal can determine the cell location of the active device (also see Kanevsky, [0002]).

11. Claim 10 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Monroe (US 2003/0067392A1) in view of Johnson (US 2005/0187819A1).

Regarding claim 10, Monroe teaches claim 1. Monroe does not specifically disclose initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Johnson teaches initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider, transmitting a request for marketing information associated with said beacon identifying information from said remote information provider, obtaining said marketing information associated with said beacon identifying information from said remote information provider, and displaying said obtained marketing information associated with said beacon identifying information on said mobile device (see [0057], [0093], [0097], [0105] and [0113], "*beacon signal*", "*price*", "*sell*", "*displaying*").

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide the teaching of Johnson into the system of Monroe in order to measure the effect of advertisements placed in shopping carts and

with using such measurements to determine levels of payment for such advertisements (also see Johnson, [0002]).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGHI H. LY whose telephone number is (571)272-7911. The examiner can normally be reached on 9:30am-8:00pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on (571) 272-7915. 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.

Nghi H. Ly
/NGHI H LY/
Primary Examiner, Art Unit 2642

Notice of References Cited	Application/Control No. 14/285,332	Applicant(s)/Patent Under Reexamination MENDELSON, EHUD	
	Examiner NGHI H. LY	Art Unit 2642	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0067392 A1	04-2003	Monroe, David A.	340/573.1
*	B	US-2005/0221858 A1	10-2005	Hoddie, J. Peter	455/557
*	C	US-2005/0096070 A1	05-2005	Kanevsky et al.	455/456.5
*	D	US-2005/0187819 A1	08-2005	Johnson, Michael Joseph	705/014
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	Art Unit
	NGHI H LY	2642

✓	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	04/13/2015	08/07/2015							
	1	÷	✓							
	2	÷	✓							
	3	÷	✓							
	4	÷	✓							
	5	÷	✓							
	6	÷	N							
	7	÷	✓							
	8	÷	✓							
	9	÷	✓							
	10	÷	✓							
	11	÷	✓							
	12	÷	N							
	13	÷	N							
	14	÷	N							
	15	÷	N							
	16	÷	N							
	17	÷	N							
	18	÷	N							
	19	÷	N							
	20	÷	N							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	15	beacon same ((market$4 pric$3 trad$4 busine$5 commercial$4 pric$3 stock) near7 (information data)) and ((display$3 screen) near8 ((market$4 pric$3 trad$4 busine$5 commercial$4 pric$3 stock) near7 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 05:54
L2	17	beacon same ((market$4 pric$3 trad$4 sell$3 shop$4 busine$5 commercial$4 pric$3 stock) near7 (information data)) and ((display$3 screen) near8 ((market$4 pric$3 trad$4 busine$5 commercial$4 pric$3 stock) near7 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 05:58
L3	17	beacon$3 same ((market$4 pric$3 trad$4 sell$3 shop$4 busine$5 commercial$4 pric$3 stock) near7 (information data)) and ((display$3 screen) near8 ((market$4 pric$3 trad$4 busine$5 commercial$4 pric$3 stock) near7 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 05:58
L4	17	beacon$3 same ((market$4 pric$3 trad$4 sell$3 shop$4 busine$5 commercial$4 pric$3 stock) near7 (information data)) and ((display$3 screen) near8 ((market$4 pric$3 trad$4 business$5 commercial$4 pric$3 stock) near7 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 05:58
L5	17	beacon$3 same ((market$4 pric$3 trad$4 sell$3 shop$4 business$5 commercial$4 pric$3 stock) near7 (information data)) and ((display$3 screen) near8 ((market$4 pric$3 trad$4 business$5 commercial$4 pric$3 stock) near7 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 05:59
S1	6	beacon and encod$3 near3 (id identification name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number identif$5) near5 beacon) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/07 12:17
S2	1	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and beacon and encod$3 near3 (id identification name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/07 12:33

Google Ex. 1028, p. 254

		identif$5) near5 beacon) and @ad<"20050412"				
S3	1	(Ehud near3 Mendelson) and beacon and encod$3 near3 (id identification name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number identif$5) near5 beacon)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/07 12:35
S4	3	(Ehud near3 Mendelson) and beacon and encod$3 near3 (id identification identifier name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number identif$5) near5 beacon)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/07 12:35
S5	6	beacon and encod$3 near3 (id identification identifier name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification identifier name number identif$5) near5 beacon) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/07 12:35
S11	6	beacon and encod$3 near3 (id identification identifier name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification identifier name number identif$5) near5 beacon) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/07 21:27
S12	2	beacon near12 ((market$4 busine$5 commercial$4) near3 (information data)) and ((display$3 screen) near8 ((market$4 busine$5 commercial$4) near3 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 02:51
S13	11	beacon same ((market$4 busine$5 commercial$4) near3 (information data)) and ((display$3 screen) near8 ((market$4 busine$5 commercial$4) near3 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 02:51
S14	13	beacon same ((market$4 busine$5 commercial$4) near7 (information data)) and ((display$3 screen) near8 ((market$4 busine$5 commercial$4) near7 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 02:58
S15	15	beacon same ((market$4 busine$5 commercial$4 pric$3 stock) near7 (information data)) and ((display$3 screen) near8 ((market$4 busine$5 commercial$4 pric$3 stock) near7 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 03:01
S16	0	((beacon adj signal) near12 (Bluetooth WiFi Blue-tooth Wi-Fi)) same (transmit$3 send$3 deliver$3 broadcast$4	US-PGPUB; USPAT; USOCR;	OR	ON	2015/08/08 03:20

		boardcast$3) near3 (beacon adj sigal) and @ad<"20050412"	FPRS; EPO; JPO; DERWENT; IBM_TDB			
S17	0	(beacon adj signal) near12 (Bluetooth adj signal WiFi adj signal Blue-tooth adj signal Wi-Fi adj signal) same (transmit$3 send$3 deliver$3 broadcast$4 boardcast$3) near3 (beacon adj signal) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 03:20
S18	19	(beacon adj signal) near12 (Bluetooth WiFi Blue-tooth Wi-Fi) same (transmit$3 send$3 deliver$3 broadcast$4 boardcast$3) near3 (beacon adj signal) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 03:20
S19	19	((beacon adj signal) near12 (Bluetooth WiFi Blue-tooth Wi-Fi)) same (transmit$3 send$3 deliver$3 broadcast$4 boardcast$3) near3 (beacon adj signal) and @ad<"20050412"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/08 03:21

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S6	6	beacon and encod$3 near3 (id identification name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number identif$5) near5 beacon) and @ad<"20050412"	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/07 12:17
S7	1	(H04W4/02.cpc. H04W64/00.cpc. H04L29/08657.cpc. 455/456.3.ccls. 455/456.1.ccls. 455/421.ccls. 455/414.1.ccls. 455/404.2.ccls.) and beacon and encod$3 near3 (id identification name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number identif$5) near5 beacon) and @ad<"20050412"	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/07 12:34
S8	1	(Ehud near3 Mendelson) and beacon and encod$3 near3 (id identification name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number identif$5) near5 beacon)	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/07 12:35
S9	3	(Ehud near3 Mendelson) and beacon and encod$3 near3 (id identification identifier name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same (id identification name number identif$5) near5 beacon)	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/07 12:35
S10	6	beacon and encod$3 near3 (id identification identifier name number identif$5 adj (information data)) near12 (beacon near5 signal) and ((decod$3 near12 beacon) same	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/07 12:35

		(id identification identifier name number identif$5) near5 beacon) and @ad<"20050412"				
S20	2	beacon near12 ((market$4 busine$5 commercial$4) near3 (information data)) and ((display$3 screen) near8 ((market$4 busine$5 commercial$4) near3 (information data))) and @ad<"20050412"	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/08 02:51
S21	18	((beacon adj signal) near12 (Bluetooth WiFi Blue-tooth Wi-Fi)) same (transmit$3 send$3 deliver$3 broadcast$4 boardcast$3) near3 (beacon adj signal) and @ad<"20050412"	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/08 03:20
S22	0	(beacon adj signal) near12 (Bluetooth adj signal WiFi adj signal Blue-tooth adj signal Wi-Fi adj signal) same (transmit$3 send$3 deliver$3 broadcast$4 boardcast$3) near3 (beacon adj signal) and @ad<"20050412"	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/08 03:20
S23	18	(beacon adj signal) near12 (Bluetooth WiFi Blue-tooth Wi-Fi) same (transmit$3 send$3 deliver$3 broadcast$4 boardcast$3) near3 (beacon adj signal) and @ad<"20050412"	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/08 03:20
S24	18	((beacon adj signal) near12 (Bluetooth WiFi Blue-tooth Wi-Fi)) same (transmit$3 send$3 deliver$3 broadcast$4 boardcast$3) near3 (beacon adj signal) and @ad<"20050412"	US-PGPUB; USPAT; UPAD	OR	ON	2015/08/08 03:21

8/ 8/ 2015 6:31:05 AM
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	Art Unit
	NGHI H LY	2642

CPC- SEARCHED		
Symbol	Date	Examiner
H04W 4/02, H04W 64/00, H04L 29/08657	8/7/2015	nly

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
See search history printout.	8/7/2015	nly

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	456.3, 456.1, 421,414.1,404.2	8/7/2015	nly

SEARCH NOTES		
Search Notes	Date	Examiner
See search history.	8/7/2015	nly

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
455	456.3, 456.1, 421,414.1,404.2	8/7/2015	nly

In The United States Patent and Trademark Office

Application No.	: 14/285,332	Confirmation No. 9630
Applicant	: Ehud MENDELSON	
Title	: **HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS**	
Filed	: May 22, 2014	
TC/A.U.	: 3721	
Examiner	: Nghi H. LY	Tel: (571) 272-7911
Docket No.	: MEN-14-003	
Customer No.	: 31877	

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

Response to Requirement for Restriction Election Dated April 15, 2015

Amendment Revised Under 37 C.F.R. § 1.121(b)

Sir:

Please enter the following amendment and comments into the file of the above-identified patent application, in response to the Non-Final Office Action / Requirement for Restriction Election dated April 15, 2015. The Examiner has established a shortened TWO (2) MONTH statutory period to respond to the Requirement for Restriction Election. Applicant is submitting the response on or before Monday, June 15, 2015, the actual TWO (2) MONTH anniversary of the subject Office Action. Therefore, Applicant believes the response is considered to be timely submitted.

Amendments to the Specification are reflected on page 02 of this paper.

Amendments to the Claims are reflected in the listing of claims, which begins on page 05 of this paper, with an amended version of the current claims beginning on page 06 of this paper.

Remarks/Arguments begin on page 14 of this paper.

Conclusions begin on page 19 of this paper.

Google Ex. 1028, p. 259

Amendments to the Specification:

Please amend the specification submitted herewith as follows:

1) Please amend Paragraph [00126], which starts with "The beacons ID can trigger a link to exiting software...." as follows:

"[00126] The beacons ID can trigger a link to ~~exiting~~ existing software and aware the local system of the user existence – such as:

A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

The pedestrian reach an advertising area or billboard that can recognize the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

A customer is entering a store/bank/facility front would be identified/recognized for additional information or services.

The RF beacons/tags can serve to track employee time, including check-in and checkout times from designate area.

~~The RF beacons/tags can serve as part of payment process where the user mobile and the local proximity beacons/tags can provide additional security for a mobile payment system to replace a current payment method such as those using credit cards.~~

The local RF beacons associate with the user mobile can be part of local dating

Google Ex. 1028, p. 260

system.

The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

The location of the user as associate with the local beacons can be interface with social networking.

The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking.

The RF beacon can be installed or be a part of a vehicle to provide car application like payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically.

2) Please delete Paragraph [00239], which starts with "The RF beacons/tags can serve as part of a payment process...." as follows:

"~~[00239] The RF beacons/tags can serve as part of a payment process, where the user's cellular phone and the local proximity beacons/tags can provide additional security for a mobile payment process, which can be used to replace other current payment methods, such as credit cards.~~"

3) Please delete Paragraph [00239], which starts with "The RF beacons/tags can serve as part of a payment process...." as follows:

"~~[00239] The RF beacons/tags can serve as part of a payment process, where the user's cellular phone and the local proximity beacons/tags can provide additional security for a mobile payment process, which can be used to replace other current payment methods, such as credit cards.~~"

Google Ex. 1028, p. 261

4) Please delete Paragraph [00570], which starts with "The arrival notice may be configured to trigger-...." as follows:

"~~[00570] The arrival notice may be configured to trigger payment for merchandise or a service.~~"

An Annotated Specification is submitted herewith and identified in the top margin accordingly.

A Substitute Specification is submitted herewith and identified in the top margin accordingly.

Google Ex. 1028, p. 262

IN THE CLAIMS

Claims 1-20 are currently pending in the application.

Please amend **Claims 1, 6, and 12**.

No claims are amended.

No claims are canceled.

No claims are added.

An amended version of the pending claims starts on page 06 in accordance with 37 CFR § 1.121(c)(3) as follows: The status of each Claim is indicated adjacent the Claim Number in accordance with the proper status identifiers: (Original), (Currently Amended), (Canceled), (Previously Presented), (New), (Not Entered), (Withdrawn), and (Withdrawn-Currently Amended) in accordance with 37 CFR § 1.121. Any changes to the claims are shown by strikethrough or within double brackets (for deleted matter) and underlining (for added matter, excluding New Claims).

Thereafter, starting on a separate page, (Page 14), is the Remarks portion in accordance with 37 CFR § 1.111.

Google Ex. 1028, p. 263

Amendments to the Claims:

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

Listing of Claims:

Claim 1 (Currently Amended): A method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal;

initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal.

Google Ex. 1028, p. 264

Claim 2 (Original): The method as recited in claim 1, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Claim 3 (Original): The method as recited in claim 1, wherein said hospitality venue is at least one of a hotel, motel, a cruise ship, a resort, a theater, a conference center, a restaurant, and a casino

Claim 4 (Original): The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue.

Claim 5 (Original): The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue, wherein said hospitality system includes access to at least one of:

a hospitality front office,

a hospitality back office,

a food and beverage provider,

room service,

in-room service,

an events and ticketing concierge,

Google Ex. 1028, p. 265

a conference concierge,

a show concierge,

an emergency plan and procedure,

an entertainment system,

an in-room guide and information,

engineering services,

employee control,

security,

room key and access control system, and

a payment process.

Claim 6 (Currently Amended): A method of initiating a service based upon a location within a ~~guide mapping and navigating of an interior of a hospitality~~ venue, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

Google Ex. 1028, p. 266

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device;

decoding each received said at least one of said broadcast beacon signal;

determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal; and completing at least one of the following steps:

(a) initiating a link to access and activate existing software based upon the encoded identification of the beacon, and

(b) initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information.

Claim 7 (Original): The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon signal.

Claim 8 (Original): The method as recited in claim 1, further comprising steps of:

directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal; and

forwarding information associated with at least one of the hospitality venue, an event, food and beverage services, and billing to said mobile device.

Google Ex. 1028, p. 267

Claim 9 (Original): The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue.

Claim 10 (Original): The method as recited in claim 1, further comprising steps of:

initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider;

transmitting a request for marketing information associated with said beacon identifying information from said remote information provider;

obtaining said marketing information associated with said beacon identifying information from said remote information provider; and

displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

Claim 11 (Original): The method as recited in claim 1, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

Claim 12 (Currently Amended): A method of guide mapping and navigation of an interior of an enclosed structure and implementation of location based services (LBS) associated with the enclosed structure, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

<u>encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;</u>

Google Ex. 1028, p. 268

broadcasting a beacon signal from each beacon of said series of beacons;

determining a location of a mobile device in accordance with following steps:

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

determining a current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map.

Claim 13 (Original): The method as recited in claim 12, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Google Ex. 1028, p. 269

Claim 14 (Original): The method as recited in claim 12, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

Claim 15 (Original): The method as recited in claim 12, further comprising a step of:

displaying Points Of Interest (POI) associated with each beacon location on said hospitality venue indoor map.

Claim 16 (Original): The method as recited in claim 12, further comprising steps of:

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map;

selecting a beacon location from each displayed beacon location on said hospitality venue indoor map; and

obtaining information associated with said selected beacon.

Claim 17 (Original): The method as recited in claim 12, further comprising a step of:

utilizing said deployed series of beacons to provide guidance on said mobile device to guide a user to an exit of said hospitality venue during an emergency evacuation procedure.

Claim 18 (Original): The method as recited in claim 12, wherein at least a portion of said beacons of said series of beacons employ existing Wi-Fi devices deployed throughout said hospitality venue.

Google Ex. 1028, p. 270

Claim 19 (Original): The method as recited in claim 12, further comprising a step of:

overlaying a series a gradient concentric circles onto said hospitality venue indoor map, wherein said series a gradient concentric circles provide a distance relationship between said mobile device and a secondary object, wherein said secondary object is associated with said beacon.

Claim 20 (Original): The method as recited in claim 12, further comprising a step of:

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map.

Google Ex. 1028, p. 271

REMARKS

Claims 1-20 are currently pending in the application.

Claims 1-20 remain pending for examination.

Claims 1, 6, and 12 have been amended herein.

No claims are added.

No claims are canceled.

Status of Application in Accordance with the American Inventor's Act

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

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. **Claims 1-5 and 7-11**, drawn to encoding identifying information into a beacon signal, wherein the identifying information identifies each beacon of the series of beacons, and decoding each received the at least one of the broadcast beacon Signal, determining an identity of the beacon from the series of beacons based upon the received, decoded beacon Signal, initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal, classified in class 455, subclass 456.3. (Subclass 456 refers to "a mobile unit location determination")

II. **Claim 6**, drawn to initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein the provide local based services information is associated with the beacon identifying information, classified in class 455, subclass 414.1 . (Subclass 414 refers to "Special service: This subclass is indented under subclass 403. Subject matter including a switching, connection, or control function additional to those

Google Ex. 1028, p. 272

necessary to establish and maintain a single call connection between two stations.
(1) Note. These services generally involve three or more stations or two or more call connections.
(2) Note. Examples of such special services are conferencing, call forwarding or transfer, call waiting, etc.")

III. Claims 12-20, drawn to determining a location of a mobile device in accordance with following steps: determining a current location of the mobile device within the interior of the hospitality venue, determining an indoor map associated with the hospitality venue, displaying the hospitality venue indoor map, and displaying the current location of the mobile device on the hospitality venue indoor map, classified in class 455, subclass 566. (Subclass 566 refers to; Having display: This subclass is indented under subclass 550. Subject matter having visual presentation of a signal.)

2. The inventions are distinct, each from the other because of the following reasons:

Invention II and III are related as subcombinations disclosed as usable together in a single combination. The *subcombinations* are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, *subcombination* II has initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein the provide local based services information is associated with the beacon identifying information, and *subcombination* III has determining a location of a mobile device in accordance with following steps: determining a current location of the mobile device within the interior of the hospitality venue, determining an indoor map associated with the hospitality venue, displaying the hospitality venue indoor map, and displaying the current location of the mobile device on the hospitality venue indoor map.

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable

Google Ex. 1028, p. 273

subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

2A. (Applicant's Election with Traverse): Applicant provisionally elects the Invention identified as **Invention I** by the Examiner.

Applicant has amended Independent **Claim 6** as follows:

"A method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device;

decoding each received said at least one of said broadcast beacon signal;

determining an identify of said beacon from said series of beacons based upon said

Google Ex. 1028, p. 274

received, decoded beacon signal; and completing at least one of the following steps:

(a) initiating a link to access and activate existing software based upon the encoded identification of the beacon, and

(b) initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information."

Applicant earnestly believes the limitations of Independent **Claim 6** are now sufficiently similar to Independent **Claim 1** that a restriction election requirement is no longer proper.

The only distinction between **Claim 1** and **Claim 6** is the following:

Claim 1 includes a limitation of: "initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal"

Claim 6 includes a limitation of: "initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information."

The primary inventive portion of the claims is the inclusion of the "***encoding identifying information into a device identification portion of a beacon signal***, wherein said identifying information identifies each beacon of said series of beacons".

The beacons transmit the identifier within the identification packet of the signal. This packet is unique to the protocol as it is one directional. All other information is only decoded upon establishment of two way or bidirectional communication.

For example, if a user were to look up all local Wi-Fi signals on a portable device, such as a Smartphone, a tablet, etc. the process would present a listing of all named networks (routers). These names are representative of the encoded identifying information transmitted in the identification portion of the beacon signal. Applicant earnestly believes he was the first

Google Ex. 1028, p. 275

person to consider employing the identification packet for transmission of useful data. The useful data would subsequently be decoded for use with any Location Based Service, such as those listed in the claims.

Regarding Independent **Claim 12**, Independent **Claim 12** has been amended to additionally include the same encoding limitation as in Independent **Claims 1 and 6**, more specifically:

"*encoding identifying information into a device identification portion of a beacon signal, wherein said identifying information identifies each beacon of said series of beacons*;"

Applicant earnestly believes all of the claims read upon class 455, subclass 456, which refers to location determination processes.

Additionally, Applicant suggests the Examiner consider classification under Class 342 "*Communications: Directive Radio Wave Systems And Devices (E.G., Radar, Radio Navigation)*", subclass 463, which refers to: "*Subject matter wherein the position indicating device includes more than one transmitter or receiver.*"

Applicant respectfully suggests this classification, as the system utilizes a process to determine the location of the device based upon the information transmitted in the identification packet of the signal to activate location based services.

Applicant respectfully requests the Examiner consider the amendments submitted herein and the associated remarks presented above and withdraw the restriction requirement.

Google Ex. 1028, p. 276

Conclusions

The Examiner issued a requirement for election of a Species. Applicant has elected **Invention I** drawn to a "encoding identifying information into a beacon signal, wherein the identifying information identifies each beacon of the series of beacons, and decoding each received the at least one of the broadcast beacon Signal, determining an identity of the beacon from the series of beacons based upon the received, decoded beacon Signal, initiating a hospitality function (or any suitable location based service / application) based upon the determined identity of the beacon associated with the received beacon signal" with traverse. Applicant earnestly believes **Claims 1-20**, as amended, all read upon the elected Species. Applicant has amended **Claims 1, 6, and 12** to address the respective restriction election requirement and more clearly and concisely define the present invention. Applicant earnestly believes **Claims 1-20** are in condition for examination.

The Subject Requirement for Restriction Election was mailed on April 15, 2015. The Examiner established a shortened statutory period of TWO (2) MONTH from the date of mailing of the Requirement for Restriction Election. Applicant has responded on or before the actual TWO (2) MONTH anniversary of Monday, June 15, 2015. Therefore, Applicant believes the response is considered to be timely submitted.

Applicant earnestly believes the response is complete.

Applicant earnestly believes that no new matter has been introduced.

Twenty (20) total claims, including Three (3) Independent claims remain pending in this application. Applicant has previously paid for Twenty (20) total claims and Three (3) Independent claims. Therefore Applicant believes the claim fee is current and no excess claims fees are due resulting from this amendment.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Should the Examiner consider necessary or desirable any formal changes anywhere in the

Google Ex. 1028, p. 277

specification, claims, and/or drawings, then it is respectfully asked that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance.

Respectfully submitted,
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Attachments:
Specification – Annotated (106 Pages)
Specification – Substitute (105 Pages)

Google Ex. 1028, p. 278

HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

RELATED APPLICATIONS

[0001] This application is:

is a Divisional Application of U.S. Patent Application Ser. No. 14/285,273 filed on May 22, 2014,

which is a Divisional Application of U.S. Patent Application Ser. No. 14/285,209 filed on May 22, 2014,

which is a Divisional Application of U.S. Patent Application Ser. No. 12/930,735 filed on January 14, 2011,

which is a Divisional Application of U.S. Patent Application Ser. No. 11/396,843 filed on April 03, 2006 (now US Patent 7,899,583 on March 01, 2011),

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/670,097 filed on April 12, 2005 (now expired); and

a Divisional Application of pending U.S. Patent Application Ser. No. 13/135,421 filed on July 05, 2011,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/932,811 filed on March 07, 2011,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/587,042 filed on October 01, 2009,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/069,899 filed on February 13, 2008 (issued as US Patent 7,924,149 on April 12, 2011),

Google Ex. 1028, p. 279

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/472,706 filed on June 22, 2006,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/429,864 filed on May 08, 2006,

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/678,947 filed on May 09, 2005 (now expired), and

a Divisional Application of pending U.S. Patent Application Ser. No. 12/587,042 filed on October 01, 2009,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/429,864 filed on May 08, 2006,

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/678,947 filed on May 09, 2005 (now expired).

FIELD OF THE INVENTION

[0002] This invention is directed generally to the field of RF beacons. More specifically, the application of a series of deployed RF beacons creating an infrastructure for use in applications associated with a hospitality environment, including: navigation, marketing, local based services (LBS), emergency information and evacuation procedures, ticketing and other event access features, parking assistance, and the like, wherein the information is presented upon a map of the hospitality environment displayed on a user's cellular phone or similar device.

BACKGROUND OF THE INVENTION

[0003] Introduction to location based services:

Google Ex. 1028, p. 280

[0004] Location based services are rapidly expanding. Outdoor location technologies are mainly based on GPS technologies. GPS cannot perform properly indoors and is therefore inadequate. As a result, indoor location systems are appearing on the market.

[0005] The need for a system arises from various market segments and applications. One example in the market is the GPS based systems that use integrated positioning and navigation systems based on GPS receivers as the primary positioning technology. Subsequent to the events of September 11th' the Federal government mandated that GPS capability be built in to all cellular phones. However, the fact that uninterrupted satellite reception is not possible in many locations is a major limitation of GPS based systems. Densely populated areas and radio-frequency-signal shadowed locations, such as urban centers (a.k.a. "urban canyons"), generally do not allow proper operation of GPS, yet it is in these locations that the need is greatest.

[0006] There is a clear need for a cost effective system that maintains performance indoors, in urban canyons and in city centers.

[0007] Another important consideration is that GPS itself is susceptible to jamming and other man-made interference.

[0008] Description of GPS System:

[0009] The Global Positioning System (GPS) is a satellite- based navigation and time transfer system developed by the U.S. Department of Defense. GPS serves marine, airborne and terrestrial users in the military as well as civilians. Specifically, GPS includes the Standard Positioning Service (SPS) that pro- vides civilian users with 100 meter accuracy as to the location or position of the user. For military users GPS provides the Precise Positioning Service that is accurate to within 20 meters. Both of these services are available worldwide with no requirement for any local equipment.

[0010] View of GPS limitations:

[0011] First limitation of GPS is that upon activation the GPS receiver scans for signals from the GPS satellites. A unit must locate and receive signals from at least four satellites to be able to

Google Ex. 1028, p. 281

determine its location. This process of locating the satellites, receiving the data and achieving a position fix can take several minutes. This delay is problematic for many GPS applications.

[0012] Second limitation of GPS is that the receiver needs a clear view of the sky to successfully receive signals from the satellites, again under unfriendly RF conditions such as inside buildings, or in "urban canyons" or in the shadows of high buildings, the GPS suffers from multi-path effects and therefore shows poor performance or none at all.

[0013] Third Limitation-limited accuracy: There is a problem of limited accuracy of the civilian GPS signal. While knowing your position to within 50 to 200 feet anywhere on the planet is a major technological feat, it is still not accurate enough, to locate and navigate to an a store in a mall or to empty parking space, where each space measures about 10 feet, and most indoor store/malls are located where the GPS cannot work effectively.

[0014] Existing navigation systems, such as the new mandatory GPS equipped cellular phones, are based on GPS and have the aforementioned limitations.

[0015] Another significant factor adding to the limitations of the GPS based systems is the important role of map production; normally a user requires a map to be as detailed and as up-to-date as possible. The existing maps used by the GPS based systems provide limited detail and are not able to reflect changes on a real time basis, more over there is no mapping for indoor facilities at all. The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[0016] <u>The Proposed Solutions:</u>

[0017] In general, the subject invention is based on applying machine-learning techniques to the task of inferring aspects of the user's status from a stream of input from Small RF tags/beacons are installed in local area indoor or outdoor or in places designated as Point Of Interest (POI), be it at a mall, department store, product inside a store, street or garage parking, inside or outside location, public or commercial, The tags/beacons can be RFID (long range type), or a Bluetooth with the option to long range Bluetooth, or a Wi-Fi or any RF type. The

Google Ex. 1028, p. 282

tags/beacon broadcast a unique ID by wireless that identifies the location by the unique ID, the address and type of facility/store/product. The tag/beacon broadcasts its information to be picked up by the mobile phone application, via the cellular phone or other Bluetooth device with application.

[0018] The focus of the application for the indoor guide navigation and local based services, or navigation in crowded urban areas, where GPS based systems, due to lack of access to satellites or the GPS limitations detailed previously, cannot achieve the required results.

[0019] The disclosed applications focus on the task of interactively guiding the user to a desired indoor destination.

[0020] Examples of indoor applications:

[0021] The user may wish to locate an empty available parking space in his vicinity.

[0022] The user may wish to locate a specific store in a shopping mall, or a particular aisle in a department store, or a specific item on a shelf.

[0023] The user may wish to locate a specific conference room in a convention center, or a Point Of Interest (POI) in an amusement park or a Point Of Interest (POI) in a museum.

[0024] The user may be looking for a train location in a station, or stops in a subway or underground train system.

PRIOR ART

[0025] At present, however, no prior art device utilizes the capabilities to display a real-time representation of navigating directly from the sensors without a central system; and without using a GPS based system directly to the "user". Also most systems are designed for the old query type search where interface to Internet and or database to a central system is needed

[0026] The navigation system automatically detects a signal directly from the bacon, no communication needed not even cellular communication to do the determination of the location

Google Ex. 1028, p. 283

where is other systems must have bandwidth available, over which to send a request to a central system, or to a database, and then must wait for a response. This takes time!

[0027] Even if the other systems have bandwidth, they are still based on the existing search concept where the user submits a query, searches and waits for the response. This is impractical. The subject system provides the information automatically, without submitting any query, and the response is according to the user's location, wherein the user's location is determined by proximity to the beacon in the local area.

[0028] Again, most of the existing prior arts are based either on a GPS based system or the existing car navigator, that depends on a GPS too. And the existing mapping that these systems use has the same limitations described previously and is impractical.

[0029] The present invention bridges the gap between the GPS based navigation and provides a complete solution.

[0030] Patent U.S. Pat. No. 7,031,875 Ellenby et al. describe a pointing system for addressing objects, provide a system and method based on GPS and Internet/database communication, it is not exactly a navigation but an information based system that needs the GPS to locate the user location so indoor services is likely out of the questions and the need for communication as well with GPS limits its availability and accuracy.

[0031] The system, as provided by the present invention, determines the location using the beacon/tag ID, Proximity Detection (PD), and Received Signal Strength (RSSI), Time of Arrival (TOA)=and Angle of Arrival (AOA).

[0032] Proximity Detection (PD)

[0033] This method relies upon a dense grid of antennas, each having a well-known position. When a mobile device is detected by a single antenna, it is considered to be collocated with it. When more than one antenna detects the mobile, it is considered to be collocated with the one that receives the strongest signal.

[0034] This method is relatively simple to implement. It can be implemented over different types of physical media. In particular, IR and RFID are based on this method.

Google Ex. 1028, p. 284

[0035] Triangulation

[0036] In case more than one beacon/tag signal a Triangulation takes PD a step further, in the sense that it is based on measuring the signal level measurements from each antenna (possibly by using a triangulation mechanism), with respect to each mobile device. Following that, mobile is located by using a triangulation algorithm.

[0037] Like the PD method, triangulation is relatively simple to implement.

[0038] Time of arrival (TOA)

[0039] Time of arrival (TOA)is based on triggering the mobile devices to respond, and measuring the time it takes for the response to fly back to the antenna. The elapsed time represents the distance between the two. By using distances from a few antennas, a mobile's position can be triangulated. TOA is considered to be the most accurate method, because multi-path effects can be filtered out. Yet, it is considerably more complex to implement, as it requires a modification to the hardware on the mobile side, as well as special modifications on the antenna side.

[0040] Angle of Arrival (AOA)

[0041] Angle of Arrival (AOA) is based on finding the direction of maximal signal intensity for each antenna-device pair. By finding the intersection of several such direction vectors, a mobile's position can be estimated AOA is considerably less accurate than TOA, due to limited angular resolution and the fact that indoors much of the signal is reflected. Also, AOA antennas are more complex, as they require multi-section, highly directional antennas, and multiple RF circuitries.

[0042] Bluetooth is a newer wireless local networking standard that operates in the 2.4 GHz ISM band. and the range is shorter (typically 10-15m, although there are tags with a range of over 300 feet). On the other hand, Bluetooth is a "lighter" standard, highly ubiquitous (embedded in most phones, PDAs, PC peripherals, etc.) and supports, in addition to IP, several other networking services. Notably, Bluetooth supports serial port emulation, voice, and various types of object exchange. Bluetooth tag/beacons are small, pocketsize transceivers.

Google Ex. 1028, p. 285

[0043] Every Bluetooth device's tag/beacon has a unique ID. This ID can be used for locating the tag/beacon and providing location information of the mobile device in the proximity.

[0044] The relevant location scenario of the present invention is that of searching for a certain tag. It is the most accurate and the faster response time and it is this method in indoor navigation and locating when and where each tag/beacon ID is a known address position-waypoint.

[0045] Why use Bluetooth for indoor location?

[0046] Bluetooth has some advantages in the context of indoor location. These include:

[0047] Bluetooth uses RF-in the 2.4 GHz ISM band, specifically. In this frequency range, radio waves penetrate obstacles, such as walls and human bodies, albeit with a substantial loss.

[0048] This has two implications:

[0049] Availability of a "high-there" application is always some signal received from the tags/beacons.

[0050] Tags/beacons can be placed relatively far apart (typical range is 10-15 meters, i.e. not necessarily of one in each way point).

[0051] Bluetooth is ubiquitous-Bluetooth chipsets are being implanted everywhere nowadays (phones, accessories, computing devices, etc), the tags/beacon can be implements anywhere, inside buildings roads inside cars transportation entities, inside home for home automation triggering, or in any kind of business triggering application or and link to exiting system .

[0052] The fact that a Bluetooth location system can locate any Bluetooth enabled device, makes it more cost-effective. This means that an increasing fraction of humans and mobile assets around would become locatable in a Bluetooth covered site, with no additional hardware cost (no tags/beacons attached). The only need is to pre-register these devices. Bluetooth is a low power technology-tags need recharge, approx. once a week (or longer, depends on the usage scenario). Non-tags (e.g. BT enabled phones) are being recharged anyway on a regular basis, so they do not

Google Ex. 1028, p. 286

need special recharges. If they are being used for location, the fraction added to their usual (no Bluetooth) power consumption is relatively small.

[0053] Bluetooth is a low cost technology, having expected high production volumes (hundreds of millions annually) lead to sub-$5 per chip. It is noted that several IC manufacturers have already met this goal. This would eventually result in a low price for the Bluetooth tags/beacons, if and when Bluetooth location systems would become sufficiently ubiquitous. Bluetooth is a multi-functional communication standard - location is only one of the services that can be supported by a Bluetooth infrastructure. The same infrastructure can be used to provide additional network services, particularly remote monitoring and control or just trigger link to exiting system. In addition, Bluetooth provides voice and IP services (although for the later, WLAN is typically more suitable).

[0054] In open spaces, relatively free of obstructions and walls (e.g. a large warehouse or a public hotspot), Bluetooth alone would suffice to provide a -2 meter error range.

[0055] Conclusions

[0056] The proposed beacon technology offers unique advantages: one is the ability to locate ubiquitous "any tags" (any Bluetooth enabled device can be associate and be use the advantage of the Bluetooth beacons, e.g. most of the newer mobile phones). The other advantage is the multiservice nature of the Bluetooth beacons infrastructure that enables using the tags/beacons for other purposes, such as for locating and navigating, remote monitoring and control, trigger existence and link to existing systems and software and for a variety of local based services and local push messaging services.

SUMMARY OF THE INVENTION

[0057] In accordance with the present invention, these are the navigation project's characteristics:

[0058] The proposed system is a locating and navigation method based on the following unique characteristics:

Google Ex. 1028, p. 287

[0059] In an indoor or outdoor navigation situation the RF beacons tags, replace the satellite in a GPS based system, to provide the user with the information and directions needed to reach the destination.

[0060] The proposed system has three major parts:

[0061] The detection and navigator, the special method used to display the data and the information from the area trigger as result of being in close proximity to the RF beacons in the area.

[0062] It is not a location and tracking system as offered by other systems.

[0063] Small RF tags/beacons are installed in each place designated as Point Of Interest (POI), be it at a mall, department store, product inside a store, street or garage parking, inside or outside location, public or commercial. The tags/beacons can be RFID (long range type), or a Bluetooth with the option to long range Bluetooth, or a Wi-Fi or any RF type. The tags/beacon broadcast a unique ID by wireless that identifies the location by the unique ID, the address and type of facility/store/product . The tag/beacon broadcasts its information to be picked up by the mobile phone application navigator, via the cellular phone or other Bluetooth device with application, the beacon ID trigger application and push information to the Bluetooth device or the cellular phone with the Bluetooth.

[0064] The system can serve as add on to the mall's/store's guide/mapping to provide extra assistance to user.

[0065] The navigator.

[0066] The navigator, cellular phone application Bluetooth application

[0067] The user device scan the local area for ID broadcast by the tags/beacons in the vicinity via the wireless Bluetooth interface with a cellular telephone utilizing the cellular phone's Bluetooth capability. It is important to note that no cellular communication or Internet or database access is needed to determine the location of the device and that any Bluetooth enabled device will operate the navigation application as a stand-alone device. The beacon system can interface with existing in car system and/or car navigation system.

Google Ex. 1028, p. 288

[0068] The display method.

[0069] The display method is a unique way to bridge existing devices like cellular phones, in-car system and in-car navigation and other Bluetooth devices. The system provides an overlay display method over the existing navigation system mapping or floor map or floor images, as a real-time floating display, or as a waypoint to overcome the limitations of GPS based systems and the existing mapping systems, the indicator placed overlay on the floor plan image, it may further include providing a visual indication a circle on the floor plan image of the path, wherein the visual indication – the circle indicates an area of the indoor map where the location information identifies a particular location and the circle provides the accuracy radius circle.

[0070] The mapping: a system and method for mapping an indoor environment is provided. a user device may receive an indication of a starting point on a floor plan.

[0071] The user device may prompt the user to travel in a particular direction, or the direction of travel may be determined by the user device in response to the user indicating a second location after the user has traveled to the second location.

[0072] As the user travels from the starting point in the designated direction, the user device may gather information about the indoor environment. For example, the user device may gather wireless signal strength data, from proximity RF beacons Wi-Fi or Bluetooth while the user travels in the designated direction.

[0073] The user device may associate the gathered information with the path the user traveled from the starting point to the ending point. The operation can be done at the user device – the cellular handheld, the association may also be performed by a remote server using data provided by the user device. As the user travels from point to point, the client device may indicate the area for which valid location information is available based on the path the user traveled and the information the user collected.

[0074] The Mapping can be offered as an additional service for the indoor based on area building floor or image mapping.

Google Ex. 1028, p. 289

[0075] The navigation system will enable remote planning based on downloaded local floor-plans the floor mapping or floor images – the indoor view images of the local building facility, or local navigation, when the location's floor plan can be triggered to down- loaded at the destination. An example of this would be at the entrance of a shopping mall, a department store, an amusement park, a museum, a parking garage, a downtown area of a city, and the like.

[0076] The navigation system is based on a network of tags/beacons that can be deployed anywhere. The system is accurate to within 10 feet, significantly better existing navigation systems and GPS. The system can work inside a building whereas GPS cannot.

[0077] Local detection is obtained via popular Bluetooth interface.

[0078] The system provides information about each facility/store, including information about the type of the facility, for example: type of store or product etc.

[0079] By providing the ability to locate a the user in an area using a Bluetooth enabled device, or a cellular phone with the navigation application and the RF beacons method, the system overcomes the anxiety of "Where am I "and also facilitates finding a parked car later via the RTP (Return to Parking) feature.

[0080] The system has the capability to perform all the functions of a search for and can become the "Next generation search out of the box".

[0081] The navigation system can be attractive for places that already deploy WI-FI and can be used for the existing WI-FI devices as a tags/beacons.

[0082] In case of an emergency or security situation, the system can provide authorities with information.

[0083] The system eases and facilitates navigation to indoor locations, without a navigation map or GPS. Indoor Mapping can be provided as part of the navigation system. The system provides "local" navigation as well as "remote" detection.

[0084] The system allows easy interface or trigger application with existing networks or existing system.

Google Ex. 1028, p. 290

[0085] The system saves gas, time, money and eases global warming by reducing the time spent searching for destination.

[0086] The navigation method is unique. The navigation system is based upon RF tags/beacons with interface to Bluetooth enabled devices. This feature allows detection and navigation in locations where GPS cannot work, as well as outside, with the ability to guide the user to within 10 feet of the destination, significantly better than any other navigation and GPS based systems on the market.

[0087] The Bluetooth RF tags/beacons are based on a long-range version of the popular short distance communication. This unique feature affords the user the ability to plan ahead from a remote location, by obtaining ID about the destination directly from the tags/beacons and by accessing the indoor floor plan to be navigated at the destination.

[0088] A major problem with In-Car navigation and GPS mapping is that they cannot guide the user closer than 50 to 200 feet, and only in open places. The navigation system can provide accurate directions to within 10 feet.

[0089] The navigation system will be a challenge to navigation providers and GPS providers as they cannot provide mapping or navigation inside a mall, department store, a parking garage or lot, and anywhere the GPS /Navigation map cannot accurately help navigate.

[0090] Utilizing this innovation, the facilities in the vicinity around the "user" car are displayed on a floating overlay using either a cellular phone application, or a stand-alone device, or an existing installed navigation system with or without any mapping.

[0091] The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[0092] Navigation using the mapping or floor plan of a location can be offered as a part of the system. The option of downloading a floor plan can be exercised either remotely or locally.

Google Ex. 1028, p. 291

[0093] The tags/beacons broadcast their signal continuously and any of the navigation devices will detect them and display the ID/data on the user's device in an easy to understand method.

[0094] With our innovation you have the information that you want, when you want it, where you want it ...(and at an affordable price)

[0095] Once you are in the vicinity of your destination and you switch on your navigation device, by being in proximity to installed beacons in the area you will automatically receive the facility information along your waking route and in all directions around you.

[0096] No further action is required, there is no need to send a request or to access the Internet/web or log on and search a database or central system the access to the Internet is to provide a local based services like push information or messages or offers, deals, advertising to the mobile user .

[0097] Other systems are still based on the existing search concept where the user submits a query, searches and awaits for the response. All impractical while the user needs the information immediately. The navigation system provides the information automatically, without submitting any query, and the response takes into account the user's location determined by the proximity RF beacons.

[0098] The unique approach to detection of the mobile inside the buildings does not need an Internet bandwidth or cellular communication. The Internet or cellular communication provides local based services and additional information that can be pushed to the user device.

[0099] And as a result there is no delay or waiting for communication and access time, the communication is instantaneous, triggered directly between the tags/beacons ID and the user's device.

[00100] Additionally, each facility type can be ID coded to identify the type of the store etc., e.g. restaurants, men's wear, women's wear etc.

[00101] Each ID-coded display of facility can be trigger accessed to information about the store e.g., providing automatic waypoint information.

Google Ex. 1028, p. 292

[00102] The ability to operate the innovation using the disclosed applications on a cellular phone, the navigator, with no need for cellular connection to determine the current location, means the user does not need any GPS system.

[00103] Moreover, the navigation system can solve the "RTP" (Return to parking) problem, where many forget where they parked their car. The system has an option to save the location on the "cellular phone-parking detector" application that will make it easy to locate the parked car.

[00104] The navigation solution is designed for global use and is not limited to malls, stores, amusement parks, museums, sports stadiums etc. It can be implemented in parking garages or parking spaces metered or not, the tags/beacons can be implemented anywhere and in any place to trigger and initiate existing and local application and even link to exiting system and existing software.

[00105] It is envisioned that in the future all new construction will have the tags/beacons included in the design, even place addresses, a building addresses can be replaced or use an add-on with the implementation of a tags/beacon in the area to be recognized or scanned by the mobile device.

[00106] The system integrates the navigation as part of the NAV4 concepts where it will provide complete solutions for local navigation in an area where the GPS can't work.

[00107] The navigation system consists of the following parts:

[00108] An infrastructure of tags/beacons, wherein each tag/beacon is installed in a local and known location.

[00109] The navigation system is based on mapping and navigation to and in the location, and its aim is to replace or supplement the mall/store guide/map, by installing the tags/beacons in each store or Point Of Interest (POI).

[00110] The mapping: As GPS and GPS mapping is not available indoors, the navigation system is based upon the floor plan mapping or floor images available from each facility. For planning ahead, the floor plan or the floor images can be downloaded as part of user's

Google Ex. 1028, p. 293

navigation/cellular phone remotely-via Internet as mobile application before reaching the destination or triggered when the destination is reached.

[00111] The Navigation uses the most commonly used device in the world today, the cellular phone with Bluetooth interface.

[00112] As a difference from other systems and other local based systems, this solution offers a unique approach that can be described as the "Search out of the box" as neither query nor database search is needed; all needed is to know the proximity tags/beacons ID and the cellular phone, working as a Bluetooth device, that automatically scans and recognizes the local area tags/beacons and determines the "user's" location, and provides instant information to the user and to the business in the area.

[00113] A typical application is guide and navigating a pedestrian in an environment like a mall, department store, specialty store, conference, trade show, amusement park, university, hospital, school, municipal building, museum, subway, train station, airport, down town center, a finance facility, cruise ship and any type of parking facility ...or any place when and where GPS cannot be provided or is not accurate or precise enough. The system will be used for navigation by first responders to emergencies or disasters.

[00114] The navigation system is part of the broad suite of applications that include a complete solution to the "user" from the time that he parks, or begins looking for a space to park his car, walking to the store/mall or to any indoor facility to when he wants to return to his parked car, looking for the place that he parked.

[00115] The suite may includes:

[00116] Parking detector-and navigation to the empty available parking space.

[00117] Automatic notification of user existence in the place/store/facility

[00118] Nav4 mall/store navigation solution inside mall/store.

[00119] RTP-return to parking-locate the place that you parked your car.

Google Ex. 1028, p. 294

[00120] For example, a typical application could be:

[00121] A pedestrian asks the way in a mall to a specific store.

[00122] A pedestrian asks the way inside the store, to a specific aisle or product.

[00123] A shopper in a department store asks for a specific department.

[00124] A pedestrian asks the way to a Point Of Interest (POI). In an emergency, the first response team has to navigate inside a smoke filled building.

[00125] A store owner can use the notification and the knowledge of existence for loyalty and rewards

[00126] The beacons ID can trigger a link to existing software and aware the local system of the user existence – such as:

A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

The pedestrian reach an advertising area or billboard that can recognize the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

A customer is entering a store/bank/facility front would be identified/recognized for additional information or services.

The RF beacons/tags can serve to track employee time, including check-in and checkout times from designate area.

Google Ex. 1028, p. 295

~~The RF beacons/tags can serve as part of payment process where the user mobile and the local proximity beacons/tags can provide additional security for a mobile payment system to replace a current payment method such as those using credit cards.~~

The local RF beacons associate with the user mobile can be part of local dating system.

The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

The location of the user as associate with the local beacons can be interface with social networking .

The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking.

The RF beacon can be installed or be a part of a vehicle to provide car application like payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically.

[00127] A system and method to provide a user information which is related to the Point Of Interest (POI), the navigation system provides detection and navigation reference, position determination and information related to the object-Point Of Interest (POI), directly and automatically to the user interface-cellular phone upon arriving to a close proximity to the RF tags/beacons installed in the area.

[00128] Special operation mode: Shopping: provides navigation to the special sale item in a department store.

[00129] Special operating mode: Museums: provides navigation and interactive information from the museum's exhibition to the "user's" cellular phone device via Bluetooth interface.

[00130] Special operating mode: Parking: describe in 2 patent applications, provide empty parking space detection and navigation.

Google Ex. 1028, p. 296

[00131] Special operating mode: Nav store provides navigation inside a store/department store to a specific department/aisle or specific product, with an option for advertising method and special promotion it also provides the business owner with ability to know, in a way of automatic notification when the "user" cellular phone device is in proximity to the local area for automatic delivery of information related to the store/business owner such information can be but is not limited to deals, coupons, special and even statistically information about the "user" habit.

[00132] Every Bluetooth device's tag/beacon has a unique ID. This ID can be used for locating the tag/beacon and providing location information of the mobile device in the proximity.

[00133] A relevant location scenario is that of searching for a certain tag. The relevant location scenario is the most accurate and the faster response time and is one solution for indoor navigation and locating when and where each tag/beacon ID is a known address position-waypoint.

[00134] Why use Bluetooth for indoor location?

[00135] Bluetooth has some advantages in the context of indoor location. These include:

[00136] Bluetooth uses RF-in the 2.4 GHz ISM band, specifically. In this frequency range, radio waves penetrate obstacles, such as walls and human bodies, albeit with a substantial loss.

[00137] This has two implications:

[00138] Availability of a "high-there" application based upon receipt of a signal from the tags/beacons.

[00139] Tags/beacons can be placed relatively far apart (typical range is 10-15 meters, i.e. not necessarily of one in each way point).

[00140] Bluetooth is ubiquitous-Bluetooth chipsets are being implanted everywhere nowadays (phones, accessories, computing devices, etc), the tags/beacon can be implements anywhere, inside buildings roads inside cars transportation entities, inside home for home automation triggering, or in any kind of business triggering application or and link to exiting system.

Google Ex. 1028, p. 297

[00141] The fact that a Bluetooth location system can locate any Bluetooth enabled device, makes it more cost-effective. This means that an increasing fraction of humans and mobile assets around would become locatable in a Bluetooth covered site, with no additional hardware cost (no tags/beacons attached). The only need is to pre-register these devices. Bluetooth is a low power technology-tags need recharge, approx. once a week (or longer, depends on the usage scenario). Non-tags (e.g. BT enabled phones) are being recharged anyway on a regular basis, so they do not need special recharges. If they are being used for location, the fraction added to their usual (no Bluetooth) power consumption is relatively small.

[00142] Bluetooth is a low cost technology anticipating high production volumes (hundreds of millions annually) leading to sub-$5 per chip. Several IC manufactured have already met this goal. This would eventually result in a low price for the Bluetooth tags/beacons, if and when Bluetooth location systems would become sufficiently ubiquitous. Bluetooth is a multi-functional communication standard - location is only one of the services that can be supported by a Bluetooth infrastructure. The same infrastructure can be used to provide additional network services, particularly remote monitoring and control or just trigger link to exiting system. In addition, Bluetooth provides voice and IP services (although for the later, WLAN is typically more suitable).

[00143] In open spaces, relatively free of obstructions and walls (e.g. a large warehouse or a public hotspot), Bluetooth alone would suffice to provide a -2 meter error range.

[00144] Waypoint Navigation

[00145] A waypoint is a fixed location with known address location, longitude and latitude and coordinates. The navigation system is capable of storing a database of waypoints for the following purpose:

[00146] Waypoints mark a destination, a point along the way to a destination, or a point of reference. Normally, in navigating, a "route" consists of one or more waypoints. To traverse a route, the user navigates to the nearest waypoint, then to the next one in turn until the destination is reached. The system has the ability to compute a great-circle route towards a waypoint, enabling them to find the shortest route even over long distances. The system enables users to

Google Ex. 1028, p. 298

locate a destination on a map or indoor floor plan or indoor image and define it as a waypoint. The system is intended for navigation; it can generate a suggested route between two waypoints, based on the cartographic database. The system indicates the user's current location and gives advance notice of an upcoming point.

[00147] Because the system knows the waypoint positions, and the distance between them, it is easy to determine the "user's" exact location.

[00148] Map Matching

[00149] The navigation solution is further enhanced, although it is not essential, when the system knows that the person or object being located is traveling along known routes on a map; for example, the system can assume that people can only follow certain routes in a mall. This is priority information that can be used to "force" the estimated position to be on the nearest point on the possible routes, note that it is easier to predict indoor than outdoor.

[00150] The constraints of indoor construction similarly can be used to refine estimates of the position of a person or object moving within a building-people and objects do not pass through walls, they pass along corridors and through doorways. It is a best solution for a system in case of an emergency or for a system for homeland security or a system to locate and inform the subway location, a good example is the hotel exit floor map.

[00151] Configuration and Use

[00152] In the indoor application, instead of GPS, the system uses known waypoint positions that are manually detected and identified as a demonstration of the concept of using another sensing method, such as RF tags/beacon, to detect and identify the location and the waypoints. Theoretically, it would be possible to convert the waypoint positions into GPS coordinates and emulate an external GPS data source.

[00153] This system can be useful for providing navigation to first responder personnel indoors waypoints have been installed in a particular building in the form of RF tags/beacons whose identities are associated with locations- the meaning of identifier, it may be possible to associate magnetic anomaly information with individual tags as well.

Google Ex. 1028, p. 299

[00154] One of the important features of the indoor navigation techniques will enhance the ability of tactical team's first response team to navigate within the buildings in which it has been deployed. RF (Bluetooth) Tag/bacon devices commonly are attached to persons or to moveable objects, so that the objects can be tracked using fixed readers (special- purpose radios) at different locations. This is the most common indoor navigation that exists today.

[00155] The navigation method is the "flip side" of this practice and is based on the concept that the detection of an RF (Bluetooth) device, or RF Tags/beacon, in a known, fixed location, by a moving reader, such as a Bluetooth enabled cellular phone or other Bluetooth enabled device, provides a precise location of a person or a moving object, by the carrier of the telephone or device, who can supply indoor navigation without GPS.

[00156] The navigation method provides a low-cost, reliable system for firefighters and other first responders, inside buildings, to navigate, where a GPS is not reliable-indeed, the GPS signal may have been disabled temporarily to prevent-exploitation by terrorists, or even more likely no signal can be received at all inside a building.

[00157] The navigation system foresees this limitation of GPS based systems, and is intended for an environment that is potentially much less "friendly" to RF signals, the environment inside a building that first responders encounter may contain smoke, dust, or flames, and is intended to leverage advances in RF/Bluetooth tag/beacon technology. The navigation system will exploit the capability of storing critical building information, such as the floor maps and the emergency escape plans, for retrieval and navigational assistance via a Bluetooth enabled cellular phone, when and where it is needed,

[00158] Moreover the navigation system can serve as a navigator for the emergency exit route when and where needed. Each user can load the emergency exit floor plan and escape with the knowledge of his exact location in that route.

[00159] Aspects of the scenarios to be included:

[00160] Identifies and tracks the user (a first response team member)option to use the cellular phone as a beacon by himself.

Google Ex. 1028, p. 300

[00161] Provides the user with navigation information and directions for safely exiting the building.

[00162] Provides location information of all team members, via an ad hoc network of radio terminals that combine RF/Bluetooth and allow communication chat and messaging between the team members without need for Internet or cell communication such option is not limit to the first response team but to a user in emergency and non-emergency use.

[00163] From the outset, the navigation system was designed with the capability to utilize existing technology so it can be deployed as a stand-alone system, or in tandem a link with existing systems. The system focuses on employing technology that is already in place that simply needs to be expanded.

[00164] With the implementation of the navigation system, a FIRST RESPONSE TEAM will be empowered to navigate and find its way in a case of emergency or a disaster. This capability can be a critical life-saving power in modem congested urban living conditions, not available before now.

[00165] It is believed that the implementation of the navigation system will assist counter-terrorism activities and more importantly will help the first response teams to save the lives of people trapped inside buildings.

[00166] Conclusion

[00167] The Bluetooth technology offers few unique advantages: one is the ability to scan and locate a small tag/beacon installed in an local area using the tags/beacon ID a low cost and battery power and low battery use and the use of the newest Bluetooth devices (any Bluetooth enabled device that is not a tag/beacon, e.g. most of the newer mobile phones) can be used as a tag/beacon.

[00168] The other advantage is the multiservice nature of the Bluetooth infrastructure that enables using the tags/beacons for other purposes, such as for navigating, remote monitoring and control, a triggering mechanism to application and system even a link to existing systems and for a variety of messaging a push information and local based services.

Google Ex. 1028, p. 301

[00169] Location based services are rapidly expanding. Outdoor location technologies are mainly based on GPS technologies. GPS cannot perform properly indoors, and is therefore inadequate. As a result, indoor location systems are appearing on the market.

[00170] The need for a system arises from various market segments and applications. One example in the market is the GPS based systems that use integrated positioning and navigation systems based on GPS receivers as the primary positioning technology. Subsequent to the events of September 11th' the Federal government mandated that GPS capability be built in to all cellular phones.

[00171] However, the fact that uninterrupted satellite reception is not possible in many locations is a major limitation of GPS based systems. Densely populated areas and radio-frequency-signal shadowed locations, such as urban centers (a.k.a. "urban canyons"), generally do not allow proper operation of GPS, yet it is in these locations that the need is greatest.

[00172] There is a clear need for a cost effective system that maintains performance indoors, in urban canyons and in city centers.

[00173] The disclosed application includes finding a solution to this task by providing a system and method to generate automatically the waypoint along the user route ether indoor, or outdoor.

[00174] The disclosed application addresses the task of interactively guiding the user to a desired indoor and outdoor destination.

[00175] The method for mapping an indoor environment is provided. A user device may receive an indication of a starting point on a floor plan. The user device may prompt the user to travel in a particular direction, or the direction of travel may be determined by the user device in response to the user indicating a second location after the user has traveled to the second location.

[00176] As the user travels from the starting point in the designated direction, the user device may gather information about the indoor environment. For example, the user device may gather

Google Ex. 1028, p. 302

wireless signal strength data, from proximity RF beacons Wi-Fi or Bluetooth while the user travels in the designated direction.

[00177] The user device may associate the gathered information with the path the user traveled from the starting point to the ending point. The operation can be done at the user device – the cellular handheld, the association may also be performed by a remote server using data provided by the user device.

[00178] As the user travels from point to point, the user's device may indicate the area for which valid location information is available based on the path the user traveled and the information the user collected.

[00179] The method may include displaying a floor plan image or floor mapping or the floor indoor view – the floor images corresponding to an indoor location, receiving a first input to indicate a first location on the floor plan image, gathering initial location information at the first location, and generating an indoor map, using a processor, using the initial location information wherein the indoor map includes an association of the initial location information with the first location.

[00180] The method may further include repeating the location information gathering process at a new location to associate new location information with the new location in the indoor map.

[00181] The method may include gathering additional location information as the user travels from the first location to a second location, receiving a second input to indicate the second location on the floor plan image, determining a path from the first location to the second location, and associating the additional location information with at least one location within the map corresponding to the path.

[00182] The method may include prompting the user to walk in a straight line when traveling from the first location to the second location.

[00183] The method may include providing instructions to a user to travel in a particular direction. The location information may be wireless signal data associated with one or more RF

Google Ex. 1028, p. 303

wireless beacons installed in the local area. The first input may include performing a selection operation with an indicator placed on the floor plan image.

[00184] The method may also include providing a visual indication on the floor plan image of the path. The visual indication may indicate an area of the indoor map where the location information identifies a particular location. The building floor plan may be received from a remote via Internet or cellular communication as part of the mapping and navigation application.

[00185] The method may also include determining an approximate location determine by proximity to the RF beacons, providing the approximate location to the remote server, receiving a list of floor plans associated with indoor environments proximate to the approximate location, and selecting the building floor plan from the list.. The method may include identifying the user's direction of travel by at least one of determining a relative orientation using the first location and the second location, or using at least one of an user device built-in sensors, accelerometer, a gyroscope, or a compass.

[00186] The method may include determining a location precision for the data gathering operation, and using the location precision to determine a location resolution for the indoor map. The location precision may be determined using a number of available RF wireless beacons for which signal strength data and the beacons ID are available. The location precision may determine at least one of the size of an indicator for indicating the current location or the accuracy radius circle, or the width of a stripe for indicating an area of the indoor map for which the location information has been gathered and will display overly on the floor map image map building map. The method may include determining a coverage level of the indoor map compared to the floor plan images.

[00187] The navigation system and method automatically updates waypoints, when each Point Of Interest (POI) will have an RF tag/beacon that will broadcast an RF ID signal that will provide an instant detection, the navigation system will execute the specified file/program that will trigger automatically, executing a waypoint generation program.

[00188] For some years, local governments in cooperation with various FM radio stations and recently a navigation system have been putting together an automated way to get real-time traffic

Google Ex. 1028, p. 304

data into cars so drivers can avoid traffic. Real time traffic information includes news such as: congestion, construction, traffic accidents, recommended alternative routes, recent navigation systems depend on fix sensors or camera and some navigation on manual information provided by the users/drivers.

[00189] A tag/beacon will be installed at the location or at each Point Of Interest (POI). The tag/sensor will broadcast RF signal contain ID to be recognized by the mobile phone and such information (the RF beacon ID) will transfer automatically via the user mobile phone to the provided location detection of the user as well as statistically information about the possible "traffic" in the area/road, such method can be extremely helpful to manage and control transportation system.

[00190] The "user" will no longer need to enter his way- points manually and then wait for the providers of maps or GPS to update their maps with the information (this can take about a year in some cases). This way the "user" will receive the information that he needs when he needs it and where he needs it upon entering an area with tags/beacons, providing an automatic "check-in" to the user and the facility business.

[00191] Again, no communication is need to be established between the tags/ beacon and the user mobile device and the detection can be done without any communication at all, In the event that more information is required it may be necessary to connect to the Internet website.

[00192] It is believed that sooner or later it will be a standard procedure to install a tag/sensor on every location of interest (waypoint) or any place on road indoor and even outdoor or any business will provide waypoint information to the "users". Most stores or POI/waypoints will be willing to pay for a tag/beacon or pay subscription fee to be on the mapping system on the local area that will show their location and information on a map. Or they will pay for an annual listing (similar to the yellow pages).

[00193] The System can interface with existing GPS mapping outdoors as well as indoors, it can switch automatically where the user outdoor to receive an outdoor map and information based on GPS and when in the indoor to receive an indoor mapping and indoor navigation based on RF beacons detections.

Google Ex. 1028, p. 305

[00194] Presently GPS providers, map providers and search engines provide: City Navigator and Metro Guide Maps that contain many thousands of attractions.

[00195] These include: Food and Lodging, Attractions, Entertainment, Shopping, Services, Transportation, Emergency, and Government offices. In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be very old and the information associated with them is not update. Listed Attractions include theme parks, museums, libraries, schools, parks and such. This feature is very useful in an unfamiliar area.

[00196] Waypoints will be located automatically in the local area and plotted on the map screen. The waypoints can be stored on the local map at the handheld phone for future access.

[00197] The navigation system will revolutionize the GPS based systems and the mapping industry, from GPS, mapping companies' communication providers, car manufacturers to yellow pages and local guides; for the first time the user of a GPS navigation system will have an easy, reliable way to reach a destination inside buildings facilities – the indoor world.

[00198] The most common problem with today's GPS based systems is indoors where the navigation and mapping is not existing. The navigation system provides the solution for this problem. Using the navigation system, the user will know where he is, be able to identify "landmarks" around him accurately, and receive automatic updates directly from the Points Of Interest (POI) in the vicinity that get automatic notifications about his presence in their area.

[00199] The navigation system is based on RF tag/beacons, each tag or waypoints has its own ID (identifying the waypoint by type, address, etc.). The beacon will broadcast, via RF the ID to be scan and pickup by the Bluetooth device, provides a detection and trigger a location determination as a floating information display on the indoor map referenced to the user's location. The floating display will provide automatic waypoint updates around the local area and will allow the user to search local providers (waypoints/store), even without any connections, no communication, Internet, or cellular is needed to determine the location as well as accuracy radius circle. The Internet web communication provides more information such as push

Google Ex. 1028, p. 306

notification and messaging and local based services such as deals, advertising directly and automatically to the user's mobile phone.

[00200] Once you are in the vicinity of your destination and, a notification is sent automatically to the business Internet or web site and you will automatically receive the facility information along your waking route and in all directions around you .

[00201] No further action is required, there is no need to send a request or to access and search a database or central system.

[00202] Other systems must send a request to a central system, or to a database, and then must wait for a response. This takes time!

[00203] The disclosed unique approach results in no delay or waiting for communication or authentication and access time as there is no real communication between the tags/beacons and the user mobile device, the result are instantaneous association, directly between the tags/beacons and the user's mobile or navigation device

[00204] The RF tags/beacons broadcast their ID to be scanned and pickup by the user's mobile phone to identify the location of the user as proximity to the tags/beacon.

[00205] Additionally, the ID identifies the type of facility, store etc., e.g. restaurants, men's wear, women's wear etc. and the location in the store, e.g. front, back etc.

[00206] Each facility can provide information about the store e.g., automatic waypoint information as the user's presence triggers initiates automatically notifies the business or waypoint in the local area.

[00207] Do to the limitation of the mapping system currently used by the GPS navigation system the associated display method is our unique way to bridge existing devices like cellular phones, in-car navigation and other Bluetooth devices. The system provides an associated overlay navigation display method as a real-time floating display, or as a waypoint to overcome the limitations of GPS based systems and the existing mapping systems; especially indoors where each waypoint will be displayed over mapping or floor map images.

Google Ex. 1028, p. 307

[00208] The display method is one unique way to bridge existing devices like cellular phones, as a real-time floating overlay on a directional circular display to overcome the limitations of GPS based systems and the existing mapping systems.

[00209] The overlay add-up device/display works like a VOR and provides add-up display shows automatically the user location in the immediate area in a circle represent a radius of accuracy and proximity distance from the local detect beacon/tag.

[00210] The overlay displays over an existing navigation system, portable device or cellular phone without GPS support providing a circle that shown the location accuracy of the user on the local map.

[00211] The fact is: no digital maps are entirely accurate. A user needs to know which map makers are used by the product that they are interested in and check the maps for the area that they are concerned about. In addition some map databases are created from vector data while others are just scanned copies of paper maps. In addition to mapping data these same map makers can often provide Points Of Interest (POI) data. However, a software company might use the maps from one company and the poi data from another. POI data normally takes three forms. One is public buildings, parks, airports, and possibly geographic objects. A second is government locations that include specialized points lists like marker buoys, and airplane markers. Finally, there are commercial establishments that usually include some information about their product and contact data. Note that the location of commercial places is often derived from the street address and is not based on the actual lat/Ion location. Moreover there is the sky-high cost of digitizing and updating the poi and the waypoints.

[00212] The task is to provide a solution when the "user" will receive real-time Point Of Interest (POI) or waypoints in the area where he is automatically associate with a located proximity beacons/tags in the area, the waypoints information can be information that are real-time information updates in real-time and can be changed according to the waypoints and all according to a proximity detection of the RF tags/beacons ID in the area, the information can be used in these example applications:

Google Ex. 1028, p. 308

[00213] The user may wish to locate an empty available parking space in his vicinity. Just think of the empty parking spaces as waypoints the parking space occupied with RF beacon and sensor to find if the parking is empty, and the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details with US Patent 7,899,583 (included in the claim of priority and issued to the Applicant and incorporated herein by reference).

[00214] The user may wish to see and locate the real estate property available in his area according to his location, where an RF beacon can be installed in each real estate property to trigger more information to the user/ possible client when he reach proximity to the property.

[00215] The user may wish to locate a specific store in a shopping mall, each store in a mall is a waypoint, or a particular aisle in a department store, or a specific item on a shelf.

[00216] The user may wish to locate a specific conference room in a convention center, or a Point Of Interest (POI) in an amusement park or a Point Of Interest (POI) in a museum.

[00217] The user may wish to find the emergency exit route in a time of emergency or the first response team needs to navigate in a facility in an emergency situation.

[00218] The user may be looking for a train location in a station, or stops in a subway or underground train system. All of that is updated waypoints in real-time.

[00219] It is believed that the automatic waypoint updates revolutionize the GPS and Navigation Industry.

[00220] For the first time the user will know what he wants and when he wants and according to his location

[00221] The local business owner can introduce his content in real-time to the (navigation) users in his area automatically when the user access or enter to his store the contents can be deals, coupons, specials and provides more information to user about the business, the business in turn can benefit from statistically information about the client/s. such as habits, profile, loyalty and rewards.

Google Ex. 1028, p. 309

[00222] The GPS and navigation industry can tap to the huge local advertising market (estimated at 134B in US alone ...)

[00223] Automatic notification of user existence in the place/store/facility

[00224] Mall/store navigation solution inside mall/store.

[00225] RTP-return to parking-locate the place that you parked your car.

[00226] For example, a typical application could be:

[00227] A pedestrian asks the way in a mall to a specific store.

[00228] A pedestrian asks the way inside the store, to a specific aisle or product.

[00229] A shopper in a department store asks for a specific department.

[00230] A pedestrian asks the way to a Point Of Interest (POI). In an emergency, the first response team has to navigate inside a smoke filled building.

[00231] A store owner can use the notification and the knowledge of existence for loyalty and rewards

[00232] The beacons ID can trigger a link to exiting software and aware the local system of the user existence – such as:

[00233] A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

[00234] A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

[00235] A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

Google Ex. 1028, p. 310

[00236] The pedestrian reaches an advertising area or billboard that can be recognized by the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

[00237] A customer is entering a store/bank/facility front to be recognized for additional information or services.

[00238] The RF beacons/tags can serve to track employee's work times, including a check-in and checkout time from a designate area.

~~[00239] The RF beacons/tags can serve as part of a payment process, where the user's cellular phone and the local proximity beacons/tags can provide additional security for a mobile payment process, which can be used to replace other current payment methods, such as credit cards.~~

[00240][00239] The infrastructure provided by local RF beacons can be integrated into a local dating system.

[00241][00240] The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

[00242][00241] The location of the user as associate with the local beacons can be interface with social networking.

[00243][00242] The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking. the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details in US Patent 7,899,583 issued to the Inventor and claimed as priority herein.

[00244][00243] The RF beacon can be installed or be a part of a vehicle to provide car application like payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically.

Google Ex. 1028, p. 311

[00245][00244] A system and method to provide a user information which is related to the Point Of Interest (POI), the navigation system provides detection and navigation references, position determination and information related to the object-Point Of Interest (POI) directly and automatically to the user interface-cellular phone upon arriving to a close proximity to the RF tags/beacons installed in the area.

[00246][00245] Moreover the application provides more than simply an icon.

[00247][00246] At present, no prior art device utilizes the capabilities to display a real-time representation of navigating and get an update directly from the waypoints. Also most systems are designed for the old query type search where interface to Internet and or database central system is needed.

[00248][00247] The navigation system automatically detects a signal directly from the RF tags/beacons installed in the waypoints, no communication needs to be established between the mobile phone and the RF tag/beacon not even cellular communication, and no pairing needed. Other systems must have bandwidth available, over which to send a request to a central system or to a database and then must wait for a response, or they need Internet connections. This takes time!

[00249][00248] Even if the other systems have bandwidth, they are still based on the existing search concept where the user submits a query, searches and waits for the response. This is impractical. The navigation system provides the information automatically, without submitting any query, and the response is according to the user's location based on RF tags/beacons installed in the local area.

[00250][00249] Again, most of the existing prior arts are based either on a GPS based system or the existing car navigator, that depends on a GPS too.

[00251][00250] And the existing mapping that these systems use has the same limitations, described previously, and is impractical.

[00252][00251] This navigation system bridges the gap between the GPS based navigation and provides a complete solution.

Google Ex. 1028, p. 312

{00252}[00252] U.S. Pat. No. 7,031,875 Ellenby et al. describes a pointing system for addressing objects, and provides a system and method based on GPS and Internet/database communication, it is not exactly a navigation but an information based system that need the GPS to locate the user location so indoor services is likely out of the questions and the need for communication as well with GPS limits its availability and accuracy. It is not a real-time update of the waypoints and needs Internet and or central database communication.

{00253}[00253] The most common problem with today's GPS based systems is that the mapping and the waypoints are not updated on a timely basis. In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be about 2 years old. The new service like Google Earth provides satellite images that are almost 2 years old and for sure can't provide on-line real-time accurate picture of the existing area and the waypoints.

{00254}[00254] The disclosed technology offers a solution to this task by providing a system and method to generate automatically the waypoint along the user route ether indoor or outdoor the update is based on determine location of the mobile device indoor in proximity to installed RF beacons and the update information triggered by the location determination, such method is not exist in today navigation or mapping especially indoor.

{00255}[00255] The disclosed technology offers a solution that interactively guides the user to a desired indoor and outdoor destination.

{00256}[00256] The navigation system and method automatically updates waypoints, by means of an interface to an existing GPS based system, when each Point Of Interest (POI) will have an RF tag/sensor that will broadcast an RF signal that can be converted to a GPS waypoint, In response to the RF signal (from the tags/sensors,) the navigation system will execute the specified file/program that will trigger automatically, executing a waypoint generation program.

{00257}[00257] For some years, local governments in cooperation with various FM radio stations have been putting together an automated way to get real-time traffic data into cars so drivers can avoid traffic. Real time traffic information includes news such as: congestion, construction, traffic accidents, and recommended alternative routes.

Google Ex. 1028, p. 313

{00259}[00258] An RF tag/beacon Bluetooth and or Wi-Fi will be installed at each Point Of Interest (POI). When each Point Of Interest (POI) will have an RF tag/beacon that will broadcast an wireless RF signal with ID that will provide an instant detection, the navigation or the application for local based services system will execute the specified file/program that will trigger automatically, executing a waypoint generation program and at the same time provides the business owner a notification of existence of the user in his vicinity to allow the business to provide the user with relevant messages or offers, more information or push message to the user cellular phone just by being in proximity to the RF beacon .

{00260}[00259] The "user" will no longer need to enter his way- points manually and then wait for the providers of maps or GPS to update their maps with the information (this can take about a year in some cases). This way the "user" will receive the information that he needs when he needs it and where he needs it.

{00261}[00260] It provides trigger information according to the beacon/tag, directly from the local area business waypoints and to the user's display device, the detection can be done without any communication In the event that more information is required and the business need to provide more information it may be necessary to connect to the Internet, its allow interaction/engagement as proximity to the RF Bluetooth beacon can trigger a specific application functionalities and provides automatic notification "I am here" to the business owner.

{00262}[00261] It is believed that sooner or later it will be a standard procedure to install a tag/beacon on every location of interest (waypoint) or any business will provide a waypoint information to the to provide "users" with the information. Most stores or POI/waypoints will be willing to pay for a tag/beacons or pay subscription fee to be on the GPS system providers that are able to show their location and information on a map. Or they will pay for an annual listing (similar to the yellow pages).

{00263}[00262] The System can interface with existing GPS.

{00264}[00263] Present GPS providers, map providers and search engines providers: City Navigator and Metro Guide Maps contain many thousands of attractions.

Google Ex. 1028, p. 314

[00265][00264] These include: Food and Drink, Lodging, Attractions, Entertainment, Shopping, Services, Transportation, Emergency and Government offices.

[00266][00265] In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be about 2 years old. Listed Attractions include theme parks, museums, libraries, schools, parks and such. This feature is very useful in an unfamiliar area. Waypoints will be located automatically in the local area and plotted on the map screen. The waypoints can be stored on the GPS database for future access or store at the user mobile device .

[00267][00266] The navigation system will revolutionize the GPS based systems and the mapping industry, from GPS, mapping companies' communication providers, car manufacturers to yellow pages and local guides; for the first time the user of a GPS navigation system will have an easy, reliable way to reach a destination.

[00268][00267] The most common problem with today's GPS based systems is that the mapping and the waypoints are not updated on a timely basis. The navigation system provides a solution for this problem. Using the navigation system, the user will know where he is, be able to identify "landmarks" around him accurately, and receive automatic updates directly from the Points Of Interest (POI) in the vicinity.

[00269][00268] The navigation system is based on RF tag beacons installed in the local area, each tag or waypoints has its own ID (identifying the waypoint by type, address, etc.). The tag beacon ID and proximity to the RF beacons will allow local detection and interface with existing or indoor application and navigation, GPS based systems, as a floating information display on the GPS map referenced to the user's location. The floating display will provide automatic waypoint updates and will allow the user to search local providers (waypoints/store and more information about the store/business, the detection allows the local business to have an automatic notification about the user whereabouts in proximity to his business and allow him to provide the user with more information about his store/business/deals.

[00270][00269] The fact is no digital maps are entirely accurate. A user needs to know which map makers are used by the product that they are interested in and check the maps for the

Google Ex. 1028, p. 315

area that they are concerned about. In addition some map databases are created from vector data while others are just scanned copies of paper maps. In addition to mapping data these same map makers can often provide Points Of Interest (POI) data. However, a software company might use the maps from one company and the poi data from another. POI data normally takes three forms. One is public buildings, parks, airports, and possibly geographic objects. A second is government locations that include specialized points lists like marker buoys and airplane marker. Finally, there are commercial establishments that usually include some information about their product and contact data. Note that the location of commercial places is often derived from the street address and is not based on the actual lat/Ion location.

[00270] Moreover there is the sky-high cost of digitizing and updating the poi and the waypoints.

[00271] The task is to provide a solution where the "user" will receive real-time Point Of Interest (POI) or waypoints in the area automatically to his existing navigation system or to his cellular phone, the waypoints information can be a real-time information update in real-time and can be changed according to the waypoints.

[00272] A cellular phone application, which the user will scan the area for exiting RF Bluetooth beacons or Wi-Fi beacons will receive data and more information utilizing the cellular phone's Bluetooth capability.

[00273] The system can trigger application as well as link to existing systems and software. A notification can be sent to a web, email a cloud application or even social network, The navigation system will interface with existing in-car media system and in car navigation systems.

[00274] It is understood that the waypoint or Point of Interest (POI) will be represented by the following suggested ID examples as part of the beacon ID to be recognized by the user Bluetooth mobile device (cellular phone), according to the type of the POI:

Waypoint **Waypoint**

Google Ex. 1028, p. 316

ID Code	POI Type	Cat. Type
32	Food/Restaurants	Food
33	Gas Station	Information
34	ATM/Banks	Finance
35	Department Store	
36	Apparel	Store
37	Sports	Store / Information
38	Books video	Store
39	Jewelry	Store
40	Toys/Photo/Elect.	Store
41	Music	Store
42	Gifts	Store
43	Furnishing	Store
44	Service	Service
45	Computers	Store/Service
46	Hairstyle/Cosmetics	Store/Service
47	Office	Office
48	Security/Police	Service / Emergency
49	Children's program	Service
50	Social Affairs	Religious Service
51	Religion	Religious
52	Phone	Service
53	Travel	Transportation Service
54	Parking	Transportation Service
55	Guest service	Service
56	Library	Service
57	Transportation	Management Service
58	Municipal	
59	Post Office	Service
60	Government	
61	Market	Store/Service
62	Alarm	Emergency
63	Emergency	
64	Hotel resort and cruise ship	

Google Ex. 1028, p. 317

65	Education facility, school, university	68	Amusement park
66	Sport facility, sports arena, stadium	69	Implements as mail and address
67	Conference and show	70	Implements in a road as road sign or transportation entity

[00276][00275] Be remember that the ID above is only suggested example, the fact is that part of the beacon ID will be to recognize the Facility/store type the location to provide instant detection and location determination by just being in a close proximity to the RF beacon in the area.

[00277][00276] The navigation system enables remote and local update of the local floor plans and the information about the local area and waypoints business in the area, when the location's indoor application can be triggered to download at the destination. An example of this would be at the entrance of a shopping mall, department store, amusement park, museum, parking garage or the downtown area of a city where a sign or the shopping mall information sign will provides direct information a trigger to download the local application.

[00278][00277] The system can work inside a building whereas GPS cannot. Local detection is obtained via popular Bluetooth interface.

[00279][00278] The system provides information about each facility/store, including information about the type of the facility, for example: type of store or product etc., the information trigger to deliver to the user mobile device by being in proximity to the RF beacon ID that installed in the local area.

[00280][00279] By providing the ability to locate a the user in an area using a Bluetooth enabled device or a cellular phone with the navigation application, the system overcomes the anxiety of "Where am I" and also facilitates finding a parked car later via the RTP (Return to Parking) feature.

[00281][00280] The system has the capability to perform all the functions of a search and can become the "Next generation search out of the box".

Google Ex. 1028, p. 318

[00282][00281] The navigation system can be an attractive addition to existing deployments of Wi-Fi and Wi-Fi hotspots and a feature for business and cities that deploy Wi-Fi.

[00283][00282] In case of an emergency or security situation, the system can provide authorities with information.

[00284][00283] Utilizing the navigation system, the facilities (waypoints) in the vicinity around the "user" car are displayed on a floating overlay using either a cellular phone application, or a standalone device, or an existing installed navigation system with or without any mapping, the information can be pushed to the user's device when he in proximity to the area.

[00285][00284] The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[00286][00285] The option of downloading a floor plan can be exercised either remotely or locally as part of mapping or navigation application.

[00287][00286] With the navigation system, the user will have the information that they want, when they want it, where you they it ...(and at an affordable price) Once you are in the vicinity of your destination and you switch on your navigation device, you will automatically receive the facility information along your waking route and in all directions around you.

[00288][00287] Additionally, each facility type can be ID-coded apart of the beacon ID to identify the type of the store etc., e.g. restaurants, men's wear, women's wear etc. the store type, real estate property, garage sale location, special sale and all up to date real time information that can't be displayed and located in today's navigation system, and tapping to the local business industry is known as local advertising.

[00289][00288] Each ID-coded as part of the beacon ID can be trigger accessed to obtain complete information about the store e.g., automatic waypoint information.

Google Ex. 1028, p. 319

[00289] The system can be operate on a cellular phone, and navigation system and is not limited to a GPS navigation system.

[00290] Moreover, the navigation system can solve the "RTP" (Return to parking) problem, where many forget where they parked their car. The system has an option to save the location on the "cellular phone-parking detector" application, which will make it easy to locate the parked car.

[00291] The navigation system is designed for global use and is not limited to malls, stores, amusement parks, museums, sports stadiums etc. It can be implemented in parking garages or parking spaces metered or not, almost anywhere and in any place even in any infrastructure.

[00292] It is envisioned that in the future all new construction/infrastructure will have the beacons/tags included in the design or built in the structure..

[00293] One feature of the proposed invention integrates the navigation as part of the NAV4 concepts where it will provide complete solutions for local navigation in an area where the GPS and GPS mapping just can't provide accurate and updated information that is so essential to the user.

[00294] A typical application is navigating a pedestrian in an environment like a mall, department store, specialty store, conference, trade show, amusement park, university, hospital, school, municipal building, museum, subway, train station, airport, down town center, any type of parking facility ...or any place when and where GPS cannot be provided or is not accurate or precise enough. The system can be used for navigation by first responders to emergencies or disasters.

[00295] The navigation system is part of a broad suite of applications that include a complete solution to the "user" from the time that he parks, or begins looking for a space to park his car, walking to the store/mall to when he wants to return to his parked car, looking for the place that he parked.

[00296] The suite may include:

Google Ex. 1028, p. 320

[00298][00297] Parking detector-and navigation to the empty available parking space.

[00299][00298] Nav4 mall/store navigation solution inside mall or store.

[00300][00299] RTP-return to parking-locate the place that you parked your car.

[00301][00300] For example, a typical application could be:

[00302][00301] A pedestrian asks the way in a mall to a specific store.

[00303][00302] A pedestrian asks the way inside the store, to a specific aisle or product.

[00304][00303] A shopper in a department store asks for a specific department.

[00305][00304] A pedestrian asks the way to a Point Of Interest (POI).

[00306][00305] In an emergency, the first response team has to navigate inside a smoke filled building.

[00307][00306] A system and method to provide user information which is related to the Point Of Interest (POI)

[00308][00307] The navigation system provides detection and navigation reference, position determination and information related to the object-Point Of Interest (POI) directly and automatically to the user interface-cellular phone without any communication help of Internet/web or cellular needed . . .

[00309][00308] Special operation mode:-Shopping- NAV4SALE-provides navigation to the special sale item in a department store. A new unique tool for the business owner as well to the customers-to navigate and locate an item in a store/mall that's on a special sale, will provide the "user" a way to navigate in/out door for the "waypoint" represents the special sale, coupon, special event, promo etc ...an add-on to local advertising.

[00310][00309] The local advertising market is estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of a local strategy. Due to the lack of availability of the GPS indoors as well with the limitation of its accuracy outdoors and the non-updated

Google Ex. 1028, p. 321

mapping that is provided today by the mapping and GPS industry, there is no real tapping to this huge market.

[0034][0031] The navigation system can bring a new life to the navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the user a navigation to his desire location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. A new unique way to bring the customers to the product in sale . . ., direct the customer directly to the isle and to the product that you want to move. The store will also have an option to deliver more content (advertising, sale, coupons, promo etc ...) to the user when he approaches the store or is already inside via push technology to the user's Bluetooth enabled cellular phone.

[0034][0031] Special operating mode:-Museums- NAY4Museums NAV SHOW and NAY CONFERENCE provides navigation and interactive information from the museum's show or conference exhibition to the "user's" cellular phone device via Bluetooth interface.

[0034][0032] Explore museum or conference show exhibits in a new unique and easy way, find your way around when navigating on the floor map of the museum or conference, indoor navigation, navigate to exhibits, restaurants, cafes, lavatories etc., all to the "user's" navigation or cellular phone.

[0034][0033] Any museum, conference, or show provides the attended a map to the exhibits, some also provide additional audio device (headset) to get more information on the exhibits.

[0034][0034] The navigation system will provide a unique indoor tool that will allow the attended to navigate the museum, conference or show in an easy way directly to his Bluetooth enabled cellular phone, when he reaches his desired exhibit he will allow to download directly to his cellular or Bluetooth headset information about the exhibits. An indoor navigation to the exhibits as well to the restaurants, cafes, lavatories etc., all to the "user" navigation or cellular phone and based on the facility map.

Google Ex. 1028, p. 322

[00346][00315] Special operating Mode: Navtrain- For all the users of mass transportation system, the navigation system will allow, locate and point the "user" to the exact station or location on a route, an easy way to navigate in the train, subway, underground system, a new way of "sub- way" or bus mapping in/out door and directly to the user navigation or his cellular phone. Every day millions of people are using the mass transportation system, trains, subways, buses, each of the passengers depend on the transportation map for the route information as well as schedules and additional services provided by the transportation system. Most of the passengers today carry with them a cellular phone.

[00347][00316] The navigation system will provide the passenger with the navigation inside the transportation system directly to the passenger's Bluetooth enabled phone, the passenger will know the exact location/station on the route as well with additional option information like schedules. A new add-on service to the transportation providers as well to the passengers, utilizes the indoor navigation method and the ability of the transportation entity to use the RF beacon installed in a transportation facilities to have add-on to transportation management control system .

[00348][00317] Specialoperating mode:-Parking- NAY4PARKING describe in 2 patent applications, provides empty parking space detection and navigation. where is the RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking. the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details in US Patent 7,899,583 issued to the Inventor and claimed as priority herewith.

[00349][00318] A new generation of urban parking innovation that answers the most demanding need of any driver knowing where to park ..., or more precisely, find and navigate to the empty parking spaces in and around the driver. It will also provide the answer to "where did I park my car?" syndrome, when returning to the parked car. In our society where time, convenience and comfort are precious commodities parking is a major headache.

Google Ex. 1028, p. 323

[00320][00319] Parking Detection System is the next generation of urban parking and the answer to the most demanding need of any driver-Where to park?

[00321][00320] The navigation system provides a method of self organizing parking system will enable municipalities and other parking authorities to easily identify, exploit and manage revenue opportunities while at the same time providing better service at a lower operating cost. With the implementation of the navigation system, navigating and detecting available parking spaces will become part of the information revolution.

[00322][00321] With the navigation system, drivers will save time and reduce the frustration of hunting for parking spaces, and will also save money on gas use and car maintenance costs.

[00323][00322] By using and modifying existing technology, our system will integrate easily with other transportation and communication systems. The RF beacon can be attached to existing parking meters, and in the future will interface with them and eventually will replace them.

[00324][00323] Municipalities will have better control and centralized monitoring of their parking space inventory, resulting from the new generation of urban parking.

[00325][00324] Special operating mode: NAYRealty - A new unique tool to accommodate the real estate industry by providing the seller/the real estate agent as well as the real-estate customer to locate and navigate to the available real estate property in the "user" area, according to his location and directly to his GPS navigator and/or cellular phone. The user may wish to see and locate the real estate property available in his area according to his location, where an RF beacon can be installed in each real estate property to trigger more information about the available property to the user/ possible client when he reach proximity to the property.

[00326][00325] According to the Newspaper Association of America, the real estate advertising market is estimated at$11.5 Billion. Recently Mynewplace.com joined apartments.com and rent.com in the $3 Billion on-line apartment listing. **ZILLOW**, a new startup company just raised $32M in founding with the basic idea to put your house on Google

Google Ex. 1028, p. 324

Earth-satellite mapping. Google, Yahoo, AOL, ASK and Microsoft are looking to develop real estate products.

[00327][00326] The navigation system brings the listing to the user's hand, by combining the GPS navigation and or cellular phone the user will be allowed to get the real estate property in his area updated according to his location in real time.

[00328][00327] The user even will have the option to "search out of the box" of property in his area. The navigation system will serve as a new tool for the real estate industry as well to the search engine for the benefit of the seller/the real estate agent as well as the real-estate customer.

[00329][00328] Special operating mode:-NAV4STORE and NAVMALL provides navigation inside a store/department store to a specific department/aisle or specific product, with the option for advertising methods and special promotions. Explore the indoor mall or inside a department store, navigate to the right place or the store or the department that you need.

[00330][00329] Navigate on the mall map/store mapping to find your way around using your cellular phone or navigation system without a GPS. It will be a new kind of service and a new marketing strategy for the malls/store business owners. An add-on to local advertising.

[00331][00330] The local advertising market is estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of local strategy. Due to the lack of availability of the GPS indoors as well as the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry there is no real tapping to this huge market.

[00332][00331] The navigation system can bring a new life to the Navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the user a navigation to his desired location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. The store will also have an option to deliver more content (advertising, sale, coupons, promo etc.) to the user when he approach the store or is already inside via push or Internet to the user's Bluetooth enabled cellular phone.

Google Ex. 1028, p. 325

[00333][00332] Special operating mode:-NAV Amusement Parks-Theme and amusements Park navigation, navigate to your desired attraction as well as a new way to register a "fast pass" kind off lane ...all in an easy way to the "user" cellular phone without the need for GPS. Provides a new media and-on service.

[00334][00333] Ever wonder what it will be like to navigate inside the amusements park to the desired attraction, to know the schedules of the show events at the attractions and even to get your "fast pass" from a remote instead of standing in line ...With the navigation system, all this can become a reality and go directly to your cellular phone without the need for a GPS. It is understood that the present invention can provide a new tool and service to the benefit of the amusements parks as well to the user.

[00335][00334] Special operating mode:-NAVSIGN-will pro- vide the user with automatic generating waypoint of the road sign to be displayed on the user navigation and or cellular phone or the car navigation or on the dash board as a way for secure driving, the information can interface to the car computer for example automatically slowing down when it enters a school zone-NAVSIGN.

[00336][00335] Special operating mode:-NAV EMERGENCY: One of the important features of our indoor navigation techniques will enhance the ability of the first response team to navigate within the buildings in which it has been deployed.

[00337][00336] The navigation system provides a method that is a low-cost, reliable solution for firefighters and other first responders, inside buildings, to navigate where a GPS is not reliable-indeed, the GPS signal may have been disabled temporarily to prevent exploitation by terrorists, or even more likely no signal can be received at all inside a building.

[00338][00337] The navigation system envisioned this limitation of GPS based systems, and is intended for an environment that is potentially much less "friendly", the environment inside a building that first responders encounter may contain smoke, dust, or flames, and is intended to leverage advances in ubiquitous RF/Bluetooth tag technology.

[00339][00338] The navigation system will exploit the capability of storing critical building information, such as the floor maps and the emergency escape plans, for retrieval and

Google Ex. 1028, p. 326

navigational assistance via a Bluetooth enabled cellular phone, when and where it is needed. Moreover the navigation system can serve as a navigator for the emergency exit route when and where it is needed. Each user can download the emergency exit floor plan and escape with the knowledge of his exact location in that route.

[00339] Aspects of the scenarios to be included:

[00340] Identifies and tracks the user (a first response team member).

[00341] Provides the user with navigation information and directions for safely exiting the building.

[00342] Provides location information of all team members, via an ad hoc network of radio terminals that combine RF/Bluetooth and allow communication chat and messaging between the team members without need for Internet or cell communication such option is not limit to the first response team but to a user in emergency and non-emergency use.

[00343] From the outset, the navigation system was been designed with the capability to utilize existing technology so it can be deployed as a stand-alone system, or in tandem with existing systems.

[00344] With the implementation of the navigation system, a FIRST RESPONSE TEAM will be empowered to navigate and find its way in a case of emergency or a disaster. This capability can be a critical life saving power in modem congested urban living conditions that was not available before now.

[00345] It is believed that implementation of the navigation system will assist counter-terrorism activities and more importantly will help the first response teams to save the lives of people trapped inside buildings.

[00346] Waypoint Navigation

[00347] A waypoint is a fixed location with known address location, longitude and latitude and coordinates. The navigation system is capable of storing a database of waypoints for the following purpose:

Google Ex. 1028, p. 327

[00349][00348] Waypoints mark a destination, a point along the way to a destination, or a point of reference. Normally, navigating, a "route" consists of one or more waypoints. To traverse a route, the user navigates to the nearest waypoint, then to the next one in turn until the destination is reached. The system has the ability to compute a great-circle route towards a waypoint, enabling them to find the shortest route even over long distances. The system enables users to locate a destination on a map and define it as a waypoint. The system is intended for navigation; it can generate a suggested route between two waypoints, based on the cartographic database. The system indicates the user's current location and gives advance notice of an upcoming point.

[00350][00349] Because the system knows the waypoint positions, and the distance between them it, it is easy to determine the "user's" exact location.

[00354][00350] Map Matching

[00352][00351] The navigation solution is further enhanced, although it is not essential, when the system knows that the person or object being located is traveling along known routes on a map; for example, the system can assume that people can only follow certain routes in a mall. This is priori information that can be used to "force" the estimated position to be on the nearest point on the possible routes. The constraints of indoor construction similarly can be used to refine estimates of the position of a person or object moving within a building-people and objects do not pass through walls, they pass along corridors and through doorways. It is the best solution for a system in case of an emergency or for a system for homeland security or a system to locate and inform the subway location, a good example is the hotel exit floor map.

[00353][00352] In all, the unique method can be summarized as follows:

[00354][00353] Direct communication between the area (way- points) and the user (navigation/GPS)

[00355][00354] Automatic waypoint generation in real-time according to the user area

[00356][00355] Indoor/outdoor even without GPS

Google Ex. 1028, p. 328

[00357][00356] Business model when the business/store owner will be subscribe to the listing in the navigation/GPS mapping

[00358][00357] Provide overlay floating model to be work even without mapping

[00359][00358] No Internet or cellular communication is needed to detect and determine a user's location for additional location based services (LBS) information and push and or data Internet service needed.

[00360][00359] Can interface to the existing system and link to existing software and hardware system.

[00364][00360] The option of search is done locally on the user device, no central database or Internet search needed.

[00362][00361] Bluetooth interface to cellular phone, will run as application on the Bluetooth enabled device, such as a cellular phone.

[00363][00362] Provides indoor navigation and indoor facility map and or floor images-guide and navigation.

[00364][00363] All global positioning system (GPS) navigation systems lack of real-time displays of the waypoints around the driver/user route, most likely, the information of GPS maps may be old and therefore inaccurate.

[00365][00364] The navigation system provides a system and method for generating and updating in real time a navigation's waypoints automatically along the route according to the user associated with local detection of RF beacons installed in the area and will for the first time trigger an a delivery of real time waypoint information along the user route directly to the user's navigation and/or his cellular phone.

[00366][00365] The navigation system will enable a circular omni-directional display on the map or floor images floating overlay on existing navigation map or floor mapping or indoor floor images .

Google Ex. 1028, p. 329

[00367][00366] The waypoint data trigger generates directly from the way- points beacons ID, no Internet or cellular communication is needed to determine the location.

[00368][00367] The navigation system will bridge the existing navigation system and GPS mapping to new real time information according to the user's location.

[00369][00368] The navigation system will allow for the first time the navigation and GPS industry to tap to the local advertising market estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of local strategy. Due to the lack of availability of the GPS indoors as well as the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry there is no real tapping to this huge market.

[00370][00369] It is believed that the navigation system can bring a new life to the Navigation and mapping industry as well to the cellular providers by providing a unique innovation that combine the GPS and the existing navigation to the real time information directly from the waypoints, which can be referred to as a COOLSPOT.

[00374][00370] This invention is directed generally to the field of navigation and, more particularly, to such a method to be used indoors or outdoors in a mall, store, buildings, department stores, and to provide local based services directly to the user's navigation or cellular phone.

[00372][00371] The proposed applications have identified and resolved a great deficiency in the technology available for local businesses. LBS represent a huge advertising and mapping market-estimated at over $150 billion a year. It represents a big opportunity in the navigation market that has not been explored yet

[00373][00372] Existing System and Industry Trends:

[00374][00373] Local mapping today is mostly paper: Mall maps, store maps, mapping of department stores, commercial buildings, hospitals, schools, campuses, municipalities, shopping centers, downtown districts, indoor facilities, building maps, parking areas, parking garages, amusements parks, subway systems, transit maps, museum maps, area attractions maps, hotel

Google Ex. 1028, p. 330

and resort maps and even more importantly the emergency maps and procedures posted in buildings.

[00375][00374] Factors in Local Mapping

[00376][00375] Local maps can be of either indoor or outdoor locations.

[00377][00376] Local maps are available on paper, on the web, and in some cases on a kiosk in the facility.

[00378][00377] A high degree of accuracy is needed in order to provide usable maps for navigation indoors-less than 10 m-to a store or even a parking space.

[00379][00378] GPS cannot provide acceptably accurate mapping as it is only accurate to within 100-200 feet. This is the reason that the GPS industry does not provide this type of mapping. The same is true for cellular network providers, as the accuracy is also 100-300 feet, and then only when the signal is available. Signal availability is often a problem indoors and also when it is most needed-in an emergency situation when most of the cellular network fails due to high demand. Again, this is the reason that there is no local mapping available for cellular users. (Local mapping equates to accuracy in finding a store, room, or parking level within 5 m.)

[00380][00379] At this time there is no indoor navigation solution. The most recent technology provides access to a user's location through a combination of group "social networking" and a "buddy list".

[00381][00380] Most technology available today attempts to "locate" a moving "user" in an area, the present invention reverses that idea and lets the "user" navigate the local area on the local maps, indoor navigation compared to outdoor navigation, pedestrian navigation is more than locating and navigating, most likely they are at or near their destination already. There are two possibilities, either they are in unknown surroundings and their task will be to explore the surrounding or they are looking for a specific product-their defined goal is like buying a new pair of shoes or getting a book or just going to shop around, exploring a new location, new deals, specials sales, or simply sightseeing.

Google Ex. 1028, p. 331

[00382][00381] The theory is based on the belief that "you are what you do" meaning, the services, specials, sales, coupons, discounts, and the like are one key element.

[00383][00382] The main task of indoor navigation is to show the user where the specials, sales, and coupons are and direct-navigate the user to them and at the same time provides the business owner with a marketing tool that as of now is not exiting . The integration of multimodal journey planning and guidance to dynamic waypoints, sales, specials etc.... and complex public interchange facilities are not adequately addressed by existing systems.

[00384][00383] In some aspects, indoor navigation looks simpler than outdoor navigation. For instance, the geographical area covered is much smaller and the expected speed of travel-walking-is much lower. However, other aspects make indoor navigation much more challenging. First among these is the unsuitability of GPS and related technologies. Second is that in a complex indoor environment the requirements are more stringent. For example, vertical positioning of the topology and the need for accuracy less than 10m-to the store, the product, and even to the aisle or the parking space-cannot be achieved with today's existing system.

[00385][00384] The indoor market represents much greater potential than outdoor navigation, as on average people spend more than 90% of the time indoors ....

[00386][00385] The Objectives and Goals Behind This Concept: The technology behind the navigation system is quite simple-a direct communication between the user's device/cellular phone, Bluetooth enabled device, and a Bluetooth tags/sensors/beacons installed in a known location in an area/ building/store/facility without relying on GPS, centralized servers, Internet bandwidth or even cellular communication-they can be supportive but are not essential.

[00387][00386] The main concept is to use existing off-the-shelf technology (Bluetooth) with small modification and devices with a minimal cost of deployment and to provide a simple indoor/pedestrian technology which can delivers accuracy with an integrated suite of applications especially designed for the user/shopper indoors, the system is based upon RF beacons Bluetooth or Wi-Fi installed in the local area to be scan by the user device – cellular phone and use the proximity scan beacon ID and signal strength to provides an instant detection a notification of existence to the business owner and trigger delivery of update local based

Google Ex. 1028, p. 332

information all without even exchanging a real communication (no paring etc.. needed) with the proximity beacons.

[00388][00387] The System Includes:

[00389][00388] Local mapping or local floor images – the indoor view of the facility as part of the application, the facility can offer a download or participating from a proximity information sign or the store/mall/building information to trigger download the application or ability to pre load the maps as part of navigation or mapping application before reaching the area or download from the web according to location determine by the RF beacons.

[00390][00389] Ability to have special navigation software either as an add-on to existing navigation on the user's cellular phone or existing navigation system (car, mobile) using the Bluetooth beacons to determine the exact location and trigger applications.

[00391][00390] Ability to deploy Bluetooth beacons in the local area where the beacon will broadcast ID to be known the location-waypoints and trigger additional information and or local based applications and to provide the infrastructure needed to guide navigate in the area. A very low cost and fast deployment beacon system.

[00392][00391] The ability to use the log of the "user" Bluetooth ID or the Bluetooth ID as a key (NOT THE CELLULAR NUMBER) for future marketing purposes or for emergency use. This aggregation of data with association to proximity Bluetooth beacons ID will be in valuable to retailers, business etc. Bluetooth enabled cellular phones can be used as beacons.

[00393][00392] The beacons-parts of the navigation system are Bluetooth tags/beacons installed in known locations in the area/facility and represent "waypoints" where is the beacon ID can represent the facility type, store/ special sales, places etc. and the location in the facility location....

[00394][00393] The scanner detection part of the application -whenever a mobile phone or mobile device with a Bluetooth switched the Bluetooth on and loaded with the application, it will periodically scan the area for Bluetooth beacons; proximity to a tag/beacon and the tags/beacons ID as well with signal strength will determine the "user" location on the area/ facility map and

Google Ex. 1028, p. 333

will trigger an automatic notification automatic check-in to the business owner to trigger application with possible a link to existing system to provide the user and the business owner additional information just by being there an use the method above.

[00395][00394] The navigation-can be plotted between way- points/store/places on the map.

[00396][00395] In regards to the sale sense-marketing tools, the system works by passively observing the initial part of the scanning of movement. The proposed system does not monitor or listen to conversations or text messages. Nor does the proposed applications transmit or intercept any information or interfere with the mobile network operators in any way. The navigation system is a scanning detector (not a receiver or transmitter) which can observe the unique Bluetooth ID/key set of the device (not a telephone number or name ...) with association to the beacons ID which the device was near and aggregate resultant data to be server for habit and/or preference for triggering content delivery.

[00397][00396] Sales sense represents a method to use dynamic user input profiling with proximity beacon ID installed in the known location indoors and outdoors for empowered presence and trigger content delivery for a real life interaction and all under the user's complete control and without compromising his privacy. The paradigm of proximity-based discovery and communication enabled by Bluetooth technology can be very relevant in Ambient Intelligence as an enabler for a situated interaction.

[00398][00397] The navigation system explores the use of predefine user input (user profile or preference) as a key driver for situated interaction and trigger content delivery according to the user profile/preference. The approach is to use of RF Bluetooth beacons installed in a known location in a local area to trigger action witch associates the user cellular phone ID and or profile / preferences beyond self-exposure and introduces a method that can trigger actions.

[00399][00398] The approach to the use of Bluetooth ID of the beacon beyond self-exposure and introduces as a technique in which the system can recognize the Bluetooth ID as explicit instructions to trigger actions/process.

Google Ex. 1028, p. 334

[00400][00399] Firstly, because it has an extremely Low entry barrier, Bluetooth is a widely available technology. Most of all phones include the Bluetooth, and setting new Bluetooth device ID is normally a relatively simple task that can be accomplished with the base functionality of any mobile phone. This easy availability is of huge importance in enabling social practices around the technology and represents a major difference to other sensing and interaction approaches that, albeit more sophisticated, may require specific hardware or software in personal devices. Secondly, the use of Bluetooth presence for situated interaction combines very well implicit and explicit forms of interaction, in fact blurring the distinction between them. Simply by scanning the proximity Bluetooth device, people are already part of the situation and implicitly engaging with the system.

[00404][00400] This continuous, flow of presence information can be fundamental in the aggregation of situated content and may act as an important catalyst for more explicit forms of interaction. This is what mainly differentiates interactions based on Bluetooth presence from other interactions.

[00403][00401] The chosen methodology combines a user define profile encode into the Bluetooth device by setting up a user like VIN number, with user privacy as a priority, the profile is encoded into the user Bluetooth device with an algorithm sequence protecting the user's privacy.

[00403][00402] It provides important practical implementation of the Technique and on its usability within the complex set of social phenomena that characterize situated interaction in a public places without compromising the user privacy. Its effectiveness and simplicity can make it easily adoptable for applications like local social networking interactions, near field communication like secure transactions, payment methods, secure recognized methods and trigger secure processes and delivery of direct content according to the user profile or preference, all again without compromised user privacy and provides the user with complete control all the time. The method can be integrated and provide privacy and secure transaction to empower application that may otherwise exploit user ID, his profile and privacy as such the method can provides a secure payments transactions.

Google Ex. 1028, p. 335

[00404][00403] Every day millions of people access the Internet and enter their profile, personal information, or answer questions about their preferences in order to access a service / site, to get incentives, coupons, specials, etc... The sites use the information for marketing and in some cases share or sell the information. Recent research has found that most people are willing to give information for incentives.

[00405][00404] Using the profile and records, the surfing habits of the user (IP) is the way that all the search engine companies make money on the Internet. At the same time they try to direct the content to the user according to their profile/habits.

[00406][00405] But what about real life? People spend more and more time indoors (according to recent research, people spend more than 90% of their time indoors).

[00407][00406] A scenario of searching for stores, items, special sales, and coupons according to our desire is repeated again and again... The question is how can the system transfer the success of the Internet marketing tool and the easy search for real life?

[00408][00407] That is the main idea behind the navigation system – what if a system can take a profile / user statistics or even user input with them anywhere and provide one or more intelligence marketing tools. Moreover, the user is in complete control over their privacy, they can just shut the application off.

[00409][00408] In the disclosed navigation system, the user has their profile sales preference and they are encoded into the user's cellular phone to be associated with the proximity beacon ID installed in the local area . (There is 3 ways: A. set segment - the segment keys are not unique and help to setup the user segment only. In that case the key is not unique. B. To generate a unique key – to be used like the Internet IP. C. Create a dynamic key and multiplies profile according to location/user preferences.

[00410][00409] The profile can include: Gender, age, and sales preference (interest), and does not include any personal profile. It may be the same as seeing the user and recognizing their gender, age, and other preferences just by looking at the user. The user is not revealing any kind of information that most sites ask for in a registration process and no personal information like name, address, or telephone number is exposed.

Google Ex. 1028, p. 336

{00443}{00410} As part of the suite of LBS application, the user's phone will scan the area for the tags/beacons. For example – by being proximity close to the directory stand in a mall a decoding of the user key will be processed in order to allow the user preference segments and trigger delivery to the user with ads, specials, and incentives according to their profile as well as providing again the business owner with the best marketing tool- knowing his customers they profile and habit all using a very low cost RF Bluetooth beacons installed in the area and associate them with the user Bluetooth device-the cellular phone.

{00412}{00411} "Your customer is telling you what they want, are you listening?"

{00413}{00412} The main idea behind this is to provide the user with pin-point content according to their desired preference at the location trigger by the proximity beacons ID and also direct /navigate them to the desired location where they can find the store/sales/special/coupons or the information that they are looking for able to get meaningful data around shopper habits and store layouts statistics, as well as to help them partner up to offer better loyalty incentives to their customers through programs that extend beyond single storefronts, its sensing second-by-second a shoppers interest about specific product, place and can provides the business owner with a complete marketing tools not available until now and at the same time provides the user with offers directly from the business according to his habit preference profile.

{00414}{00413} The sales sense, user preference module is an add-on to the sales sense marketing where it joins the user behaviors module to create a very unique LBS business and marketing model. Imagine a potential customer standing in a crowded store aisle, feeling overwhelmed by all the choices. What if you could just reach out and give him or her something to help with the decision – a coupon, product information, discounts — right at that moment? Content marketers will soon have the ability to do this and a whole lot more just by implementing our method.

{00415}{00414} Sales sense-Shopping Behavior: How consumers decide what to buy and when is going to drastically change. Winning marketing need to provides and will require getting exactly the right content in the right place at the right time with even more precision. Shoppers will have the ability to collect real-time information, comparison pricing, discounts and other helpful, highly tailored data as they walk through a store or browse near particular items. It will

Google Ex. 1028, p. 337

be imperative to produce well-timed, compelling content that is useful in those crucial moments before a choice is made. Sales sense – next generation marketing tools, from coupons and giveaways in stores to tours of museums to airports that provide real-time flight information, the possibilities are endless.

[00416][00415] Consumers will start engaging with content in a whole host of new ways. Rather than just providing information suitable for a web browser or even a mobile user, marketers will need to think about ways to provide content that will be of value to users as they live their lives. From businesses to city parks to, the system provides a user tools to access helpful, real-time data like never before. As recently published research showed that on average people spend 90% of our time indoors. The proposed invention allows an effective integration of on-line and off-line shopping.

[00417][00416] Moreover, according to research, indoor navigation may be more important than outdoor navigation and may represent a huge new market.

[00418][00417] Our technology allows shopping centers, malls, department stores, buildings, airports, train stations, exhibition centers, museums, and amusement parks to understand the way that their customers or passengers flow through their premises. At the same time it provides the user/shopper with unique indoor navigation capability without compromising user privacy.

[00419][00418] Our innovation will allow, for the first time, the navigation and GPS industry to tap into the local advertising market, estimated to be $134 Billion in the US alone.

[00420][00419] Our technology provides a reliable method for identifying the path habits and the behavior that people take through an area. There are a number of advantages to our technology including:

- Extremely large sample size as mobile penetration is above 90%,
- Shoppers remain anonymous,
- Accurate to within 2m, and

Google Ex. 1028, p. 338

- Based on a Bluetooth technology.

{00421}{00420} For retail areas, malls in particular, the advantages of understanding shopper behavior are significant. Such information can assist the mall to:

- Evaluate and improve their retail tenancy mix by identifying which stores shoppers consider complementary,
- Identify underutilized areas in the mall,
- Understand the impact of anchor stores on the mall,
- Measure the implications of particular promotions or center events,
- Assist with planning day-to-day mall operations,
- Provide add-ons for the shoppers,
- Provide shoppers with a "web" like shopping experience,
- Provide shoppers with incentives /advertising,
- Increase security ,
- And in an emergency provide the shoppers with alarm and notification, and
- Allow shopper engagement with the store, the RF beacons can become the small neighborhood store by recognize the shopper, what is missing from the on-shopping.

{00422}{00421} Our technology is the only system on the market today that can gather information on shopper paths continuously and accurately based on locally installed RF beacons without any need to establish any communication relationship between the user cellular phone and the beacon (no paring or any communication needed to determine the location) and all without compromising the shopper ID or their privacy.

{00423}{00422} The various methods disclosed can also provide a way of surveying the behavior and preferences of the "user" shopper simply by observing the signals (encoding

Google Ex. 1028, p. 339

Bluetooth naming key) given off by their mobile phones and associate it with the proximity beacon ID which they are near and at the same time provide the shopper with a unique special application for indoor navigation triggering a local based services applications.

[00424][00423] The present invention provides a next generation approach to the location based services (LBS) market, especially to indoor applications and to areas where a GPS cannot provide accurate navigation.

[00425][00424] The data collect using the disclosed technology can be used to provide trend reports showing which shops are most visited and at what times, whether there are sufficient public facilities to serve the visiting shoppers or whether more security staff are needed to name only a few of the potential benefits. Ultimately, the collected data can provide assistance to shopping centers to become more in-tune with their customers so that they can create better, more pleasant places to visit.

[00426][00425] The proposed analytics can turn shopping center/department store/store into finely tuned sites, enabling mall/store owners to direct the flow of traffic efficiently around the information coming from the user to the benefit of the user and the business owner to provide services such as VIP personalize services, and the like.

[00427][00426] In contrast to alternative techniques, there is no device that tracks the user cellular phone. In the disclosed methods the user device/ cellular phone is the one that scans and tracks tags/beacons along the route, each scan includes the beacons ID and the user device mobile phone ID, and while these keys help track the movement of the signal and its owner, they don't reveal the identity of the user. This is a more precise method than what Google maps uses to detect a general location on a mobile phone by cell towers which are accurate between 300-1000m compared to our accuracy which is below 10m.its allow the business owner to be notify about the user existence in his vicinity and allow sending the user offers/deals more information and at the same time collect very important information to the business owner such as habits, profile, preference of the user to provide precise contents directly to the user cellular phone.

[00428][00427] Example of Scenarios:

Google Ex. 1028, p. 340

[00429][00428] A user in a mall can use a local guide and navigation application suggest to him to download at the mall/building/facility or have the application already as a cellular phone mapping application.

[00430][00429] As part of the application the Bluetooth on the user's mobile phone will scan signals from known locations-Bluetooth beacons and will determine the "user's" location on the local mall map (the same way as a GPS) with accuracy of less than 5m. (More beacons with LESS signal range=more accuracy)

[00434][00430] For example, the Bluetooth beacon can broadcast an RF signal that includes its position coordinates (e.g., latitude, longitude), which can be detected by a mobile device. The position coordinates can provide a third location accuracy for the current location of the mobile device by virtue of the mobile device adopting the position coordinates of the beacon as its own position coordinates.

[00432][00431] The known locations of a number of beacons in a geographic region (hereafter a "beacon infrastructure") can define a geofence that encompasses the geographic region.

[00433][00432] In some implementations, the beacon can also advertise location based services provided by the beacon infrastructure. Upon determining that the mobile device crossed the geofence defined by the beacon infrastructure. The application can monitor for beacon signals and continuously update its location to be the location of the beacon currently in proximity with the mobile device.

[00434][00433] When the mobile device loses contact with the beacon for a defined period of time (e.g., 5,10 minutes) or when the mobile device exits the geofence defined by the beacon infrastructure, the application can transfer the monitoring back to the application subsystem, so that the location of the mobile device can be determined using Wi-Fi and or Cellular ID.

[00435][00434] In some implementations, the application can distinguish between beacons in the beacon infrastructure and mobile beacons that may be detected in a scan, such as other Bluetooth enabled mobile phones operating within the beacon infrastructure.

Google Ex. 1028, p. 341

[00436][00435] For example, each beacon in the beacon infrastructure can provide data in its broadcast signal that indicates that the beacon is part of a beacon infrastructure.

[00437][00436] Alternatively, or in addition, when a mobile device makes first contact with a beacon in the beacon infrastructure, that beacon can transmit to the mobile device a list of unique identifiers (e.g. beacons ID) of other beacons in the beacon close infrastructure and other information about the beacon infrastructure, such as a name, geofence data, one or more websites associated with the beacon infrastructure.

[00438][00437] Beacon infrastructure can be located in any geographic region, including businesses (e.g., shopping malls, retail stores, restaurants), landmarks (e.g., museums, airports, parks, entertainment venues) and any other environments where location based services are desired.

[00439][00438] The available local advertising marketing is huge with over $150 billion in revenue in the US alone.

[00440][00439] Indoor LBS Applications

[00444][00440] This is a concept that offers a complete suite of application from finding parking to navigation of indoor malls\stores and with a capacity to navigate to emergency exits with a low cost to implement and with a business model that can be used to attract customers.

[00442][00441] The application represents a big opportunity in the navigation market and will open up new avenues for companies from telephone operators to mall/store/department storeowners to navigation and mapping companies.

[00443][00442] The disclosed technology presents a low cost and easily deployed infrastructure for local based navigation outdoors and indoors without the need for GPS and or cellular networks. Moreover, the concept is especially suitable for local area (indoor and outdoor) services when and where the GPS and the cellular network can't provide the solution and the accuracy needed to provide such navigation (1OM or less).

[00444][00443] The disclosed technology provides a system is based on existing Bluetooth, a technology that is proven to be stable, simple, inexpensive and mature in market

Google Ex. 1028, p. 342

use. Moreover, it is a common communication tool and is available on more than 85% of all new mobile phones.

[00445][00444] System Architecture:

[00446][00445] The infrastructure consists of RF Bluetooth beacons installed in known locations in a local area. The beacons will respond to Bluetooth device scanning inquiries made by "user's" Bluetooth enabled cellular phone or other Bluetooth device with a the special application.

[00447][00446] Each of the RF beacon are ID that represent the Location ID as well as represent the facility/product type. A mobile device as well as any Bluetooth device (desktop, laptop, tablet and cars etc.) can become also a beacon providing a new echo system where an infrastructure can include static and dynamic deployments of beacons interact with each other's.

[00448][00447] The local area map (mall map, store, building map, area map etc....) will be available to be downloaded as part of a mapping system that can be triggered to download at the entrance of the building/mall/area or the directory to provide the mapping for the navigation or as part of a mapping and navigation application.

[00449][00448] A "user's" Bluetooth cellular phone will scan the local area for the location beacons. When a "user" is within 5/10 meters, the location beacons respond, providing room-level navigation accuracy. The beacon ID as well with signal strength will provides instant localization determination, with multiple beacons installed and possibly receiving more than one beacon's signal, a simple triangulation calculation and options for signal strength will determine the exact location of the "user" on the downloaded map of the local area. Note that there is no communication establish between the beacons and the mobile phone (no pairing), and that no connections to the Internet are necessary (even so to be provide with more information you may need Internet).

[00450][00449] Other signals not on the list will be ignored, There is a mixed use of beacons and delivery option depending on the application (for example in a mall application, the stores can have a WAP or use the Internet to automatically deliver more content push to a "user's" mobile device where the beacons serve as navigation "antennae" as well as trigger

Google Ex. 1028, p. 343

mechanism to provides application exploit and waypoints contents to help the "user" navigate in the area. Application can be: Sales Sense-Next Generation Marketing Tools: the Behavioral Module, Nav4Parking,Nav4Realty, Nav4Mall, Nav4Sale, Nav4Museurn, Nav4Show, Nav4Train, Nav4Sign, Nav4Emergency, Return2Parking, Nav4Store, Nav4Conference, Nav4Disney, Nav4Events,

[00454][00450] Moreover, according to research, indoor navigation may be more important than outdoor navigation and may represent a huge new market.

[00452][00451] The technology disclosed herein enables shopping centers, malls, department stores, buildings, airports, train stations, exhibition centers, museums, and amusement parks to understand the way that their customers or passengers flow through their premises. At the same time it provides the user/shopper with unique indoor navigation capability without compromising user privacy.

[00453][00452] The innovation disclosed herein enables, for the first time, the navigation and GPS industry to tap into the local advertising market, estimated to be $150 Billion in the US alone.

[00454][00453] The technology disclosed herein provides a reliable method for identifying the path habits and the behavior that people take through an area.

[00455][00454] There are a number of advantages to the technology disclosed herein, including:

Extremely large sample size as mobile penetration is above 90%

Shoppers remain anonymous accurate to within 5 m

Based on a Bluetooth technology

[00456][00455] For retail areas, malls in particular, the advantages of understanding shopper behavior are significant. Such information can assist the mall to:

Google Ex. 1028, p. 344

[00457][00456] Evaluate and improve their retail tenancy mix by identifying which stores shoppers consider complementary. The device/cellular phone is the one that scans and tracks tags/beacons along the route, each scan includes the cell's unique Bluetooth ID, and while these ID'S help track the movement of the signal and its owner, they don't reveal the identity of the user. This is a more precise method than what Google maps uses to detect a general location on a mobile phone by cell towers which are accurate between 300-1000 meters compared to accuracy of the disclosed technology which is below 10 meters.

[00458][00457] Some reports about shoppers show how valuable behavioral information actually is and the profit opportunities that come along with this:

[00459][00458] Where they go, Where they go next, Where they do what, When they do what, who does what?

[00460][00459] Understand behavioral patterns across demographics. Similarities, differences and much more.

[00464][00460] Sales Sense User Preference Module

[00462][00461] Every day millions of people access the Internet and enter their profile, personal information, or answer questions about their preferences in order to access a service/site, to get to a mall, identify underutilized areas in the mall, understand the impact of anchor stores on the incentives, coupons, specials, etc.... The sites use the information for marketing and in some cases, share or sell the information. Recent research has found that most people:

[00463][00462] Measure the implications of particular promotions or center events

[00464][00463] Assist with planning day-to-day mall operations

[00465][00464] Provide add-ons for the shoppers

[00466][00465] Provide shoppers with a "web" like shopping experience

Google Ex. 1028, p. 345

[00467][00466] Provide shoppers with incentive/advertising and automatic check-in method

[00468][00467] Increase security

[00469][00468] And in an emergency provide the shoppers with alarm and notification

[00470][00469] The disclosed technology is the only system known today that can gather information on shopper paths continuously and accurately using a RF Bluetooth or Wi-Fi beacon technology and all without compromising the shopper ID or his privacy.

[00471][00470] The disclosed unique and innovative system and method which can also provide a way of surveying the behavior and preferences of the "user" shopper simply by observing the signals (Bluetooth beacon ID) associate with their mobile phones and at the same time provide the shopper with a unique special application for indoor navigation and local based service for the benefit of the shopper and the business owner.

[00472][00471] The data collected using the technology can be used to provide trend reports showing which shops are most visited and at what times, whether there are sufficient public facilities to serve the visiting shoppers or whether more security staff are needed to name only a few of the potential benefits. Ultimately, the data made available by the disclosed invention helps shopping centers to become more in-tune with their customers so that they can create better, more pleasant places to visit by providing a loyalty and reward program.

[00473][00472] Analytics provided by the disclosed applications can turn shopping center/department store/store into finely tuned sites, enabling mall/store owners to direct the flow of traffic efficiently around.

[00474][00473] In contrast to alternative techniques, there is no device that tracks the user's cellular phone. In the disclosed method the user is willing to give information for incentives.

[00475][00474] Using the profile and records, the surfing habits of the user (IP) is the way that all the search engine companies make money on the Internet. At the same time they try to direct the content to the user according to their profile/habits. But what about real life? People

Google Ex. 1028, p. 346

spend more and more time indoors (according to recent research, people spend more than 90% of their time indoors).

[00476][00475] As part of the blue umbrella suite of location based services (LBS) application, the user's cellular phone will scan the area for the tags/beacons. For example-by being proximity close to the directory stand in a mall a decoding of the user key will be processed in order to allow the user ID and/or preference profile and provide the user with ads, specials, and incentives according to their profile "Your customer is telling you what they want, are you listening?"

[00477][00476] The main idea behind this is to provide the user with pin-point content according to their desired preference at the location and also direct/navigate them to the desired location where they can find the store/sales/special/coupons or the information that they are looking for. At the same time there is also a benefit to the mall/store owner by getting the next generation's sales tools, getting costumers' habits and their sales profile, and able to serve better and accordingly the costumers.

[00478][00477] The sales sense, user preference module is an add- on to the sales sense marketing where it joins the user behaviors module to create a very unique LBS business and marketing model the analysis of these spatiotemporal data can supply high level human behavior information valuable to urban planners, local businesses, and the Local Based Services (LBS) marketing.

[00479][00478] Mall/department store/store indoor applications are part of nav4mall/store

[00480][00479] The indoor applications and navigation takes a further step to give the user/shopper next generation shopping tools by providing them with the following indoor applications that are part of nav4mall/store.

[00481][00480] Map and indoor Navigation-brings the local mall/ store map to the digital age, allowing the user to navigate from waypoints to waypoints on the map Directory- It brings the store/mall directory to the cellular phone. Search and Find-store/place/item products that are on the directory represent waypoints/tags/beacons on the loading maps.

Google Ex. 1028, p. 347

[00482][00481] Sales/specials-discounts, sales, and coupons, that can be added-on or a replacement for the mall/store flyer that provides the shoppers at points in the mall/store, it can even direct the user/ shopper to the aisle with the products and to coupons and directs the shoppers to what they looking for.

[00483][00482] Parking and return2parking- although not directly the same beacons (for the parking the infrastructure employs long range beacons where in a store/mall the beacons can be a shorter range). The disclosed service allows the user to find parking spaces and location of parked cars.

[00484][00483] Info-the information part can provide information about events, restrooms, ATM locations, seating area, kids playground, fountain, public phones etc....

[00485][00484] Emergency-A very important part of the disclosed innovation is the ability to provide the user with a unique alarm and notification to the user without depending on other communication links like cellular phones that are prone to failure in emergencies. The present invention provides the user with the building/mall/store/place emergency procedure and in emergency will help navigate the user to safety.

[00486][00485] Panic-part of nav4emergency allows the user to request being located in an emergency.

[00487][00486] Privacy: The system does not collect personal information such as name or phone number. It does, however, record the phone's Bluetooth identification number to build a profile of the user or the use of the phone in the area. It is like surfing the web where a "user's" IP address is recorded for future marketing statistics and surfing habits (with permission from the user). Also as part of the encoding key into the Bluetooth device (user profile) as described in the sale sense part the privacy and security increases to the level where viewing the key broadcast by the Bluetooth device can't reveal any user identity unless the user requests to be registered to get incentive, specials, sales, etc., even then his name or other personal information is secure and only the Bluetooth device key/ ID are recorded.

Google Ex. 1028, p. 348

[00488][00487] By directly targeting the consumer standing right outside or inside a business, an event, or walking toward a kiosk or restaurant, merchants can maximize their marketing budget while incorporating a new, inexpensive and effective form of advertising.

[00489][00488] The "user" is in complete control. They can disable their Bluetooth application any time or just reject content, there is no "spam" effect and the "user" is attracted by incentives rather than generic promotions. In a mall-like environment a "user's" incentive to use the disclosed technology can be further enhanced with the use of the associated key advantages and packages.

[00490][00489] Isn't this all a bit like "big brother"? Not at all, and it isn't even "little brother"! The system simply logs the movement of a cellular phone around an area and aggregates this to provide trend data for businesses. It's much less intrusive or invasive than existing methods that are already in widespread use-for instance CCTV cameras and number plate monitoring as they do collect personal information such as your image or car number plate. The disclosed technology represents the next generation shopping experience in shopping centers, malls or stores and fits very well with today's business model. Such a service can be offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include the full "suite" of applications especially designed for shopping malls/stores and including the emergency part of it will also ease the fear of "locating" or any other privacy issue.

[00491][00490] Who benefits from the disclosed technology? Everyone benefits from the trend data collected. The process enables a way to collect instant feedback from shoppers without having to bother them for information. In the old days centers would have used researchers to survey consumers but this information takes time to collate and response rates are very low these days as shoppers have increasingly become reluctant to stop and share their feedback. Hence the disclosed innovation provides a very effective method in the same way that TV networks know how many people watched particular programs and use that information to discern what programs to make and how to calculate the costs advertisers must pay to promote their products during different timeslots, the system provides the equivalent for shopping center owners and their resident retailers. It is believed that introducing the proposed system and

Google Ex. 1028, p. 349

marketing tools above can help users and merchants upgrade the real shopping experience of today with the advantage of the web like tools.

[00492][00491] The disclosed innovation represents the next generation shopping experience in shopping centers and malls and fits very well within today's business model. Such a service can be offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include, the emergency part of it will also ease the fear of "locating" or any privacy issue.

[00493][00492] For the first time the shopper will experience Internet type marketing in the traditional sales and advertising venue.

[00494][00493] Here are the benefits consumers could see from shopping center using the disclosed technology:

Better in-mall events-- the system can monitor how successful they were by monitoring the sheer volumes of people attending and for how long.

Provide shoppers with next generation sales tools: navigation in your mall store facility directly to the sales or specials that you want them to go to ....

Add-on to the store/mall directory and the in-store mall flyer.

Take the guessing from the customer's next want ...and then send them directly to the products, coupons, or specials they might want.

Improved public transport links-by monitoring how people traveled to a center. With the government's current emphasis on helping people to use public transport more effectively, having this kind of information can have a very positive, local environmental impact. Busy shopping centers can otherwise create large volumes of extra road traffic, also with the search4parking and return2parking application improves traffic, saving time and gas.

Google Ex. 1028, p. 350

Eliminates congestion within the shopping center-- the disclosed innovation can help center management understand whether opening hours need to be extended or whether the center layout needs to be improved to avoid congestion.

Improves shopping center and public facilities efficiently- the disclosed innovation's data helps managers to understand which parts of their facility are very busy which means they know when to deploy extra employee/cleaners/security to ensure proper service.

Better security--over-crowding also leaves shoppers vulnerable to pickpockets and other security risks. The disclosed system can identify congested areas and ensure security personnel are deployed appropriately. And in an emergency the disclosed system can provide instant alarm and notification even if the cellular communication or other system is not available.

Improved mix of stores and center layout-the system helps identify which stores are popular and which are not- making sure that the best possible layout and mix of shops is provided for visiting shoppers. If some shops are unpopular they can be switched for brands that customers actually want.

[00495][00494] It is believed that shopping should be an enjoyable pastime. Who wants to go to shopping center that are congested, poorly laid out, have dirty toilets, are badly positioned for transport links and which pose a security threat to visitors? Altogether this makes for a much better shopping experience.

[00496][00495] How do shopping center owners and retailers benefit? The benefits for shopping center owners of using the disclosed technology are huge and there are many possible uses for the information gathered. The disclosed applications can help shopping center owners get a better understanding of how people use their center such as the order of stores they visit and the time they spend in different areas of the center.

[00497][00496] These days, visits to shopping malls are falling with increased competition from supermarkets, retail parks, and the Internet. With visit frequency going down it is critical that the shopper experience at the mall is exceptional and that is where the disclosed applications come in. The information can assists malls at all levels, from the very mundane to the more

Google Ex. 1028, p. 351

strategic questions that they face-such as whether or not they have the right mix of retailers across the mall.

[00498][00497] Similarly it could help museums identify their most popular exhibits and help exhibition companies plan their venues more carefully around visitor traffic flows.

[00499][00498] The disclosed technology is able to provide a solution with quantitative feedback on whether the changes they make in the mall are successful. One of the ways to do this is by looking simply at how long shoppers tend to stay within a mall.

[00500][00499] Don't retailers already measure shopper numbers? Yes they have infrared cameras and counting machines, which monitor and count the numbers of visitors to their stores. This measure is known as "footfall" and has been used by retailers for many years. The disclosed system provides another level of data by looking at the aggregate paths that mobile phone carrying visitors take and the length of time they spend-known as "dwell time".

[00501][00500] In the past malls have focused solely on looking at the numbers of shoppers that they are drawing through the doors (footfall) but when combined with dwell time they can get a much more accurate predictor of their performance.

[00502][00501] The system has no idea who the user is an individual. The system only looks at the path the user's phone takes. Essentially, it's like looking at a dot moving around a screen. In isolation this information isn't too interesting until you look at the wider patterns and trends and see lots of dots taking the same route or visiting the same areas of the mall.

[00503][00502] What is the Bluetooth ID number? A Bluetooth ID is like the IP number in a computer network or the Internet which does not contain or reveal your phone number that the network operator uses to identify your phone. The system utilized the ID information as a key to find and detect the user.

[00504][00503] The linkage between this identifier and your personal information is very critical to the business owner as it can provides a user habit preference profile and provides a new breed of tools to the business owner just by getting to know where the user is, and at the same time to provide the user with the best "VIP" like personalize shopping services.

Google Ex. 1028, p. 352

[0050][0050] The disclosed applications do not detect any personal information and have absolutely no idea who you are as an individual. Although the applications include an option for users to register as mall/store customers to provide more details about you (still no real ID), like a membership cards that will be provide the user with incentives, coupons, or special discounts if they participate. Moreover recent emergency events prove the need for emergency and notification to the "right people" at the "right time", by keeping the key/ID of the Bluetooth devices that are in the area/facility the disclosed nav4emergency can provide instant alarming and notification and navigation to the exit route and to safety all without revealing user ID or breaching privacy of the users.

[0050][0050] The business model-Next Generation Marketing: The web advertising and the main focus of search engine success is based on technology that tracks the web user's habits and provides him with related ads according to his interests.

[0050][0050] Using the disclosed infrastructure of a Bluetooth beacons, wherein the beacons are deployed about in a mall, store or shopping center environment. The disclosed invention represents a very unique ability to bring a web like shopping experience by its ability to keep up on the "user's" "surfing" or shopping habits in the shopping center, mall, or store. It will provide a better shopping experience (coupons, specials sales, according to the user's shopping habits) and service to the shopper.

[0050][0050] Even though it may look like a privacy issue, the add-on services, the application, and the idea that it may save the user's life (nav4emergency application) combined with the fact that it does not reveal the person's name or telephone number, it is the same as the everyday use of surfing the Internet when the user's IP is recorded by the web sites and provides the basis for the "ad sense" or the web marketing tools, referred to as a "sale-sense".

[0050][0050] It is believed that introducing the disclosed system and the associated marketing tools above can help the users and the sellers to upgrade the real shopping experience of today with the advantage of the web like tools.

[0051][0050] The disclosed innovation represents the next generation shopping experience in shopping centers, malls and fits very well with today's business model. Such a

Google Ex. 1028, p. 353

service can be offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include the emergency part of it will also ease the fear of "locating" or any privacy issue.

[00511][00510] For the first time the shopper will experience Internet type marketing in the traditional sales and advertising venue.

[00512][00511] The disclosed innovation provides valuable solutions that enhance the effectiveness of ad campaigns. The ability to optimize performance in real time has a positive effect on advertiser satisfaction. The fact that this service is well integrated into the disclosed system is a tremendous advantage.

[00513][00512] The disclosed innovation is a performance-enhancing technology, providing great data and allowing improved customer service.

[00514][00513] It can be an extremely effective way to optimize the performance of offline/online advertising campaigns in the mall/store environment. For excellence in client services the idea is a clear win-win for everyone.

[00515][00514] Helping to understand where users are going in the mall/store in real life and their buying behavior patterns will allow the merchants to continually adjust offers, placements and creative content to improve buy-through and maximize sales.

[00516][00515] The disclosed technology will evolve mobile content into a bonfire revenue center that will benefit the shopping mall operator and merchants alike.

[00517][00516] The "user" is in complete control. He can disable his Bluetooth application- any time or just reject content, there is no "spam" effect and the "user" is attracted by incentives rather than generic promotions. Probably the best technical analogy would be to compare the disclosed technology with existing web-based systems that measure viewers of web sites, for example Google Analytics.

[00518][00517] For example, the Bluetooth beacon can broadcast an RF signal that includes its position coordinates (e.g., latitude, longitude), which can be detected by a mobile device. The position coordinates can provide a third location accuracy for the current location of

Google Ex. 1028, p. 354

the mobile device by virtue of the mobile device adopting the position coordinates of the beacon as its own position coordinates.

[00518] The known locations of a number of beacons in a geographic region (hereafter a "beacon infrastructure") can define a geofence that encompasses the geographic region. In some implementations, the beacon can also advertise location based services provided by the beacon infrastructure. Upon determining that the mobile device crossed the geofence defined by the beacon infrastructure. The application can monitor for beacon signals and continuously update its location to be the location of the beacon currently in proximity with the mobile device.

[00519] When the mobile device loses contact with the beacon for a defined period of time (e.g., 5,10 minutes) or when the mobile device exits the geofence defined by the beacon infrastructure, the application can transfer the monitoring back to the application subsystem, so that the location of the mobile device can be determined using Wi-Fi and or Cellular ID.

[00520] In some implementations, the application can distinguish between beacons in the beacon infrastructure and mobile beacons that may be detected in a scan, such as other Bluetooth enabled mobile phones operating within the beacon infrastructure.

[00521] For example, each beacon in the beacon infrastructure can provide data in its broadcast signal that indicates that the beacon is part of a beacon infrastructure. Alternatively, or in addition, when a mobile device makes first contact with a beacon in the beacon infrastructure, that beacon can transmit to the mobile device a list of unique identifiers (e.g. beacons ID) of other beacons in the beacon close infrastructure and other information about the beacon infrastructure, such as a name, geofence data, one or more URLs to websites associated with the beacon infrastructure. Beacon infrastructure can be located in any geographic region, including businesses (e.g., shopping malls, retail stores, restaurants), landmarks (e.g., museums, airports, parks, entertainment venues) and any other environments where location based services are desired.

[00522] The system use and costs should scale well with its ability for multi-use in an emergency and in a non-emergency to provide local navigation on malls/store campuses,

Google Ex. 1028, p. 355

buildings, hospitals, hotels, malls etc.... using the Bluetooth beacon for navigation. Some of the key applications are:

[00524][00523] NAV4Mall NAV4Store NAV4Sale or just University or Building Navigator, explore the indoor mall or inside a department store, navigate to the right place or the store or the department that you need. Navigate on the mall map/store mapping to find your way around all using your cellular phone or navigation system without a GPS. A new kind of service and new marketing way for the malls/store business owners, an add-on to local advertising.

[00525][00524] With an indoor navigation based on the local map/ mall that will provide the user a navigation to his desired location in the mall/store and receives content according to his preferences or habits the user can be directed to a store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. The store will have also an option to deliver more content (advertising, sale, coupons, promo etc....) to the user when he approaches the store or already is inside via Bluetooth or Internet push to the user cellular Bluetooth enable. And in emergency-the nav4emergency will kick in, the nav4store mall module is the one that is described in more details in the patent application.

[00526][00525] NAV4Museum NAV4Conference NAV4Show, explore museums or conference show exhibits in a new unique and easy way, find your way around when navigating on the floor map of the museum conference or the show, indoor navigation, navigate to exhibits restaurants, cafes, lavatories etc.... all to the "user" navigation or cellular phone. Any Museum Conference or show provided to the attended a mapping to the exhibits, some provide also additional audio device (headset) to get more information on the exhibits. The disclosed innovation will provide a unique indoor tools that will allow the attended to navigate the museum, conference or show in an easy way directly to his Bluetooth enabled cellular phone, when he reaches his desired exhibit he will be allowed to download directly to his cellular and or Bluetooth headset information about the exhibits. An indoor navigation to the exhibits as well to the restaurants, cafes, lavatories etc.... All to the "user" navigation or cellular phone and based on the facility map. And in emergency-the nav4emergency will kick in.

[00527][00526] For all the users of mass transportation system the disclosed innovation will allow, locate, and point the "user" to the exact station or location on a route, an easy way to

Google Ex. 1028, p. 356

navigate in the train, subway, underground kind of system, a new way of "subway" or bus mapping in/out door and directly to the user's navigation or his cellular phone. Every day millions of people are using the mass transportation system, trains, sub- ways, buses, each of the passengers depend on the transportation map for the route information as well as schedules and additional services provided by the transportation system. Most of the passengers of today carry with them a cellular phone.

[00528][00527] Such method can be used by the management of the transportation system, train, buses, taxi and road management where the RF beacons can be installed in any transportation facility or entity to provides traffic and even on-demand transportation request as well as on-line real time traffic and transportation "head count" of the mobile device exiting in the local area according to associate with a proximity beacons installed in the transportation entity of transportation infrastructure ether parking, traffic, sign, schedules and time to station and traffic – how many people at the station or bus stop or at area to create a need to taxi or public services as on-demand service.

[00529][00528] Aside from such data gathering and the important of such statistically information to manage the flow of transportation in a local area where the beacon serve as "sensor" to detect the traffic in specific area to be monitored by collecting how many device are in that location and in event of emergency can provide emergency notification and alarming the local devices.

[00530][00529] The method explained can be used to manage the transportation and provides automatic awareness into transportation managements and operators as well as the user on the road where he can automatically get information about traffic in his area generated from associates, his cellular id and/or the car Vin broadcasting method (a method where the car himself become an a long range RF beacon) and an RF beacon installed on the road – automatic traffic information that tracks the existence of the user in the area and proximity to a beacons installed in the road/transportation facility (even the traffic at intersection). infrastructure of wireless beacons to the benefit of transportation industry managements by providing automatic crowd sourcing data from the users along the road By delivering the beacons id they proximity to and have it statistically view as data guttering for events like traffic on the road automatically,

Google Ex. 1028, p. 357

adding such technology and infrastructure into the roads may take time so the use of the driver and passenger or the pedestrian cellular phone as a beacon and as automatic traffic notification can provide instant infrastructure- dynamic immediate deployment for the benefit of the transportation as well as the drivers in view of the driver and or the passenger and even the car can be set as a beacon and part of the automatic transportation system to alert for traffic and road safety and even for a car to car automatic notification of traffic and road information.

[00534][00530] The disclosed innovation provides the passenger with the navigation inside the transportation system directly to the passenger's Bluetooth enabled phone; the passenger will know the exact location/station on the route as well as additional information on options like schedules. A new add-on service to the transportation providers as well to the passengers utilizes the disclosed indoor navigation method, and in an emergency-the nav4emergency will kick in.

[00535][00531] The disclosed idea of implementing RF beacons alone the roads and in transportation facilities is designed to reduce the growing congestion on the roads and by providing a tools to provides intelligent transportation system, the implements of beacons can be part of a car, installed in red lights or in the road or in transportation facility, such system that installed in bus or subway or transportation entity n provides real time on line report if they empty or filled with travelers but just provide the automatic response from the user/car device associate with the RF beacons that will be installed in the bus/train the information will allow transportation control that can be done today only with installed high cost camera or sensors or depend on manually collect information from the users or GPS, and the GPS is not available indoor or provides an accurate information, in a simple way the user mobile phone automatically inform his "proximity" beacon ID, more of the same beacon ID reported meaning traffic or head count of cars/travelers etc.. in the transportation facility/entity area, in a way the method provides an "automatic waze" system, such system can even replace exiting sensors and provides the user as well of the transportation management with ability to know exactly where the bus/train/subway at a time, the data can be serve for schedule or on-demand public transportation, like sending bus/taxi to an area according to demand in the area. Such method can provide the user as add-on traffic and transportation information where he – the user play big part of it and it is not depend on manual transfer of information that some time proven to be not

Google Ex. 1028, p. 358

accurate enough. One application creates an echo system where the drivers of cars and the transportation entity are all integrated for an intelligent transportation system of tomorrow and all based on the same concept of infrastructure on RF beacons statics or dynamic in location where the user mobile phone as well as the car are integrated part of such system. Note that a mobile device as well as any Bluetooth device (desktop, laptop, tablet and cars etc.) can become also a beacon providing a new echo system where an infrastructure can be including static and dynamic deployments of beacons interact with each other's. Again, adding such technology and infrastructure into the roads may take time so the use of the driver and passenger or the pedestrian cellular phone as a beacon and as automatic traffic notification can provide instant infrastructure- dynamic immediate deployment for the benefit of the transportation as well as the drivers.

[00533][00532] NAV4Theme Park -Theme and amusements Park navigation, navigate to your desire attractions as well with a new way for register to a "fast pass" kind off lane all in an easy way to the "user" cellular phone without the need for GPS Provides a new media and-on service. Ever wonder what it will be like to navigate inside the amusements park to the desired attraction, to know the schedules of the shows at the attractions and even to get your "fast pass" from a remote location instead of standing in line. All based on RF beacons that installed in the local attraction points and provides the triggering mechanism for guide navigation and the additional information about the ride/attraction. With the disclosed unique innovation, all can be become reality and directly to your cellular phone without the need for a GPS. It is understood that this technology can provide a new tool and service to the benefit of the amusements parks as well to the user.

[00534][00533] Cellular next "Killer Application": Emerging technology markets are always on the lookout for that elusive "killer app"-the precious, irrefutable application that makes adopters stand up, take notice, and open their wallets. Once it's found, and as soon as adopters realize firsthand the value to be achieved, that killer application eventually expands into other, more advanced areas of adoption and innovation.

[00535][00534] Hotel resort and cruise ship: A good example of use will be Nav4 Hotel Resort Cruise ship. The benefit of the proposed system and infrastructure of installed RF beacons

Google Ex. 1028, p. 359

in such places as cruise ships, hotels, resorts, and hospitality facilities to the business and to the guest.

[00536][00535] The subject invention creates infrastructure of RF beacons in the facility, hotel, resort, and cruise ship areas to be integrated with the existing hospitality system and provide a trigger mechanism when the existence of the traveler/guest is detected.

[00537][00536] The association between the guest mobile phone or the hospitality employee mobile phone and the RF beacons ID will allow the example option below, as such there is two parts for the system to work, the infrastructure of the RF beacons installed in the local hotel, resort or cruise ship and the guest or employee mobile phone with the Bluetooth and or Wi-Fi and the application, note that the system can be work even without Internet and/or cellular communication and can utilize existing Wi-Fi system and local servers.

[00538][00537] Example of some of the benefits and functionality to the hospitality system are:

Automatic check-in and interface to the front office system and billing folio

Link to key system or even replace the room key.

Recognize guest in-room, turn on Air condition and light – and turn off when the guest leaves the room to save electricity can be setup to automatic or manual.

Hotel resort cruise ship navigation.

Allow local messaging without Internet and or cellular communication based on local chat (especially fit to the cruise ships).

Allow push messaging to the guest by local services or by remote (when Internet is available).

Replace and ad-on to the guest in –room package of the area guide and deals and coupons.

Google Ex. 1028, p. 360

Option of VIP services where the guest can be recognized automatically around the hotel, resort, and cruise ship for his profile preferences just by being in the area – providing personal treatment and services.

Room can be set to be open or close to clean according to guest or housekeeping existence.

Housekeeping management room status attended worksheet and productivity report.

Increase security to the guest and to the hotel resort.

Allow the creation of profile preference of the guest companies group.

Provide check-in to a restaurant interface to a POS system bar system and menu selections.

Provide automatic ticketing and seat selection.

Guest loyalty, membership program incentive.

Increase security and provide add on to the security plan of the hotel, resort, and cruise ship to be part of the emergency evacuation and emergency procedure.

[00539][00538] It is believed that the disclosed invention will meet the desire of hospitality service providers to increase their average revenue per user.

[00540][00539] The main object of the present invention is to provide the indoor guide navigation and a special application for indoor use without the need for GPS communication.

[00541][00540] It another object of the present invention to provide a method of providing special indoor application using an RF beacons Bluetooth and/or Wi-Fi and Bluetooth-enabled devices especially the cellular phone.

[00542][00541] It is another object of the present invention to provide a method of special application for local business, mall/departments store or regular store, buildings, downtown

Google Ex. 1028, p. 361

centers and other facility area especially but not limited to indoors with a use of triggering application that uses the proximity ID of the detected beacons in the area.

[00543][00542] It is another object of the present invention to provide a marketing model method especially but not limited for the LBS market.

[00544][00543] It is another object of the present invention to provide a business model method especially but not limited for the LBS market.

[00545][00544] The foregoing and other objects of the present invention are achieved by providing an infrastructure of a Bluetooth beacons/tags installed in a known location in the area/facility, each tag/beacon has his own unique ID to ID the location in the area, the tags/beacons broadcast the ID to be pickup by the cellular Bluetooth mobile device.

[00546][00545] An indoor mapping or mapping images of the area/facility will be part of the application and can be download before arriving to the area/ facility or trigger download at the area.

[00547][00546] The application on the cellular phone/Bluetooth enabled device will scan the area/facility for the tags/beacons ID/name when a Bluetooth tag that matches the list responds to proximity detection and establishes a signal strength that may be calculated and when more than one beacon signal receives a simple triangulation can be done to find the current location. Other Bluetooth device not on the list will be filtered out.

[00548][00547] The locating is established and will be displayed on the map. And because the location of the other tags/beacons is known navigation between the current location and a desired tag/beacons that represent waypoints are easy to achieve. In reality no communication is established at all between the tags/beacons and the cellular phone.

[00549][00548] The disclosed innovation reverses the current idea of "locating" the user by letting the user navigate utilizing to the beacons of Bluetooth beacons (whose signal is sent by way points) directly to the user's mobile device. This will allow LBS (Local Base System) navigation, even indoors without GPS or Cellular network as well as triggering application and even link to existing system and software.

Google Ex. 1028, p. 362

[00550][00549] The RF beacons can reach from long distance depending on the application and the antenna used by the RF beacon (to get more accuracy less range and more beacons may needed so the 10 m is more than needed in building/room environment) getting more range to the "box" is as simple as attaching a bigger antenna or power buster to increase the signal.

[00554][00550] The user is in a complete control, they have the choice to turn it on or off at any time.

[00552][00551] User can choose to be registered: membership privilege, student in a university, school, and business especially for receiving direct incentive specials coupons etc.... and for a full nav4emergency protection.

[00553][00552] The disclosed applications let the user choose between participating and receiving incentives, specials, sales, coupons and local content tailor to the user preference, all for free, or they can choose not to participate and pay a small fee for the service and the software. In any case the user's privacy is still protected to the highest level compared to any normal daily use of the Internet ...!

[00554][00553] There is also a great benefit to the user participating-they can have full emergency notification directly to their phone and in an emergency they can be directed by the emergency procedure in the area/building/mall/store and navigate to the exit route, even if the cellular network fails due to the high volume of traffic occurring in an emergency situation.

[00555][00554] In the disclosed method, there is no detector or tracking for the user, the user themselves engage the scanning and detecting method to find the beacons in the area the user device with the proximity scan beacon providing the triggering mechanism.

[00556][00555] Other than that, the proposed solutions create a full suite of applications for the benefit of the user, from parking to sales specials to indoor navigation, to be informed and notified in case of an emergency and directed to the exit route to safety.

[00557][00556] The disclosed method can be attractive not only for shopping malls, department stores, or downtown strips but also to high-rise buildings, commercial buildings,

Google Ex. 1028, p. 363

universities, schools, museums, amusements parks, trains, subways, and hotels. It can also be attractive to search engines, advertising companies, cellular phone operators, manufactures, GPS companies, mapping, local businesses, local advertising, location based services (LBS), and the like. The disclosed method can give the LBS a new meaning-the business model that's made easy.

[00558][00557] A facet of behavioral targeting has been around for a while but mostly on-line but it's been gaining traction among ad agencies retargeting program is now a key planning consideration for its advertisers.

[00559][00558] Why? The primary reason is because retargeting is a powerful means to bring lift to ad campaign results, generating higher conversion rates and lowering acquisition costs. You can't get much more effective than targeting a person who has shown interest in a product but didn't buy with a related ad that then gets him to buy, right? It generally fails to tap the unique opportunities of local advertising market estimates to be over $150 Billion in US alone . . ., Although people are spending more than 90% of their time indoor, there is no clear technology to provide indoor navigation and not clear business model, the advertisers, the business are disillusioned with the promise of location base services (LBS) but are still longing for a solution that properly addresses the significant audience represented by the explosion of cellular phones use and the availability of content.

[00560][00559] It is understood that the disclosed innovation technology and business model can provide the next generation method for the LBS market to tap into the huge market opportunities.

[00561][00560] The disclosed methods represent a very unique way of locating the exact location, in the method the user scans the area for a known list of beacons/tags, the user controls the scanning of the area for the known tags ID type, in reality there is no communication to be established at all between the user and the beacons (no pairing needed!), the user device scans the area for a known tags and the determination of the location done by beacon ID and signal strength to the proximity to the tag/beacon provides accuracy less than 5m.

Google Ex. 1028, p. 364

[00562][0056] Added to the navigation feature is the special indoor application design especially for indoor/store/mall shoppers from finding where the user parked his car to find/search of directory to an emergency alarming and notification.

[00563][0056] Moreover this innovation is not depended on cell communication or Internet for the detection method as there is no need for central system nor expensive infrastructure, in fact the user device-cellular phone as well with the infrastructure tags/beacons have battery built in and can work even if the electricity is out, very important in emergency situations.

[00564][0056] Moreover the sale sense marketing method comprising a unique way of delivering local content, advertising, coupons, special sales etc. pin point according to user ID and or profile preference that can be a record of behavioral activity and will provide simple and secure method for targeting user for LBS services and other services replacing like near field communication for marketing and even payments transactions.

[00565][0056] The disclosed innovation provides a full line of indoor navigation application especially to places/area

[00566][0056] An indoor navigation system may include a navigation computer, an arrival detection system. The navigation computer may be configured to receive a destination to which a user of the mobile navigation system wishes to travel and to provide guidance to the user about how to navigate to the destination. The arrival detection system may be configured to automatically detect when the mobile navigation system has arrived at the destination by being in a proximity to an RF beacon ID in the local area. The detection system is based on sense or scan of the existence of RF beacons installed in the local and be configured to wirelessly transmit automatically an arrival notice indicating when the user detects the existence of a proximity of a RF beacon and detects that the user has arrived at the destination in response to detection by the detection system of the arrival of the mobile navigation system at the destination.

[00567][0056] The mobile navigation system may be part of a cellular telephone or any navigation device using a Bluetooth, part of the detection is a notification system is configured to wirelessly transmit the RF beacon ID of the proximity beacon and to associate the mobile ID of

Google Ex. 1028, p. 365

the user to determine the exact location of the user to provide for example: arrival notice to a representative of an airline. The arrival notice may be configured to cause the user to be checked into a flight of the airline.

[00568][00567] The system may be configured to wirelessly transmit the arrival notice to a representative of a hotel. The arrival notice may be configured to cause the user to be checked into the hotel.

[00569][00568] The system may be configured to wirelessly transmit the arrival notice to a representative of a food service.

~~[00570] The arrival notice may be configured to trigger payment for merchandise or a service.~~

[00571][00569] The arrival notice may be configured to trigger the delivery of merchandise or a service to a vehicle in which the user is traveling. The arrival notice may include information about the location of the vehicle.

[00572][00570] The arrival notice may be configured to trigger promotional items to be delivered to the user relating to an establishment at or near the destination.

[00573][00571] The system may be configured to wirelessly transmit the arrival notice to a representative of a conference that has been scheduled to take place at the destination.

[00574][00572] The system may be configured to wirelessly transmit the arrival notice to multiple recipients. The multiple recipients may include attendees of a conference that has been scheduled to take place at the destination.

[00575][00573] The system may be configured to wirelessly transmit the arrival notice to a social networking site in a fashion that causes notice of the arrival of the user to be published by the social networking site.

[00576][00574] The system may be configured to ask the user for permission to transmit the arrival notice.

Google Ex. 1028, p. 366

[00577][00575] The system may be configured to automatically transmit the arrival notice upon detection by the arrival detection system of the arrival of the mobile navigation system at the destination.

[00578][00576] At the time the navigation computer receives the destination to which the user wishes to travel, the system may be configured to ask the user whether the user wants the arrival notice to be transmitted in response to detection by the arrival detection system of the arrival of the mobile navigation system at the destination.

[00579][00577] The system may include a global user setting which a user may set to automatically transmit or not transmit arrival notices in response to detection by the arrival detection system of the arrival of the mobile navigation system at destinations.

[00580][00578] The system may be configured to ask the user to where it should transmit the arrival notice, to receive information indicative of this requested location from the user, and to transmit the arrival notice to this location.

[00584][00579] The system can create and utilize a network, which is referred to as dynamic deployment. The system will use the built-in Bluetooth protocol stack module that is able to simultaneously interconnect with other local devices, such as portable cellular phones in a "piconet", over the local area. The simultaneous connectivity limit of eight (8) devices at a time is overturned by the ability of creating a plurality of piconets which operate in a close proximity. It is understood that the Bluetooth enabled devices, such as portable cell phones, can rapidly move from one piconet to another. In fact, the Bluetooth devices need only remain a member of a piconet for the period of time required to complete one communication transaction. So the Bluetooth enabled devices can join and leave a local piconet frequently, effectively overcoming the eight (8) device limit. It is noted, even without the option to use a long range Bluetooth antenna, the configuration can effectively reach an unlimited distance.

[00582][00580] The proposed invention provides an ability to form a wireless as hoc Bluetooth network or networks based on a collection of Bluetooth mobile devices that dynamically form a temporary network as long as these device are within a sufficient range (inside a room or a building, road store or a mall). The flexibility of the ad hoc network is what

Google Ex. 1028, p. 367

makes it a suitable choice for emergency deployment scenarios, where multiple devices would be deploy in a proximity area that is designated as an emergency to provide a new way of distributing emergency and alert information directly to those in the needed area.

[00583][00581] Moreover, based upon normal human behavior, there is no need to inform everyone in a full room, or requiring all of the proximity devices participating in the network to be informed (for example in emergency). If only a few people within the occupied room are informed or receive the emergency information on their portable cell phone, they will convey the information to others located in the area..

[00584][00582] The same method and idea is mimicked by the concept of dynamic deployment. The concept can be paralleled as a new way to deliver critical emergency alarming and notification without infrastructure in the localized area.

[00585][00583] Moreover, the limitation of Bluetooth coverage can be overcome by utilizing the capabilities of the Bluetooth protocol in the methods described above. For example, in a very large conference location, the localized Bluetooth network (piconet) can join each other and form a larger network that covers the entire facility, which is much larger than the limited coverage of a single Bluetooth device. Portable cell phones located at one end of the facility can communicate with a second Bluetooth enabled device located at the opposite end, where the communication traffic is relayed by one or more intermediary, bridge devices. Any Bluetooth device, in our example Bluetooth enabled cellular phones, can become the bridge. The cellular phone owner does not need to know whether his/her device is a bridge, as the process is established and functions automatically as part of the Bluetooth protocol stack routine; in effect not changing any internal behavior of the Bluetooth.

[00586][00584] And again, there is no need to reach all the people with an emergency or other message, as if the message were conveyed to only a few in a room, at least a portion of those would inform the remaining people of the emergency message.

[00587][00585] Moreover, the present innovation will allow the user to use a "local instant emergency messaging system". The dynamic deployment configuration provides the ability for people to communicate with one another in the same local proximity using Bluetooth, where the

Google Ex. 1028, p. 368

people can chat and exchange important messaging for free exclusive of a need for a cellular network. Just think what it can be done in emergency or even in army deployment as other communication method.

[00586] From the old days in history, humans used messengers to deliver news and information. The disclosed invention uses applies these older concepts to a device that will make it easy to distribute and broadcast the information around, using the messengers as the mobile (emergency) notification, as referred to as dynamic deployment.

[00587] These, as well as other components, steps, features, objects, benefits, and advantages, will now become clear from a review of the following detailed description of illustrative embodiments, the accompanying drawings, and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[00588] The preferred embodiments of the invention will hereinafter be described in conjunction with the appended drawings provided to illustrate and not to limit the invention, in which:

[00589] FIG. 1 presents a schematic diagram representative of an infrastructure deploying a series of radio frequency(RF) wireless beacons;

[00590] FIG. 2 presents a schematic diagram representative of an indoor mapping system utilizing RF wireless beacons, wherein the diagram depicts an exemplary application within a shopping mall environment;

[00591] FIG. 3 presents a schematic diagram illustrating basic exemplary functions of an indoor mapping application as used on a mobile or cellular phone;

[00592] FIG. 4 presents an exemplary flow diagram representative of an indoor detection and navigation process;

Google Ex. 1028, p. 369

[00593][00593] FIG. 5 presents an exemplary series a gradient concentric circles indicative of a location;

[00594][00594] FIG. 6 presents an exemplary flow diagram representative of a business based application utilizing a series of deployed RF beacons;

[00595][00595] FIG. 7 presents an exemplary flow diagram representative of a marketing based application utilizing a series of deployed RF beacons, wherein the marketing based application utilizes a profile, preferences, and other information for sales and marketing purposes;

[00596][00596] FIG. 8 presents an exemplary schematic diagram representative of a series of functions or applications associated with a series of deployed RF beacons, wherein the series of functions or applications are generally directed for use with an RF beacon infrastructure deployed within an indoor environment.

[00597][00597] FIG. 9 presents an exemplary schematic diagram illustrating an infrastructure employing RF beacons deployed in the indoor environment;

[00598][00598] FIG. 10 presents an exemplary schematic diagram representative of a series of functions or applications associated with transportation and/or telematics applications, wherein the series of functions or applications are generally directed for use with a static and/or dynamic RF beacon infrastructure;

[00599][00599] FIG. 11 presents an exemplary schematic diagram representative of a series of functions or applications associated with hospitality based applications, wherein the series of functions or applications are generally directed for use with hospitality related businesses and environments;

[00600][00600] FIG. 12 presents an exemplary flow diagram representative of a next generation marketing tools employing RF beacon technology; and

[00601][00601] FIG. 13 presents a schematic diagram illustrating an exemplary dynamic deployment of an RF based network for use in a variety of applications, including mobile to mobile communications, car to car communications, and emergency or local communications.

Google Ex. 1028, p. 370

[00604][00602] Like reference numerals refer to like parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[00605][00603] In all the figures of the drawings, sub-features and integral parts that correspond to one another bear the same reference symbol.

[00606][00604] Referring now to the drawings in detail and first particularly to FIGS. 1-13 thereof.

[00607][00605] FIG. 1 presents an exemplary flowchart illustrating a use of RF beacons (102). The RF beacons can utilize at least one of Bluetooth and Wi-Fi signal protocols. The exemplary system utilizes a mobile cellular phone (101) to scan and detect a proximity of an installed beacon (102) in the most part for determining an indoor or outdoor location in a proximity to a known location of the installed beacon(102) and for initiating or triggering a notification of an existence to indoor and/or outdoor navigation and delivery of local content according to the determined location. The same method can be used by fix computers or portable computers (103), portable devices (104), pedestrians carrying a portable device (105)(such as a cellular phone), or a vehicle / car (106) that can be equipped with RF Bluetooth or Wi-Fi technology. It is noted that the static beacons (102) can be assisted by including other portable RF Bluetooth or Wi-Fi enabled devices within the network, thus creating a dynamic network. It is understood that a number of applications can be provided utilizing the infrastructure created by the series of deployed beacons. Additionally, the applications can utilize a precise location of the user, wherein the location is determined by information provided by beacons signals emitted from each of the deployed RF beacons (102).

[00608][00606] FIG. 2 presents an exemplary use of the RF Bluetooth and/or Wi-Fi beacon infrastructure deployed in a mall environment. An indoor map (200) of the mall interior is downloaded and saved or installed on the cellular phone (101). The indoor map (200) includes building structure layout, business locations and descriptions, and known RF beacon (102) locations throughout the associated mall, building, or other facility. The RF beacons (102) can be

Google Ex. 1028, p. 371

deployed inside stores or at as any other Points of Interest (POI) located throughout or around the mall. Information associated with an RF beacon (102) located proximate the cellular phone (101) can be forwarded to the cellular phone (101) by the beacon signal. The associated information (109) can be displayed upon the cellular phone (101) as illustrated. A location of the beacon signal receiving device (such as a cellular phone (101)), can be determined based upon a close proximity to one or more of the RF beacons (102) of the series of deployed beacons, which create the infrastructure. The precise location of the receiving device (101) can be determined based upon an identified beacon ID and a signal strength from the detect beacon (102) or beacons (102). The precise location can then be displayed upon an indoor map (200), as shown in FIG. 9.

[0060] [0061] FIG. 3 presents an exemplary operational process completed by the cellular phone (101). The mobile device (101) activates an application program for indoor mapping of the facility, building, structure, and the like (200) and scans a local area for RF beacons (102) to determine the precise location (302) of the mobile phone (101). The location of the mobile phone (101) is determined done by scanning the infrastructure of RF beacons (102), wherein each beacon is installed in a known location within the structure, wherein the structure can be a mall, a building, any facility, or any other enclosed structure. The RF beacons (102) can be installed inside stores or at any specific Point of Information (POI), around the mall. The location of the cellular phone (101) can be determined by using information from any RF beacon (102) located in a close proximity to the cellular phone (101). The application would recognize the beacon ID embedded within a beacon signal emitted by the proximate beacon (102). The application would calculate the location of the cellular phone (101) by utilizing a signal strength of the emitted and received beacon signal. This process provides a solution for a user to determine their location exclusive of a global positioning system (GPS), access to the Internet, or any other bi-directional communication. The location of the cellular phone (101) is then displayed upon an indoor map (200) on a display on the cellular phone (101). Should the cellular phone (101) be located in a suitable area and comprise the ability to establish bi-directional communication, the cellular phone (101) can transmit a notification signal or message indicating that the cellular phone (101) is in a region proximate the RF beacon (102), such as by transmitting an "I am here" message to a predetermined recipient. This can provide an automatic check-in process, where the user "notifies" others of his local existence to the local area business

Google Ex. 1028, p. 372

to establish his local location. in turn, the system can forward local contents to the cellular phone (101), wherein the local contents would be information associated with the current position of the cellular device (101). The system can be enhanced to utilize a direction of travel of the cellular phone (101) and anticipate approaching beacons. The system would then determine and transmit information associated with RF beacons located along the current projected path of travel of the cellular phone (101).

[0061] [00608] FIG. 4 presents an exemplary flowchart illustrating an indoor detection and navigation procedure. A user of the mobile cellular phone (101) approaches a facility/area where the user can download the facility/area map (200) having a series of RF Bluetooth and/or Wi-Fi beacons (102) installed in known locations throughout the facility/area. The application installed on the cellular phone (101) will scan the area/facility for broadcasted beacon signals. Upon receiving a broadcast beacon signal, the application will determine if the received beacon signal is associated with any beacons included in the list of known beacons (102). If the signal is determined to be associated with any beacons included in the list of known beacons (102), then the application proceeds with a location determination process (303). The location of the user (cellular phone (101)) is determined to be in a proximity of the identified beacon (102) transmitting the received beacon signal. The location is refined by using a signal strength of the beacon signal of the identified beacon (102) enabling determination of a more precise indoor location of the cellular phone (101). The location is then identified and displayed on an associated indoor map (200). In a condition where the cellular phone (101) fails to receive a beacon signal, the cellular phone (101) continues to scan the area (107). An optional feature includes a step of transmitting a notification of existence upon identification of a location; essentially having the cellular phone (101) transmit a message stating "I am here" (304) to the local area as a way of automatically check-in and/or a method of notifying a system that the user is within a local region. For example, the system can notify a local area business that a user is within the vicinity. In another example, the system can convey local contents to the cellular phone (101) based upon receipt of the notification that the user is within the area. The system can provide the user with a navigation heading (305) to waypoints based upon the current location of the cellular phone (101). In yet another example, the system can transmit Points Of Interest (POI) to the cellular phone (101) as illustrated in FIG. 2.

Google Ex. 1028, p. 373

[0061.1][00609] FIG. 4 is a flowchart illustrating of the indoor detection and navigation procedure according to an embodiment of the present invention. Referring to FIG. 4, the user with mobile cellular phone (101) approach a facility/area where he can download the facility/ area map (200) with RF wireless Bluetooth and or Wi-Fi beacons (102) installed in the facility area in a known place. The user mobile cellular phone (101) application will scan the area/facility for the known list of the beacons (102), if beacons was found then a location determination process (303) where is location of the user is determine as proximity to the find and match beacon ID, being in a close proximity to a beacon and recognize the beacon ID as well as calculating the Signal strength from the detect beacons (102) allow determination of the precise location indoor and ability to show the location over the indoor mapping (200), scanning is continue if no beacons (407) was found, when found the location is display on the loaded map over the mobile cellular phone(101) or Bluetooth device (103-106), part of the detection is to notify of existence "I am her" (304) to the local area as a way of automatic check-in method where the user "notify" his local existence to the local area business to establish his local location (303) and receive local contents, according to his location a heading navigation(305) between Points Of Interest (POI) can be establish.

[0061.2][00610] FIG. 5 presents an exemplary RF beacon accuracy radius circle (501) that is utilized in at least two distinct manners: one manner is used for the application, and a second manner is used to identify when the user's cellular phone (101) enters and/or exits the area around and in a proximity to a beacon (102) of the series of beacons (102). The central circle (502) and inner circle (503) illustrate different radii from the respective beacon presenting an accuracy of the location of the cellular phone (101). The radius circle (501) would be placed as an overlay circle over a portion of the local indoor map (200). This displayed configuration would identify an accurate location of the cellular phone (101) respective to the proximity of the beacon signal received from the Bluetooth and or Wi-Fi RF beacon (102) installed in the vicinity of the cellular phone (101).

[0061.3][00611] FIG. 6 presents an exemplary flow diagram of a business application utilizing the series of RF beacons (102) deployed throughout a facility, one or more buildings, a mall, a store, and the like. Each RF beacon (102) can be installed by the facility owner, a business owner (601), an advertising company, and the like. In one application, a business owner

Google Ex. 1028, p. 374

(601) would install an RF beacon(102) in their business. When the user of the cellular phone (101) approaches the RF beacon, the cellular phone (101) detects the beacon signal transmitted by beacon (102) in the proximity thereof. The cellular phone (101) receives the beacon signal and determines the identification of the beacon (102) associated with the received signal. Once the location and/or identity of beacon is known, the application initiates a procedure to obtain local content delivery (604) from the business and/or business owner. In one option, the system can provide business or local content (605) to the cellular phone (101). In a second option, the cellular phone (101) can transmit a signal that will directly or indirectly notify the business owner that the cellular phone (101) is located proximate a specific beacon (102), wherein the specific beacon (102) is associated with the business owner's store, located either proximate to or within the business owners store, and the like. In turn, the business owner can provide local content (605) to the cellular phone (101).

[0061] FIG. 7 presents a flow diagram illustrating an exemplary target marketing feature. The application uses a profile preference provided by the user's cellular phone (101) wherein the mobile device scans the local area and determines the location of the cellular phone (101) using information obtain from a beacon signal broadcasted by an RF beacon (102) and optionally utilizing a beacon identifier (302). The profile preference is associated with the user of the cellular phone (101). The profile preference is provided to the local business in conjunction with a notification that the cellular phone (101) is located in the proximity to the specific RF beacon (702). The process can filter information to determine local based services contents (704), wherein the local based services content (704) is based upon the profile preferences of the Local Based Services (LBS), and the user's behavior (703). The system can determine local based services content (704) such as deals, offers, coupons and specials, and the like, as well as store or business information, and provide the information accordingly to the user through the user's cellular phone (101).

[0062] FIG. 8 presents a series of Local Based Service (LBS) applications that can be utilized in conjunction with infrastructure provided by the series of deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. One application (Parking and Return to Parking (810)) provides a method for searching for available parking spaces and/or a process for assisting a user to return to the parking location of the user's

Google Ex. 1028, p. 375

car. The Parking and Return to Parking (810) application can provide parking information within a parking garage, in a mall parking area, for street parking, and the like, wherein the Parking and Return to Parking (810) provides the user with direct navigation to empty parking spots and/or to provide the user guidance to return to the location where the car was previously parked.

[00616][00614] In another application (Nav realty (802)), information associated with real estate is provided to a user using RF beacons (102) installed at each real estate property. Each RF beacon (102) would provide local information about the associated real estate property and can include navigation information respective to the local area real estate directly to the user's cellular phone (101).

[00617][00615] In yet another application Navmall/store (803), information can be provided to business operators and subsequently, business related information can be provided to the application user.

[00618][00616] In yet another application, Navsale marketing (804), sales, specials, coupons and the like can be transmitted to the cellular phone (101) and/or the system can provide directions / navigation to the user to guide the user to areas displaying items associated with the sales, specials, coupons and the like.

[00619][00617] In yet another application, Navmuseum, Navconference, Navshow 805, the RF beacons (102) would be installed in known locations within a museum, a conference center, and any other related location, whereby the RF beacons (102) directly or indirectly provide information and/or navigation associated with the location to the user of the application.

[00620][00618] In yet another application, Navamusement (819), the RF beacons (102) would be installed in known locations about any amusement park, theme park, or other entertainment venue, whereby the RF beacons (102) directly or indirectly provide information and/or navigation associated with the venue to the user of the application. The application can be enhanced by including an optional feature to assist a user in reducing wait times for access to rides, events, shows, and the like.

[00621][00619] In yet another application, Navemergency (818), the RF beacons (102) provide critical information and/or navigation to the user during an emergency event including

Google Ex. 1028, p. 376

instructions pertaining to an emergency procedure, an emergency evacuation map and directions for evacuating the facility to a safe location.

[00622][00620] In yet another application, Transportation (810), the RF beacons (102) would be deployed in a subway, on a train, on a bus, and/or in any mass transit system. This infrastructure would provide the user with information directly to their cellular phone (101) from the deployed RF beacons (102) installed along the route. This gives the user a complete navigation on a map of the train/subway mass transit directly to the user's cellular phone (101). In an alternative mode of the Transportation Application (810), the RF beacons (102) can be deployed along a side of a road, a cellular phone (101) residing within a vehicle, integrated into a vehicle, and the like. When the cellular phone (101) is mobile, the cellular phone (101) provides wireless vehicle-to-vehicle communication. One optional feature of this application would be an inclusion of automatic traffic notifications, what can be referred to as automatic "waze", whereby the cellular phone (101) can provide automatic traffic and road notifications. In an alternate embodiment, a Bluetooth device can be located within a vehicle (106) (as either a fixed or a portable device), on a driver (105), on a pedestrian, and the like. The cellular phone (101) can be included as an integral element in gathering traffic information.

[00623][00621] In yet another application, Navsign (811), the RF beacons (102) can be installed along a roadway at locations either proximate traffic signs or at locations exclusive of traffic signs, but would be appropriate for conveying traffic related information to a driver. Each RF beacon (102) would be installed at a location enabling passing vehicles to receive beacon signals from the deployed series of RF beacons (102). The related infrastructure would provide a telematics system to the driver's cellular phone (102), a system integrated into a vehicle, and the like.

[00624][00622] In yet another application, Indoor Navigation (808), the RF beacons (102) can be employed to provide an infrastructure enabling the application to determine a precise location of the receiving device. The application would additionally include a capability of providing navigation between various deployed RF beacons (102). This application provides a solution in areas where the global positioning system (GPS) is ineffective, such as indoors. The system also eliminates a need for bidirectional communication.

Google Ex. 1028, p. 377

{00625}[00623] In yet another application, Nav Hotel, Resort, Cruise Ship (816), the RF beacons (102) can be deployed within a hospitality environment to provide an infrastructure enabling the application to determine a precise location of the receiving device within the hospitality environment or venue. Since most of the environments of the hospitality venues are located indoors, this application provides a solution in areas where the global positioning system (GPS) is ineffective.

{00626}[00624] In yet another application, Notification/Automatic Check-In (815), the cellular phone (101) is directed to automatically transmit an arrival message, which notifies a recipient that the cellular phone (101) has received a beacon signal from an RF beacon (102) within the infrastructure of beacons and that the cellular phone (101) is in proximity of the RF beacon (102). The application can additionally consider elements of the user's profile when determining whether to send the arrival message and/or what is included in the arrival message.

{00627}[00625] In yet another application, Payments (814), a payment transaction method can utilize a location determined by the proximity of the cellular phone (101) to an RF beacon (102) of the series of RF beacons (102). The location, the identification of the RF beacon (102) and/or the user profile can be associated with the payment.

{00628}[00626] In yet another application, NAV Dating / Social Networking Link (812), a precise location of the cellular phone (101) is determined using information associated with the beacon signal. The location information is then utilized to assist the user in regards to social networking as well as indoor navigation.

{00629}[00627] In yet another application, Dynamic Deployment / Local Communication (813), the application establishes an ad hoc network between a series of mobile Bluetooth based RF beacons, such as Bluetooth transceivers of cellular phones (101) to provide local messaging between a message transmitting user and a message receiving user, wherein the message is conveyed through at least one intermediary Bluetooth RF beacon.

{00630}[00628] In yet another application, Nav Emergency (818) the RF beacons (102) provide navigation to the cellular phone (101) from the current location of the cellular phone (101) to an exit location using a predetermined optimal emergency exit route. The location and

Google Ex. 1028, p. 378

routing would be based upon the initial location, which is determined by a proximity to an RF beacon (102) of the localized RF beacon infrastructure. The application can additionally provide an emergency procedure and any other necessary notifications to the user through the user's cellular phone (101).

[00631][00629] In yet another application, Scanning For Life (817), the cellular phone (101) converts into a beacon in a condition where two-direction communication networks are unavailable by either lack of installation or an outage. The beacon repetitiously transmits a beacon signal using at least one of cellular transmissions, Bluetooth transmissions, and Wi-Fi Transmissions. Search and rescue parties utilize a portable receiver to scan for and locate the Scanning for Life beacon signal. The beacon signal can optionally include embedded information associated with the cellular phone (101), which can include specific information associated with the user of the cellular phone (101).

[00632][00630] It is noted that the RF beacon infrastructure enables execution of the above-described application exclusive of cellular communications and/or access to the Internet.

[00633][00631] FIG. 9 presents an exemplary indoor infrastructure of RF beacons (102), wherein the RF beacons (102) are installed in known locations throughout a local area. Each RF beacon (102) broadcasts at least one of a Bluetooth signal and a Wi-Fi signal. The RF beacons (102) enable an application to determine a precise location of the cellular phone(101) on a local map (200). Once the application determines the location of the cellular phone (101) respective to a proximate RF beacon (102), the application can utilize a user profile or profile preferences to obtain marketing information. The user profile or profile preferences can be used to filter information provided to the cellular phone (101). The application can provide information to a remote recipient using Application Information (API (901) triggering or initiating content delivery (604). When triggering content delivery (604), a 3rd party application (903) would respond to the transmission directed by the application by conveying or pushing local content or other associated information to the cellular phone (902). The bi-directional communication can be accomplished using cellular communication, an ad hoc network, an Internet based communication, and the like. In another embodiment, the remote recipient can include a local

Google Ex. 1028, p. 379

business owner, thus notifying the business owner that the specific cellular phone (101) is in a vicinity of the business.

[00634][00632] FIG. 10 presents a series of transportation based applications that can be utilized in conjunction with infrastructure provided by the series of fixed or dynamically deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. A portion of the applications introduce telematics therewith.

[00635][00633] One application (Automatic Traffic Alert (1103)) provides beacon signals comprising telematics including traffic alerts.

[00636][00634] In a second application (Dynamic Deployment (1104)), an ad hoc network is created between vehicles providing vehicle to vehicle communication using an intermediary communication link. The vehicle to vehicle communication is preferably accomplished using a Bluetooth protocol.

[00637][00635] In another application (Find Parking and Return to Parking (1105)), the RF beacon infrastructure is used to inform a user of available parking locations and/or provide navigation guiding the user to the location where the user parked their vehicle.

[00638][00636] In yet another application (Automatic Traffic Alert (1103)), a driver (105) can employ their cellular phone (101) to deliver automatic traffic information (1103).

[00639][00637] In yet another application (Trigger Application (1102)), the system identifies an RF beacon, which subsequently triggers or initiates an application.

[00640][00638] In yet another application (Local Tracking (1106)), the system utilizes a Bluetooth beacon that can recognize the car/driver ID and subsequently track the car/driver.

[00641][00639] In yet another application (Access Control (1107)), recognition of either a proximate RF beacon or an approaching cellular phone (102) causes activation of a device. This can be accomplished using any of many suitable processes. For example, when a vehicle is approaching a gate, the vehicle would receive a beacon signal from a local beacon. The signal would be deciphered to determine the identity of the beacon. Once known, the system would act

Google Ex. 1028, p. 380

according a directive that is associated with the proximate beacon identity. In one example, the system would transmit a signal to open a gate when the vehicle approaches the gate.

[00642][00640] In yet another application (Theft Prevention (1109)), the RF beacon (102) would recognize the vehicle and prevent theft.

[00643][00641] In yet another application (Automatic Payment (1114)), the cellular phone (101), an RF beacon device integrated into a vehicle, and the like, broadcasts a beacon signal comprising a beacon identifier, wherein the beacon identifier is used in conjunction with an automatic payment method.

[00644][00642] In yet another application (Transportation Management (1110)), the RF beacons provide assistance for management of transportation systems.

[00645][00643] In yet another application (Accident Prevention (1111)), the RF beacons provide assistance for prevention of accidents, such as by notification to a user when two RF beacons become too close to one another.

[00646][00644] In yet another application (Saving Fuel (1114)), the application or series of applications can reduce fuel consumption by optimize navigation, reducing time finding parking spots, provide telematics associated with traffic, provide management support of transportation systems, and the like.

[00647][00645] In yet another application (GPS Add-On Navigation (1113)), the series of RF beacons (102) can be used to determine a location of a receiving device and can additionally be used to obtain navigation. This is particularly beneficial in areas where the global positioning system (GPS) is ineffective (such as indoors).

[00648][00646] In yet another application (Nav Sign (1112)), the RF beacons can convey information associated with road signs.

[00649][00647] FIG. 11 presents a series of navigation based applications that can be utilized in conjunction with infrastructure provided by the series of deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. Each RF beacon (102) contains and broadcasts a beacon signal comprising a beacon identifier to enable a

Google Ex. 1028, p. 381

receiving device to determine a precise location of the device within a facility, a mall, a show, a store, and the like. The RF beacons would broadcast a beacon signal using at least one of Bluetooth and Wi-Fi protocol. At least a portion of the RF beacons (102) can be associated with a Waypoint.

[00648] Each of the series of exemplary applications provides a location determining solution and navigation in an environment that is not conducive for the global positioning system (GPS), such as within a mall, a store, a parking garage, and any other indoor location.

[00649] One application (Parking and Return to Parking (1510)), the RF beacons (102) are deployed in a parking area. Each RF beacon (102) includes at least one sensor to determine a presence of a vehicle in the associated parking spot. The RF beacons (102) identify vacant parking spots and provide navigation to each vacant parking spot to a user. The application can additionally or alternatively provide navigation directing the user to the parking spot containing their vehicle.

[00650] In a second application (Stores Directory (1520)), a directory of merchants is provided to the cellular phone (101). The directory can include displaying locations of the merchants on a local map (200).

[00651] In another application (Search and Find (1111)), the RF beacon infrastructure is used to provide directions or navigation between known waypoints within an indoor facility, such as a mall. The known waypoints would be displayed upon the indoor map (200).

[00652] In yet another application (Sales, Deals, and Specials (1540)), the network provides information pertaining to sales, deals, specials, and the like to the receiving device. The sales, deals, specials, and the like can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102).

[00653] In yet another application (Entertainment (1530)), the network provides information pertaining to entertainment to the receiving device. The entertainment can be associated with a location of the receiving device, wherein the location would be determined by a

Google Ex. 1028, p. 382

proximity to an RF beacon (102). The application can additionally provide navigation to a location associated with the entertainment.

[00656][00654] In yet another application (Information and Events (1590)), the network provides information pertaining to entertainment to the receiving device. The entertainment can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a location associated with the entertainment.

[00657][00655] In yet another application (Dining (1580)), the network provides information pertaining to dining in the local area to the receiving device. The dining information can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a dining location.

[00658][00656] In yet another application (Emergency (1560)), the network provides a notification of an emergency situation, emergency procedural information, and navigation from the current location, through the structure, and to a predetermined exit location. The information would be respective to the proximate RF beacon (102).

[00659][00657] FIG. 12 presents an exemplary flow diagram illustrating a next generation of marketing tools utilizing the RF beacon (102) infrastructure deployed in a local area. The network obtains a user's profile or preferences (701) as well as a user's behavioral pattern (704) associated with the user's cellular phone (101). The information is conveyed to a business owner (702) for marketing purposes. The profile and/or preferences are filtered to determine applicable local based services (LBS) (703). The information can trigger or initiate an application (304), establish a link to an existing system and software, and the like to provide at least one of local content (503) and indoor navigation (108) to the cellular phone (101) or similar receiving device.

[00660][00658] FIG. 13 presents an exemplary schematic diagram illustrating a method of utilizing dynamic deployment to create an ad hoc network. Exemplary applications include vehicle-to-vehicle communication, emergency communication, local communication, and the like. The method establishes communication between a series of Bluetooth devices located

Google Ex. 1028, p. 383

proximate one another. One exemplary implementation employs cellular phones (101), utilizing the Bluetooth transceivers integrated therewith. The dynamic network is created by placing proximally located Bluetooth devices into an ad hoc or mesh network. The network is based upon overlapping signal transmission radii. The network can include installed and/or mobile Bluetooth devices, exclusive of cellular or other higher powered and costly communication interfaces. The method can be utilized in transportation creating a road size networking of vehicles and/or drivers for telematics or traffic information, a push alert providing road information, and creating a vehicle-to-vehicle communication capability. In another option, the network can be utilized in an emergency situation, more specifically, when and where the cellular network are unavailable, interrupted, down, or fail. The ad hoc network creates a longer range communication capability utilizing local low power Bluetooth and/or Wi-Fi devices to convey information to local emergency responders or other parties. Another optional feature of the dynamic deployment enables creation of an ad hoc network within a structure, a mall, a store, a building, an office, an entertainment complex, and the like, exclusive of cellular communication. The ad hoc network provides capability for local messaging between users in a proximity area. The network can be utilized to deliver local content to the cellular phone (101) exclusive of any broader and higher powered communication networks, such as cellular, and the like. The network would be applicable between cellular phones (101) vehicles comprising the appropriate transceiver technology (106), within a facility/building/area, and the like.

Google Ex. 1028, p. 384

HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

RELATED APPLICATIONS

[0001] This application is:

is a Divisional Application of U.S. Patent Application Ser. No. 14/285,273 filed on May 22, 2014,

which is a Divisional Application of U.S. Patent Application Ser. No. 14/285,209 filed on May 22, 2014,

which is a Divisional Application of U.S. Patent Application Ser. No. 12/930,735 filed on January 14, 2011,

which is a Divisional Application of U.S. Patent Application Ser. No. 11/396,843 filed on April 03, 2006 (now US Patent 7,899,583 on March 01, 2011),

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/670,097 filed on April 12, 2005 (now expired); and

a Divisional Application of pending U.S. Patent Application Ser. No. 13/135,421 filed on July 05, 2011,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/932,811 filed on March 07, 2011,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/587,042 filed on October 01, 2009,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/069,899 filed on February 13, 2008 (issued as US Patent 7,924,149 on April 12, 2011),

Google Ex. 1028, p. 385

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/472,706 filed on June 22, 2006,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/429,864 filed on May 08, 2006,

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/678,947 filed on May 09, 2005 (now expired), and

a Divisional Application of pending U.S. Patent Application Ser. No. 12/587,042 filed on October 01, 2009,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/429,864 filed on May 08, 2006,

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/678,947 filed on May 09, 2005 (now expired).

FIELD OF THE INVENTION

[0002] This invention is directed generally to the field of RF beacons. More specifically, the application of a series of deployed RF beacons creating an infrastructure for use in applications associated with a hospitality environment, including: navigation, marketing, local based services (LBS), emergency information and evacuation procedures, ticketing and other event access features, parking assistance, and the like, wherein the information is presented upon a map of the hospitality environment displayed on a user's cellular phone or similar device.

BACKGROUND OF THE INVENTION

[0003] Introduction to location based services:

Google Ex. 1028, p. 386

[0004] Location based services are rapidly expanding. Outdoor location technologies are mainly based on GPS technologies. GPS cannot perform properly indoors and is therefore inadequate. As a result, indoor location systems are appearing on the market.

[0005] The need for a system arises from various market segments and applications. One example in the market is the GPS based systems that use integrated positioning and navigation systems based on GPS receivers as the primary positioning technology. Subsequent to the events of September 11th' the Federal government mandated that GPS capability be built in to all cellular phones. However, the fact that uninterrupted satellite reception is not possible in many locations is a major limitation of GPS based systems. Densely populated areas and radio-frequency-signal shadowed locations, such as urban centers (a.k.a. "urban canyons"), generally do not allow proper operation of GPS, yet it is in these locations that the need is greatest.

[0006] There is a clear need for a cost effective system that maintains performance indoors, in urban canyons and in city centers.

[0007] Another important consideration is that GPS itself is susceptible to jamming and other man-made interference.

[0008] Description of GPS System:

[0009] The Global Positioning System (GPS) is a satellite- based navigation and time transfer system developed by the U.S. Department of Defense. GPS serves marine, airborne and terrestrial users in the military as well as civilians. Specifically, GPS includes the Standard Positioning Service (SPS) that pro- vides civilian users with 100 meter accuracy as to the location or position of the user. For military users GPS provides the Precise Positioning Service that is accurate to within 20 meters. Both of these services are available worldwide with no requirement for any local equipment.

[0010] View of GPS limitations:

[0011] First limitation of GPS is that upon activation the GPS receiver scans for signals from the GPS satellites. A unit must locate and receive signals from at least four satellites to be able to

Google Ex. 1028, p. 387

determine its location. This process of locating the satellites, receiving the data and achieving a position fix can take several minutes. This delay is problematic for many GPS applications.

[0012] Second limitation of GPS is that the receiver needs a clear view of the sky to successfully receive signals from the satellites, again under unfriendly RF conditions such as inside buildings, or in "urban canyons" or in the shadows of high buildings, the GPS suffers from multi-path effects and therefore shows poor performance or none at all.

[0013] Third Limitation-limited accuracy: There is a problem of limited accuracy of the civilian GPS signal. While knowing your position to within 50 to 200 feet anywhere on the planet is a major technological feat, it is still not accurate enough, to locate and navigate to an a store in a mall or to empty parking space, where each space measures about 10 feet, and most indoor store/malls are located where the GPS cannot work effectively.

[0014] Existing navigation systems, such as the new mandatory GPS equipped cellular phones, are based on GPS and have the aforementioned limitations.

[0015] Another significant factor adding to the limitations of the GPS based systems is the important role of map production; normally a user requires a map to be as detailed and as up-to-date as possible. The existing maps used by the GPS based systems provide limited detail and are not able to reflect changes on a real time basis, more over there is no mapping for indoor facilities at all. The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[0016] <u>The Proposed Solutions:</u>

[0017] In general, the subject invention is based on applying machine-learning techniques to the task of inferring aspects of the user's status from a stream of input from Small RF tags/beacons are installed in local area indoor or outdoor or in places designated as Point Of Interest (POI), be it at a mall, department store, product inside a store, street or garage parking, inside or outside location, public or commercial, The tags/beacons can be RFID (long range type), or a Bluetooth with the option to long range Bluetooth, or a Wi-Fi or any RF type. The

Google Ex. 1028, p. 388

tags/beacon broadcast a unique ID by wireless that identifies the location by the unique ID, the address and type of facility/store/product. The tag/beacon broadcasts its information to be picked up by the mobile phone application, via the cellular phone or other Bluetooth device with application.

[0018] The focus of the application for the indoor guide navigation and local based services, or navigation in crowded urban areas, where GPS based systems, due to lack of access to satellites or the GPS limitations detailed previously, cannot achieve the required results.

[0019] The disclosed applications focus on the task of interactively guiding the user to a desired indoor destination.

[0020] Examples of indoor applications:

[0021] The user may wish to locate an empty available parking space in his vicinity.

[0022] The user may wish to locate a specific store in a shopping mall, or a particular aisle in a department store, or a specific item on a shelf.

[0023] The user may wish to locate a specific conference room in a convention center, or a Point Of Interest (POI) in an amusement park or a Point Of Interest (POI) in a museum.

[0024] The user may be looking for a train location in a station, or stops in a subway or underground train system.

PRIOR ART

[0025] At present, however, no prior art device utilizes the capabilities to display a real-time representation of navigating directly from the sensors without a central system; and without using a GPS based system directly to the "user". Also most systems are designed for the old query type search where interface to Internet and or database to a central system is needed

[0026] The navigation system automatically detects a signal directly from the bacon, no communication needed not even cellular communication to do the determination of the location

Google Ex. 1028, p. 389

where is other systems must have bandwidth available, over which to send a request to a central system, or to a database, and then must wait for a response. This takes time!

[0027] Even if the other systems have bandwidth, they are still based on the existing search concept where the user submits a query, searches and waits for the response. This is impractical. The subject system provides the information automatically, without submitting any query, and the response is according to the user's location, wherein the user's location is determined by proximity to the beacon in the local area.

[0028] Again, most of the existing prior arts are based either on a GPS based system or the existing car navigator, that depends on a GPS too. And the existing mapping that these systems use has the same limitations described previously and is impractical.

[0029] The present invention bridges the gap between the GPS based navigation and provides a complete solution.

[0030] Patent U.S. Pat. No. 7,031,875 Ellenby et al. describe a pointing system for addressing objects, provide a system and method based on GPS and Internet/database communication, it is not exactly a navigation but an information based system that needs the GPS to locate the user location so indoor services is likely out of the questions and the need for communication as well with GPS limits its availability and accuracy.

[0031] The system, as provided by the present invention, determines the location using the beacon/tag ID, Proximity Detection (PD), and Received Signal Strength (RSSI), Time of Arrival (TOA)=and Angle of Arrival (AOA).

[0032] Proximity Detection (PD)

[0033] This method relies upon a dense grid of antennas, each having a well-known position. When a mobile device is detected by a single antenna, it is considered to be collocated with it. When more than one antenna detects the mobile, it is considered to be collocated with the one that receives the strongest signal.

[0034] This method is relatively simple to implement. It can be implemented over different types of physical media. In particular, IR and RFID are based on this method.

Google Ex. 1028, p. 390

[0035] Triangulation

[0036] In case more than one beacon/tag signal a Triangulation takes PD a step further, in the sense that it is based on measuring the signal level measurements from each antenna (possibly by using a triangulation mechanism), with respect to each mobile device. Following that, mobile is located by using a triangulation algorithm.

[0037] Like the PD method, triangulation is relatively simple to implement.

[0038] Time of arrival (TOA)

[0039] Time of arrival (TOA)is based on triggering the mobile devices to respond, and measuring the time it takes for the response to fly back to the antenna. The elapsed time represents the distance between the two. By using distances from a few antennas, a mobile's position can be triangulated. TOA is considered to be the most accurate method, because multi-path effects can be filtered out. Yet, it is considerably more complex to implement, as it requires a modification to the hardware on the mobile side, as well as special modifications on the antenna side.

[0040] Angle of Arrival (AOA)

[0041] Angle of Arrival (AOA) is based on finding the direction of maximal signal intensity for each antenna-device pair. By finding the intersection of several such direction vectors, a mobile's position can be estimated AOA is considerably less accurate than TOA, due to limited angular resolution and the fact that indoors much of the signal is reflected. Also, AOA antennas are more complex, as they require multi-section, highly directional antennas, and multiple RF circuitries.

[0042] Bluetooth is a newer wireless local networking standard that operates in the 2.4 GHz ISM band. and the range is shorter (typically 10-15m, although there are tags with a range of over 300 feet). On the other hand, Bluetooth is a "lighter" standard, highly ubiquitous (embedded in most phones, PDAs, PC peripherals, etc.) and supports, in addition to IP, several other networking services. Notably, Bluetooth supports serial port emulation, voice, and various types of object exchange. Bluetooth tag/beacons are small, pocketsize transceivers.

Google Ex. 1028, p. 391

[0043] Every Bluetooth device's tag/beacon has a unique ID. This ID can be used for locating the tag/beacon and providing location information of the mobile device in the proximity.

[0044] The relevant location scenario of the present invention is that of searching for a certain tag. It is the most accurate and the faster response time and it is this method in indoor navigation and locating when and where each tag/beacon ID is a known address position-waypoint.

[0045] Why use Bluetooth for indoor location?

[0046] Bluetooth has some advantages in the context of indoor location. These include:

[0047] Bluetooth uses RF-in the 2.4 GHz ISM band, specifically. In this frequency range, radio waves penetrate obstacles, such as walls and human bodies, albeit with a substantial loss.

[0048] This has two implications:

[0049] Availability of a "high-there" application is always some signal received from the tags/beacons.

[0050] Tags/beacons can be placed relatively far apart (typical range is 10-15 meters, i.e. not necessarily of one in each way point).

[0051] Bluetooth is ubiquitous-Bluetooth chipsets are being implanted everywhere nowadays (phones, accessories, computing devices, etc), the tags/beacon can be implements anywhere, inside buildings roads inside cars transportation entities, inside home for home automation triggering, or in any kind of business triggering application or and link to exiting system .

[0052] The fact that a Bluetooth location system can locate any Bluetooth enabled device, makes it more cost-effective. This means that an increasing fraction of humans and mobile assets around would become locatable in a Bluetooth covered site, with no additional hardware cost (no tags/beacons attached). The only need is to pre-register these devices. Bluetooth is a low power technology-tags need recharge, approx. once a week (or longer, depends on the usage scenario). Non-tags (e.g. BT enabled phones) are being recharged anyway on a regular basis, so they do not

Google Ex. 1028, p. 392

need special recharges. If they are being used for location, the fraction added to their usual (no Bluetooth) power consumption is relatively small.

[0053] Bluetooth is a low cost technology, having expected high production volumes (hundreds of millions annually) lead to sub-$5 per chip. It is noted that several IC manufacturers have already met this goal. This would eventually result in a low price for the Bluetooth tags/beacons, if and when Bluetooth location systems would become sufficiently ubiquitous. Bluetooth is a multi-functional communication standard - location is only one of the services that can be supported by a Bluetooth infrastructure. The same infrastructure can be used to provide additional network services, particularly remote monitoring and control or just trigger link to exiting system. In addition, Bluetooth provides voice and IP services (although for the later, WLAN is typically more suitable).

[0054] In open spaces, relatively free of obstructions and walls (e.g. a large warehouse or a public hotspot), Bluetooth alone would suffice to provide a -2 meter error range.

[0055] Conclusions

[0056] The proposed beacon technology offers unique advantages: one is the ability to locate ubiquitous "any tags" (any Bluetooth enabled device can be associate and be use the advantage of the Bluetooth beacons, e.g. most of the newer mobile phones). The other advantage is the multiservice nature of the Bluetooth beacons infrastructure that enables using the tags/beacons for other purposes, such as for locating and navigating, remote monitoring and control, trigger existence and link to existing systems and software and for a variety of local based services and local push messaging services.

SUMMARY OF THE INVENTION

[0057] In accordance with the present invention, these are the navigation project's characteristics:

[0058] The proposed system is a locating and navigation method based on the following unique characteristics:

Google Ex. 1028, p. 393

[0059] In an indoor or outdoor navigation situation the RF beacons tags, replace the satellite in a GPS based system, to provide the user with the information and directions needed to reach the destination.

[0060] The proposed system has three major parts:

[0061] The detection and navigator, the special method used to display the data and the information from the area trigger as result of being in close proximity to the RF beacons in the area.

[0062] It is not a location and tracking system as offered by other systems.

[0063] Small RF tags/beacons are installed in each place designated as Point Of Interest (POI), be it at a mall, department store, product inside a store, street or garage parking, inside or outside location, public or commercial. The tags/beacons can be RFID (long range type), or a Bluetooth with the option to long range Bluetooth, or a Wi-Fi or any RF type. The tags/beacon broadcast a unique ID by wireless that identifies the location by the unique ID, the address and type of facility/store/product . The tag/beacon broadcasts its information to be picked up by the mobile phone application navigator, via the cellular phone or other Bluetooth device with application, the beacon ID trigger application and push information to the Bluetooth device or the cellular phone with the Bluetooth.

[0064] The system can serve as add on to the mall's/store's guide/mapping to provide extra assistance to user.

[0065] The navigator.

[0066] The navigator, cellular phone application Bluetooth application

[0067] The user device scan the local area for ID broadcast by the tags/beacons in the vicinity via the wireless Bluetooth interface with a cellular telephone utilizing the cellular phone's Bluetooth capability. It is important to note that no cellular communication or Internet or database access is needed to determine the location of the device and that any Bluetooth enabled device will operate the navigation application as a stand-alone device. The beacon system can interface with existing in car system and/or car navigation system.

Google Ex. 1028, p. 394

[0068] The display method.

[0069] The display method is a unique way to bridge existing devices like cellular phones, in-car system and in-car navigation and other Bluetooth devices. The system provides an overlay display method over the existing navigation system mapping or floor map or floor images, as a real-time floating display, or as a waypoint to overcome the limitations of GPS based systems and the existing mapping systems, the indicator placed overlay on the floor plan image, it may further include providing a visual indication a circle on the floor plan image of the path, wherein the visual indication – the circle indicates an area of the indoor map where the location information identifies a particular location and the circle provides the accuracy radius circle.

[0070] The mapping: a system and method for mapping an indoor environment is provided. a user device may receive an indication of a starting point on a floor plan.

[0071] The user device may prompt the user to travel in a particular direction, or the direction of travel may be determined by the user device in response to the user indicating a second location after the user has traveled to the second location.

[0072] As the user travels from the starting point in the designated direction, the user device may gather information about the indoor environment. For example, the user device may gather wireless signal strength data, from proximity RF beacons Wi-Fi or Bluetooth while the user travels in the designated direction.

[0073] The user device may associate the gathered information with the path the user traveled from the starting point to the ending point. The operation can be done at the user device – the cellular handheld, the association may also be performed by a remote server using data provided by the user device. As the user travels from point to point, the client device may indicate the area for which valid location information is available based on the path the user traveled and the information the user collected.

[0074] The Mapping can be offered as an additional service for the indoor based on area building floor or image mapping.

Google Ex. 1028, p. 395

[0075] The navigation system will enable remote planning based on downloaded local floor-plans the floor mapping or floor images – the indoor view images of the local building facility, or local navigation, when the location's floor plan can be triggered to down- loaded at the destination. An example of this would be at the entrance of a shopping mall, a department store, an amusement park, a museum, a parking garage, a downtown area of a city, and the like.

[0076] The navigation system is based on a network of tags/beacons that can be deployed anywhere. The system is accurate to within 10 feet, significantly better existing navigation systems and GPS. The system can work inside a building whereas GPS cannot.

[0077] Local detection is obtained via popular Bluetooth interface.

[0078] The system provides information about each facility/store, including information about the type of the facility, for example: type of store or product etc.

[0079] By providing the ability to locate a the user in an area using a Bluetooth enabled device, or a cellular phone with the navigation application and the RF beacons method, the system overcomes the anxiety of "Where am I "and also facilitates finding a parked car later via the RTP (Return to Parking) feature.

[0080] The system has the capability to perform all the functions of a search for and can become the "Next generation search out of the box".

[0081] The navigation system can be attractive for places that already deploy WI-FI and can be used for the existing WI-FI devices as a tags/beacons.

[0082] In case of an emergency or security situation, the system can provide authorities with information.

[0083] The system eases and facilitates navigation to indoor locations, without a navigation map or GPS. Indoor Mapping can be provided as part of the navigation system. The system provides "local" navigation as well as "remote" detection.

[0084] The system allows easy interface or trigger application with existing networks or existing system.

Google Ex. 1028, p. 396

[0085] The system saves gas, time, money and eases global warming by reducing the time spent searching for destination.

[0086] The navigation method is unique. The navigation system is based upon RF tags/beacons with interface to Bluetooth enabled devices. This feature allows detection and navigation in locations where GPS cannot work, as well as outside, with the ability to guide the user to within 10 feet of the destination, significantly better than any other navigation and GPS based systems on the market.

[0087] The Bluetooth RF tags/beacons are based on a long-range version of the popular short distance communication. This unique feature affords the user the ability to plan ahead from a remote location, by obtaining ID about the destination directly from the tags/beacons and by accessing the indoor floor plan to be navigated at the destination.

[0088] A major problem with In-Car navigation and GPS mapping is that they cannot guide the user closer than 50 to 200 feet, and only in open places. The navigation system can provide accurate directions to within 10 feet.

[0089] The navigation system will be a challenge to navigation providers and GPS providers as they cannot provide mapping or navigation inside a mall, department store, a parking garage or lot, and anywhere the GPS /Navigation map cannot accurately help navigate.

[0090] Utilizing this innovation, the facilities in the vicinity around the "user" car are displayed on a floating overlay using either a cellular phone application, or a stand-alone device, or an existing installed navigation system with or without any mapping.

[0091] The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[0092] Navigation using the mapping or floor plan of a location can be offered as a part of the system. The option of downloading a floor plan can be exercised either remotely or locally.

Google Ex. 1028, p. 397

[0093] The tags/beacons broadcast their signal continuously and any of the navigation devices will detect them and display the ID/data on the user's device in an easy to understand method.

[0094] With our innovation you have the information that you want, when you want it, where you want it ...(and at an affordable price)

[0095] Once you are in the vicinity of your destination and you switch on your navigation device, by being in proximity to installed beacons in the area you will automatically receive the facility information along your waking route and in all directions around you.

[0096] No further action is required, there is no need to send a request or to access the Internet/web or log on and search a database or central system the access to the Internet is to provide a local based services like push information or messages or offers, deals, advertising to the mobile user .

[0097] Other systems are still based on the existing search concept where the user submits a query, searches and awaits for the response. All impractical while the user needs the information immediately. The navigation system provides the information automatically, without submitting any query, and the response takes into account the user's location determined by the proximity RF beacons.

[0098] The unique approach to detection of the mobile inside the buildings does not need an Internet bandwidth or cellular communication. The Internet or cellular communication provides local based services and additional information that can be pushed to the user device.

[0099] And as a result there is no delay or waiting for communication and access time, the communication is instantaneous, triggered directly between the tags/beacons ID and the user's device.

[00100] Additionally, each facility type can be ID coded to identify the type of the store etc., e.g. restaurants, men's wear, women's wear etc.

[00101] Each ID-coded display of facility can be trigger accessed to information about the store e.g., providing automatic waypoint information.

Google Ex. 1028, p. 398

[00102] The ability to operate the innovation using the disclosed applications on a cellular phone, the navigator, with no need for cellular connection to determine the current location, means the user does not need any GPS system.

[00103] Moreover, the navigation system can solve the "RTP" (Return to parking) problem, where many forget where they parked their car. The system has an option to save the location on the "cellular phone-parking detector" application that will make it easy to locate the parked car.

[00104] The navigation solution is designed for global use and is not limited to malls, stores, amusement parks, museums, sports stadiums etc. It can be implemented in parking garages or parking spaces metered or not, the tags/beacons can be implemented anywhere and in any place to trigger and initiate existing and local application and even link to exiting system and existing software.

[00105] It is envisioned that in the future all new construction will have the tags/beacons included in the design, even place addresses, a building addresses can be replaced or use an add-on with the implementation of a tags/beacon in the area to be recognized or scanned by the mobile device.

[00106] The system integrates the navigation as part of the NAV4 concepts where it will provide complete solutions for local navigation in an area where the GPS can't work.

[00107] The navigation system consists of the following parts:

[00108] An infrastructure of tags/beacons, wherein each tag/beacon is installed in a local and known location.

[00109] The navigation system is based on mapping and navigation to and in the location, and its aim is to replace or supplement the mall/store guide/map, by installing the tags/beacons in each store or Point Of Interest (POI).

[00110] The mapping: As GPS and GPS mapping is not available indoors, the navigation system is based upon the floor plan mapping or floor images available from each facility. For planning ahead, the floor plan or the floor images can be downloaded as part of user's

Google Ex. 1028, p. 399

navigation/cellular phone remotely-via Internet as mobile application before reaching the destination or triggered when the destination is reached.

[00111] The Navigation uses the most commonly used device in the world today, the cellular phone with Bluetooth interface.

[00112] As a difference from other systems and other local based systems, this solution offers a unique approach that can be described as the "Search out of the box" as neither query nor database search is needed; all needed is to know the proximity tags/beacons ID and the cellular phone, working as a Bluetooth device, that automatically scans and recognizes the local area tags/beacons and determines the "user's" location, and provides instant information to the user and to the business in the area.

[00113] A typical application is guide and navigating a pedestrian in an environment like a mall, department store, specialty store, conference, trade show, amusement park, university, hospital, school, municipal building, museum, subway, train station, airport, down town center, a finance facility, cruise ship and any type of parking facility ...or any place when and where GPS cannot be provided or is not accurate or precise enough. The system will be used for navigation by first responders to emergencies or disasters.

[00114] The navigation system is part of the broad suite of applications that include a complete solution to the "user" from the time that he parks, or begins looking for a space to park his car, walking to the store/mall or to any indoor facility to when he wants to return to his parked car, looking for the place that he parked.

[00115] The suite may includes:

[00116] Parking detector-and navigation to the empty available parking space.

[00117] Automatic notification of user existence in the place/store/facility

[00118] Nav4 mall/store navigation solution inside mall/store.

[00119] RTP-return to parking-locate the place that you parked your car.

Google Ex. 1028, p. 400

[00120] For example, a typical application could be:

[00121] A pedestrian asks the way in a mall to a specific store.

[00122] A pedestrian asks the way inside the store, to a specific aisle or product.

[00123] A shopper in a department store asks for a specific department.

[00124] A pedestrian asks the way to a Point Of Interest (POI). In an emergency, the first response team has to navigate inside a smoke filled building.

[00125] A store owner can use the notification and the knowledge of existence for loyalty and rewards

[00126] The beacons ID can trigger a link to existing software and aware the local system of the user existence – such as:

A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

The pedestrian reach an advertising area or billboard that can recognize the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

A customer is entering a store/bank/facility front would be identified/recognized for additional information or services.

The RF beacons/tags can serve to track employee time, including check-in and checkout times from designate area.

Google Ex. 1028, p. 401

~~The RF beacons/tags can serve as part of payment process where the user mobile and the local proximity beacons/tags can provide additional security for a mobile payment system to replace a current payment method such as those using credit cards.~~

The local RF beacons associate with the user mobile can be part of local dating system.

The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

The location of the user as associate with the local beacons can be interface with social networking .

The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking.

The RF beacon can be installed or be a part of a vehicle to provide car application like payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically.

[00127] A system and method to provide a user information which is related to the Point Of Interest (POI), the navigation system provides detection and navigation reference, position determination and information related to the object-Point Of Interest (POI), directly and automatically to the user interface-cellular phone upon arriving to a close proximity to the RF tags/beacons installed in the area.

[00128] Special operation mode: Shopping: provides navigation to the special sale item in a department store.

[00129] Special operating mode: Museums: provides navigation and interactive information from the museum's exhibition to the "user's" cellular phone device via Bluetooth interface.

[00130] Special operating mode: Parking: describe in 2 patent applications, provide empty parking space detection and navigation.

Google Ex. 1028, p. 402

[00131] Special operating mode: Nav store provides navigation inside a store/department store to a specific department/aisle or specific product, with an option for advertising method and special promotion it also provides the business owner with ability to know, in a way of automatic notification when the "user" cellular phone device is in proximity to the local area for automatic delivery of information related to the store/business owner such information can be but is not limited to deals, coupons, special and even statistically information about the "user" habit.

[00132] Every Bluetooth device's tag/beacon has a unique ID. This ID can be used for locating the tag/beacon and providing location information of the mobile device in the proximity.

[00133] A relevant location scenario is that of searching for a certain tag. The relevant location scenario is the most accurate and the faster response time and is one solution for indoor navigation and locating when and where each tag/beacon ID is a known address position-waypoint.

[00134] Why use Bluetooth for indoor location?

[00135] Bluetooth has some advantages in the context of indoor location. These include:

[00136] Bluetooth uses RF-in the 2.4 GHz ISM band, specifically. In this frequency range, radio waves penetrate obstacles, such as walls and human bodies, albeit with a substantial loss.

[00137] This has two implications:

[00138] Availability of a "high-there" application based upon receipt of a signal from the tags/beacons.

[00139] Tags/beacons can be placed relatively far apart (typical range is 10-15 meters, i.e. not necessarily of one in each way point).

[00140] Bluetooth is ubiquitous-Bluetooth chipsets are being implanted everywhere nowadays (phones, accessories, computing devices, etc), the tags/beacon can be implements anywhere, inside buildings roads inside cars transportation entities, inside home for home automation triggering, or in any kind of business triggering application or and link to exiting system.

Google Ex. 1028, p. 403

[00141] The fact that a Bluetooth location system can locate any Bluetooth enabled device, makes it more cost-effective. This means that an increasing fraction of humans and mobile assets around would become locatable in a Bluetooth covered site, with no additional hardware cost (no tags/beacons attached). The only need is to pre-register these devices. Bluetooth is a low power technology-tags need recharge, approx. once a week (or longer, depends on the usage scenario). Non-tags (e.g. BT enabled phones) are being recharged anyway on a regular basis, so they do not need special recharges. If they are being used for location, the fraction added to their usual (no Bluetooth) power consumption is relatively small.

[00142] Bluetooth is a low cost technology anticipating high production volumes (hundreds of millions annually) leading to sub-$5 per chip. Several IC manufactured have already met this goal. This would eventually result in a low price for the Bluetooth tags/beacons, if and when Bluetooth location systems would become sufficiently ubiquitous. Bluetooth is a multi-functional communication standard - location is only one of the services that can be supported by a Bluetooth infrastructure. The same infrastructure can be used to provide additional network services, particularly remote monitoring and control or just trigger link to exiting system. In addition, Bluetooth provides voice and IP services (although for the later, WLAN is typically more suitable).

[00143] In open spaces, relatively free of obstructions and walls (e.g. a large warehouse or a public hotspot), Bluetooth alone would suffice to provide a -2 meter error range.

[00144] Waypoint Navigation

[00145] A waypoint is a fixed location with known address location, longitude and latitude and coordinates. The navigation system is capable of storing a database of waypoints for the following purpose:

[00146] Waypoints mark a destination, a point along the way to a destination, or a point of reference. Normally, in navigating, a "route" consists of one or more waypoints. To traverse a route, the user navigates to the nearest waypoint, then to the next one in turn until the destination is reached. The system has the ability to compute a great-circle route towards a waypoint, enabling them to find the shortest route even over long distances. The system enables users to

Google Ex. 1028, p. 404

locate a destination on a map or indoor floor plan or indoor image and define it as a waypoint. The system is intended for navigation; it can generate a suggested route between two waypoints, based on the cartographic database. The system indicates the user's current location and gives advance notice of an upcoming point.

[00147] Because the system knows the waypoint positions, and the distance between them, it is easy to determine the "user's" exact location.

[00148] Map Matching

[00149] The navigation solution is further enhanced, although it is not essential, when the system knows that the person or object being located is traveling along known routes on a map; for example, the system can assume that people can only follow certain routes in a mall. This is priority information that can be used to "force" the estimated position to be on the nearest point on the possible routes, note that it is easier to predict indoor than outdoor.

[00150] The constraints of indoor construction similarly can be used to refine estimates of the position of a person or object moving within a building-people and objects do not pass through walls, they pass along corridors and through doorways. It is a best solution for a system in case of an emergency or for a system for homeland security or a system to locate and inform the subway location, a good example is the hotel exit floor map.

[00151] Configuration and Use

[00152] In the indoor application, instead of GPS, the system uses known waypoint positions that are manually detected and identified as a demonstration of the concept of using another sensing method, such as RF tags/beacon, to detect and identify the location and the waypoints. Theoretically, it would be possible to convert the waypoint positions into GPS coordinates and emulate an external GPS data source.

[00153] This system can be useful for providing navigation to first responder personnel indoors waypoints have been installed in a particular building in the form of RF tags/beacons whose identities are associated with locations- the meaning of identifier, it may be possible to associate magnetic anomaly information with individual tags as well.

Google Ex. 1028, p. 405

[00154] One of the important features of the indoor navigation techniques will enhance the ability of tactical team's first response team to navigate within the buildings in which it has been deployed. RF (Bluetooth) Tag/bacon devices commonly are attached to persons or to moveable objects, so that the objects can be tracked using fixed readers (special- purpose radios) at different locations. This is the most common indoor navigation that exists today.

[00155] The navigation method is the "flip side" of this practice and is based on the concept that the detection of an RF (Bluetooth) device, or RF Tags/beacon, in a known, fixed location, by a moving reader, such as a Bluetooth enabled cellular phone or other Bluetooth enabled device, provides a precise location of a person or a moving object, by the carrier of the telephone or device, who can supply indoor navigation without GPS.

[00156] The navigation method provides a low-cost, reliable system for firefighters and other first responders, inside buildings, to navigate, where a GPS is not reliable-indeed, the GPS signal may have been disabled temporarily to prevent-exploitation by terrorists, or even more likely no signal can be received at all inside a building.

[00157] The navigation system foresees this limitation of GPS based systems, and is intended for an environment that is potentially much less "friendly" to RF signals, the environment inside a building that first responders encounter may contain smoke, dust, or flames, and is intended to leverage advances in RF/Bluetooth tag/beacon technology. The navigation system will exploit the capability of storing critical building information, such as the floor maps and the emergency escape plans, for retrieval and navigational assistance via a Bluetooth enabled cellular phone, when and where it is needed,

[00158] Moreover the navigation system can serve as a navigator for the emergency exit route when and where needed. Each user can load the emergency exit floor plan and escape with the knowledge of his exact location in that route.

[00159] Aspects of the scenarios to be included:

[00160] Identifies and tracks the user (a first response team member)option to use the cellular phone as a beacon by himself.

Google Ex. 1028, p. 406

[00161] Provides the user with navigation information and directions for safely exiting the building.

[00162] Provides location information of all team members, via an ad hoc network of radio terminals that combine RF/Bluetooth and allow communication chat and messaging between the team members without need for Internet or cell communication such option is not limit to the first response team but to a user in emergency and non-emergency use.

[00163] From the outset, the navigation system was designed with the capability to utilize existing technology so it can be deployed as a stand-alone system, or in tandem a link with existing systems. The system focuses on employing technology that is already in place that simply needs to be expanded.

[00164] With the implementation of the navigation system, a FIRST RESPONSE TEAM will be empowered to navigate and find its way in a case of emergency or a disaster. This capability can be a critical life-saving power in modem congested urban living conditions, not available before now.

[00165] It is believed that the implementation of the navigation system will assist counter-terrorism activities and more importantly will help the first response teams to save the lives of people trapped inside buildings.

[00166] Conclusion

[00167] The Bluetooth technology offers few unique advantages: one is the ability to scan and locate a small tag/beacon installed in an local area using the tags/beacon ID a low cost and battery power and low battery use and the use of the newest Bluetooth devices (any Bluetooth enabled device that is not a tag/beacon, e.g. most of the newer mobile phones) can be used as a tag/beacon.

[00168] The other advantage is the multiservice nature of the Bluetooth infrastructure that enables using the tags/beacons for other purposes, such as for navigating, remote monitoring and control, a triggering mechanism to application and system even a link to existing systems and for a variety of messaging a push information and local based services.

Google Ex. 1028, p. 407

[00169] Location based services are rapidly expanding. Outdoor location technologies are mainly based on GPS technologies. GPS cannot perform properly indoors, and is therefore inadequate. As a result, indoor location systems are appearing on the market.

[00170] The need for a system arises from various market segments and applications. One example in the market is the GPS based systems that use integrated positioning and navigation systems based on GPS receivers as the primary positioning technology. Subsequent to the events of September 11th' the Federal government mandated that GPS capability be built in to all cellular phones.

[00171] However, the fact that uninterrupted satellite reception is not possible in many locations is a major limitation of GPS based systems. Densely populated areas and radio-frequency-signal shadowed locations, such as urban centers (a.k.a. "urban canyons"), generally do not allow proper operation of GPS, yet it is in these locations that the need is greatest.

[00172] There is a clear need for a cost effective system that maintains performance indoors, in urban canyons and in city centers.

[00173] The disclosed application includes finding a solution to this task by providing a system and method to generate automatically the waypoint along the user route ether indoor, or outdoor.

[00174] The disclosed application addresses the task of interactively guiding the user to a desired indoor and outdoor destination.

[00175] The method for mapping an indoor environment is provided. A user device may receive an indication of a starting point on a floor plan. The user device may prompt the user to travel in a particular direction, or the direction of travel may be determined by the user device in response to the user indicating a second location after the user has traveled to the second location.

[00176] As the user travels from the starting point in the designated direction, the user device may gather information about the indoor environment. For example, the user device may gather

Google Ex. 1028, p. 408

wireless signal strength data, from proximity RF beacons Wi-Fi or Bluetooth while the user travels in the designated direction.

[00177] The user device may associate the gathered information with the path the user traveled from the starting point to the ending point. The operation can be done at the user device – the cellular handheld, the association may also be performed by a remote server using data provided by the user device.

[00178] As the user travels from point to point, the user's device may indicate the area for which valid location information is available based on the path the user traveled and the information the user collected.

[00179] The method may include displaying a floor plan image or floor mapping or the floor indoor view – the floor images corresponding to an indoor location, receiving a first input to indicate a first location on the floor plan image, gathering initial location information at the first location, and generating an indoor map, using a processor, using the initial location information wherein the indoor map includes an association of the initial location information with the first location.

[00180] The method may further include repeating the location information gathering process at a new location to associate new location information with the new location in the indoor map.

[00181] The method may include gathering additional location information as the user travels from the first location to a second location, receiving a second input to indicate the second location on the floor plan image, determining a path from the first location to the second location, and associating the additional location information with at least one location within the map corresponding to the path.

[00182] The method may include prompting the user to walk in a straight line when traveling from the first location to the second location.

[00183] The method may include providing instructions to a user to travel in a particular direction. The location information may be wireless signal data associated with one or more RF

Google Ex. 1028, p. 409

wireless beacons installed in the local area. The first input may include performing a selection operation with an indicator placed on the floor plan image.

[00184] The method may also include providing a visual indication on the floor plan image of the path. The visual indication may indicate an area of the indoor map where the location information identifies a particular location. The building floor plan may be received from a remote via Internet or cellular communication as part of the mapping and navigation application.

[00185] The method may also include determining an approximate location determine by proximity to the RF beacons, providing the approximate location to the remote server, receiving a list of floor plans associated with indoor environments proximate to the approximate location, and selecting the building floor plan from the list.. The method may include identifying the user's direction of travel by at least one of determining a relative orientation using the first location and the second location, or using at least one of an user device built-in sensors, accelerometer, a gyroscope, or a compass.

[00186] The method may include determining a location precision for the data gathering operation, and using the location precision to determine a location resolution for the indoor map. The location precision may be determined using a number of available RF wireless beacons for which signal strength data and the beacons ID are available. The location precision may determine at least one of the size of an indicator for indicating the current location or the accuracy radius circle, or the width of a stripe for indicating an area of the indoor map for which the location information has been gathered and will display overly on the floor map image map building map. The method may include determining a coverage level of the indoor map compared to the floor plan images.

[00187] The navigation system and method automatically updates waypoints, when each Point Of Interest (POI) will have an RF tag/beacon that will broadcast an RF ID signal that will provide an instant detection, the navigation system will execute the specified file/program that will trigger automatically, executing a waypoint generation program.

[00188] For some years, local governments in cooperation with various FM radio stations and recently a navigation system have been putting together an automated way to get real-time traffic

Google Ex. 1028, p. 410

data into cars so drivers can avoid traffic. Real time traffic information includes news such as: congestion, construction, traffic accidents, recommended alternative routes, recent navigation systems depend on fix sensors or camera and some navigation on manual information provided by the users/drivers.

[00189] A tag/beacon will be installed at the location or at each Point Of Interest (POI). The tag/sensor will broadcast RF signal contain ID to be recognized by the mobile phone and such information (the RF beacon ID) will transfer automatically via the user mobile phone to the provided location detection of the user as well as statistically information about the possible "traffic" in the area/road, such method can be extremely helpful to manage and control transportation system.

[00190] The "user" will no longer need to enter his way- points manually and then wait for the providers of maps or GPS to update their maps with the information (this can take about a year in some cases). This way the "user" will receive the information that he needs when he needs it and where he needs it upon entering an area with tags/beacons, providing an automatic "check-in" to the user and the facility business.

[00191] Again, no communication is need to be established between the tags/ beacon and the user mobile device and the detection can be done without any communication at all, In the event that more information is required it may be necessary to connect to the Internet website.

[00192] It is believed that sooner or later it will be a standard procedure to install a tag/sensor on every location of interest (waypoint) or any place on road indoor and even outdoor or any business will provide waypoint information to the "users". Most stores or POI/waypoints will be willing to pay for a tag/beacon or pay subscription fee to be on the mapping system on the local area that will show their location and information on a map. Or they will pay for an annual listing (similar to the yellow pages).

[00193] The System can interface with existing GPS mapping outdoors as well as indoors, it can switch automatically where the user outdoor to receive an outdoor map and information based on GPS and when in the indoor to receive an indoor mapping and indoor navigation based on RF beacons detections.

Google Ex. 1028, p. 411

[00194] Presently GPS providers, map providers and search engines provide: City Navigator and Metro Guide Maps that contain many thousands of attractions.

[00195] These include: Food and Lodging, Attractions, Entertainment, Shopping, Services, Transportation, Emergency, and Government offices. In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be very old and the information associated with them is not update. Listed Attractions include theme parks, museums, libraries, schools, parks and such. This feature is very useful in an unfamiliar area.

[00196] Waypoints will be located automatically in the local area and plotted on the map screen. The waypoints can be stored on the local map at the handheld phone for future access.

[00197] The navigation system will revolutionize the GPS based systems and the mapping industry, from GPS, mapping companies' communication providers, car manufacturers to yellow pages and local guides; for the first time the user of a GPS navigation system will have an easy, reliable way to reach a destination inside buildings facilities – the indoor world.

[00198] The most common problem with today's GPS based systems is indoors where the navigation and mapping is not existing. The navigation system provides the solution for this problem. Using the navigation system, the user will know where he is, be able to identify "landmarks" around him accurately, and receive automatic updates directly from the Points Of Interest (POI) in the vicinity that get automatic notifications about his presence in their area.

[00199] The navigation system is based on RF tag/beacons, each tag or waypoints has its own ID (identifying the waypoint by type, address, etc.). The beacon will broadcast, via RF the ID to be scan and pickup by the Bluetooth device, provides a detection and trigger a location determination as a floating information display on the indoor map referenced to the user's location. The floating display will provide automatic waypoint updates around the local area and will allow the user to search local providers (waypoints/store), even without any connections, no communication, Internet, or cellular is needed to determine the location as well as accuracy radius circle. The Internet web communication provides more information such as push

Google Ex. 1028, p. 412

notification and messaging and local based services such as deals, advertising directly and automatically to the user's mobile phone.

[00200] Once you are in the vicinity of your destination and, a notification is sent automatically to the business Internet or web site and you will automatically receive the facility information along your waking route and in all directions around you .

[00201] No further action is required, there is no need to send a request or to access and search a database or central system.

[00202] Other systems must send a request to a central system, or to a database, and then must wait for a response. This takes time!

[00203] The disclosed unique approach results in no delay or waiting for communication or authentication and access time as there is no real communication between the tags/beacons and the user mobile device, the result are instantaneous association, directly between the tags/beacons and the user's mobile or navigation device

[00204] The RF tags/beacons broadcast their ID to be scanned and pickup by the user's mobile phone to identify the location of the user as proximity to the tags/beacon.

[00205] Additionally, the ID identifies the type of facility, store etc., e.g. restaurants, men's wear, women's wear etc. and the location in the store, e.g. front, back etc.

[00206] Each facility can provide information about the store e.g., automatic waypoint information as the user's presence triggers initiates automatically notifies the business or waypoint in the local area.

[00207] Do to the limitation of the mapping system currently used by the GPS navigation system the associated display method is our unique way to bridge existing devices like cellular phones, in-car navigation and other Bluetooth devices. The system provides an associated overlay navigation display method as a real-time floating display, or as a waypoint to overcome the limitations of GPS based systems and the existing mapping systems; especially indoors where each waypoint will be displayed over mapping or floor map images.

Google Ex. 1028, p. 413

[00208] The display method is one unique way to bridge existing devices like cellular phones, as a real-time floating overlay on a directional circular display to overcome the limitations of GPS based systems and the existing mapping systems.

[00209] The overlay add-up device/display works like a VOR and provides add-up display shows automatically the user location in the immediate area in a circle represent a radius of accuracy and proximity distance from the local detect beacon/tag.

[00210] The overlay displays over an existing navigation system, portable device or cellular phone without GPS support providing a circle that shown the location accuracy of the user on the local map.

[00211] The fact is: no digital maps are entirely accurate. A user needs to know which map makers are used by the product that they are interested in and check the maps for the area that they are concerned about. In addition some map databases are created from vector data while others are just scanned copies of paper maps. In addition to mapping data these same map makers can often provide Points Of Interest (POI) data. However, a software company might use the maps from one company and the poi data from another. POI data normally takes three forms. One is public buildings, parks, airports, and possibly geographic objects. A second is government locations that include specialized points lists like marker buoys, and airplane markers. Finally, there are commercial establishments that usually include some information about their product and contact data. Note that the location of commercial places is often derived from the street address and is not based on the actual lat/Ion location. Moreover there is the sky-high cost of digitizing and updating the poi and the waypoints.

[00212] The task is to provide a solution when the "user" will receive real-time Point Of Interest (POI) or waypoints in the area where he is automatically associate with a located proximity beacons/tags in the area, the waypoints information can be information that are real-time information updates in real-time and can be changed according to the waypoints and all according to a proximity detection of the RF tags/beacons ID in the area, the information can be used in these example applications:

Google Ex. 1028, p. 414

[00213] The user may wish to locate an empty available parking space in his vicinity. Just think of the empty parking spaces as waypoints the parking space occupied with RF beacon and sensor to find if the parking is empty, and the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details with US Patent 7,899,583 (included in the claim of priority and issued to the Applicant and incorporated herein by reference).

[00214] The user may wish to see and locate the real estate property available in his area according to his location, where an RF beacon can be installed in each real estate property to trigger more information to the user/ possible client when he reach proximity to the property.

[00215] The user may wish to locate a specific store in a shopping mall, each store in a mall is a waypoint, or a particular aisle in a department store, or a specific item on a shelf.

[00216] The user may wish to locate a specific conference room in a convention center, or a Point Of Interest (POI) in an amusement park or a Point Of Interest (POI) in a museum.

[00217] The user may wish to find the emergency exit route in a time of emergency or the first response team needs to navigate in a facility in an emergency situation.

[00218] The user may be looking for a train location in a station, or stops in a subway or underground train system. All of that is updated waypoints in real-time.

[00219] It is believed that the automatic waypoint updates revolutionize the GPS and Navigation Industry.

[00220] For the first time the user will know what he wants and when he wants and according to his location

[00221] The local business owner can introduce his content in real-time to the (navigation) users in his area automatically when the user access or enter to his store the contents can be deals, coupons, specials and provides more information to user about the business, the business in turn can benefit from statistically information about the client/s. such as habits, profile, loyalty and rewards.

Google Ex. 1028, p. 415

[00222] The GPS and navigation industry can tap to the huge local advertising market (estimated at 134B in US alone ...)

[00223] Automatic notification of user existence in the place/store/facility

[00224] Mall/store navigation solution inside mall/store.

[00225] RTP-return to parking-locate the place that you parked your car.

[00226] For example, a typical application could be:

[00227] A pedestrian asks the way in a mall to a specific store.

[00228] A pedestrian asks the way inside the store, to a specific aisle or product.

[00229] A shopper in a department store asks for a specific department.

[00230] A pedestrian asks the way to a Point Of Interest (POI). In an emergency, the first response team has to navigate inside a smoke filled building.

[00231] A store owner can use the notification and the knowledge of existence for loyalty and rewards

[00232] The beacons ID can trigger a link to exiting software and aware the local system of the user existence – such as:

[00233] A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

[00234] A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

[00235] A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

Google Ex. 1028, p. 416

[00236] The pedestrian reaches an advertising area or billboard that can be recognized by the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

[00237] A customer is entering a store/bank/facility front to be recognized for additional information or services.

[00238] The RF beacons/tags can serve to track employee's work times, including a check-in and checkout time from a designate area.

[00239] The infrastructure provided by local RF beacons can be integrated into a local dating system.

[00240] The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

[00241] The location of the user as associate with the local beacons can be interface with social networking.

[00242] The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking. the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details in US Patent 7,899,583 issued to the Inventor and claimed as priority herein.

[00243] The RF beacon can be installed or be a part of a vehicle to provide car application like payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically.

[00244] A system and method to provide a user information which is related to the Point Of Interest (POI), the navigation system provides detection and navigation references, position determination and information related to the object-Point Of Interest (POI) directly and

Google Ex. 1028, p. 417

automatically to the user interface-cellular phone upon arriving to a close proximity to the RF tags/beacons installed in the area.

[00245] Moreover the application provides more than simply an icon.

[00246] At present, no prior art device utilizes the capabilities to display a real-time representation of navigating and get an update directly from the waypoints. Also most systems are designed for the old query type search where interface to Internet and or database central system is needed.

[00247] The navigation system automatically detects a signal directly from the RF tags/beacons installed in the waypoints, no communication needs to be established between the mobile phone and the RF tag/beacon not even cellular communication, and no pairing needed. Other systems must have bandwidth available, over which to send a request to a central system or to a database and then must wait for a response, or they need Internet connections. This takes time!

[00248] Even if the other systems have bandwidth, they are still based on the existing search concept where the user submits a query, searches and waits for the response. This is impractical. The navigation system provides the information automatically, without submitting any query, and the response is according to the user's location based on RF tags/beacons installed in the local area.

[00249] Again, most of the existing prior arts are based either on a GPS based system or the existing car navigator, that depends on a GPS too.

[00250] And the existing mapping that these systems use has the same limitations, described previously, and is impractical.

[00251] This navigation system bridges the gap between the GPS based navigation and provides a complete solution.

[00252] U.S. Pat. No. 7,031,875 Ellenby et al. describes a pointing system for addressing objects, and provides a system and method based on GPS and Internet/database communication, it is not exactly a navigation but an information based system that need the GPS to locate the

Google Ex. 1028, p. 418

user location so indoor services is likely out of the questions and the need for communication as well with GPS limits its availability and accuracy. It is not a real-time update of the waypoints and needs Internet and or central database communication.

[00253] The most common problem with today's GPS based systems is that the mapping and the waypoints are not updated on a timely basis. In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be about 2 years old. The new service like Google Earth provides satellite images that are almost 2 years old and for sure can't provide on-line real-time accurate picture of the existing area and the waypoints.

[00254] The disclosed technology offers a solution to this task by providing a system and method to generate automatically the waypoint along the user route ether indoor or outdoor the update is based on determine location of the mobile device indoor in proximity to installed RF beacons and the update information triggered by the location determination, such method is not exist in today navigation or mapping especially indoor.

[00255] The disclosed technology offers a solution that interactively guides the user to a desired indoor and outdoor destination.

[00256] The navigation system and method automatically updates waypoints, by means of an interface to an existing GPS based system, when each Point Of Interest (POI) will have an RF tag/sensor that will broadcast an RF signal that can be converted to a GPS waypoint, In response to the RF signal (from the tags/sensors,) the navigation system will execute the specified file/program that will trigger automatically, executing a waypoint generation program.

[00257] For some years, local governments in cooperation with various FM radio stations have been putting together an automated way to get real-time traffic data into cars so drivers can avoid traffic. Real time traffic information includes news such as: congestion, construction, traffic accidents, and recommended alternative routes.

[00258] An RF tag/beacon Bluetooth and or Wi-Fi will be installed at each Point Of Interest (POI). When each Point Of Interest (POI) will have an RF tag/beacon that will broadcast an wireless RF signal with ID that will provide an instant detection, the navigation or the

Google Ex. 1028, p. 419

application for local based services system will execute the specified file/program that will trigger automatically, executing a waypoint generation program and at the same time provides the business owner a notification of existence of the user in his vicinity to allow the business to provide the user with relevant messages or offers, more information or push message to the user cellular phone just by being in proximity to the RF beacon .

[00259] The "user" will no longer need to enter his way- points manually and then wait for the providers of maps or GPS to update their maps with the information (this can take about a year in some cases). This way the "user" will receive the information that he needs when he needs it and where he needs it.

[00260] It provides trigger information according to the beacon/tag, directly from the local area business waypoints and to the user's display device, the detection can be done without any communication In the event that more information is required and the business need to provide more information it may be necessary to connect to the Internet, its allow interaction/engagement as proximity to the RF Bluetooth beacon can trigger a specific application functionalities and provides automatic notification "I am here" to the business owner.

[00261] It is believed that sooner or later it will be a standard procedure to install a tag/beacon on every location of interest (waypoint) or any business will provide a waypoint information to the to provide "users" with the information. Most stores or POI/waypoints will be willing to pay for a tag/beacons or pay subscription fee to be on the GPS system providers that are able to show their location and information on a map. Or they will pay for an annual listing (similar to the yellow pages).

[00262] The System can interface with existing GPS.

[00263] Present GPS providers, map providers and search engines providers: City Navigator and Metro Guide Maps contain many thousands of attractions.

[00264] These include: Food and Drink, Lodging, Attractions, Entertainment, Shopping, Services, Transportation, Emergency and Government offices.

Google Ex. 1028, p. 420

[00265] In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be about 2 years old. Listed Attractions include theme parks, museums, libraries, schools, parks and such. This feature is very useful in an unfamiliar area. Waypoints will be located automatically in the local area and plotted on the map screen. The waypoints can be stored on the GPS database for future access or store at the user mobile device .

[00266] The navigation system will revolutionize the GPS based systems and the mapping industry, from GPS, mapping companies' communication providers, car manufacturers to yellow pages and local guides; for the first time the user of a GPS navigation system will have an easy, reliable way to reach a destination.

[00267] The most common problem with today's GPS based systems is that the mapping and the waypoints are not updated on a timely basis. The navigation system provides a solution for this problem. Using the navigation system, the user will know where he is, be able to identify "landmarks" around him accurately, and receive automatic updates directly from the Points Of Interest (POI) in the vicinity.

[00268] The navigation system is based on RF tag beacons installed in the local area, each tag or waypoints has its own ID (identifying the waypoint by type, address, etc.). The tag beacon ID and proximity to the RF beacons will allow local detection and interface with existing or indoor application and navigation, GPS based systems, as a floating information display on the GPS map referenced to the user's location. The floating display will provide automatic waypoint updates and will allow the user to search local providers (waypoints/store and more information about the store/business, the detection allows the local business to have an automatic notification about the user whereabouts in proximity to his business and allow him to provide the user with more information about his store/business/deals.

[00269] The fact is no digital maps are entirely accurate. A user needs to know which map makers are used by the product that they are interested in and check the maps for the area that they are concerned about. In addition some map databases are created from vector data while others are just scanned copies of paper maps. In addition to mapping data these same map makers can often provide Points Of Interest (POI) data. However, a software company might use

Google Ex. 1028, p. 421

the maps from one company and the poi data from another. POI data normally takes three forms. One is public buildings, parks, airports, and possibly geographic objects. A second is government locations that include specialized points lists like marker buoys and airplane marker. Finally, there are commercial establishments that usually include some information about their product and contact data. Note that the location of commercial places is often derived from the street address and is not based on the actual lat/Ion location.

[00270] Moreover there is the sky-high cost of digitizing and updating the poi and the waypoints.

[00271] The task is to provide a solution where the "user" will receive real-time Point Of Interest (POI) or waypoints in the area automatically to his existing navigation system or to his cellular phone, the waypoints information can be a real-time information update in real-time and can be changed according to the waypoints.

[00272] A cellular phone application, which the user will scan the area for exiting RF Bluetooth beacons or Wi-Fi beacons will receive data and more information utilizing the cellular phone's Bluetooth capability.

[00273] The system can trigger application as well as link to existing systems and software. A notification can be sent to a web, email a cloud application or even social network, The navigation system will interface with existing in-car media system and in car navigation systems.

[00274] It is understood that the waypoint or Point of Interest (POI) will be represented by the following suggested ID examples as part of the beacon ID to be recognized by the user Bluetooth mobile device (cellular phone), according to the type of the POI:

ID Code	POI Type	Waypoint Cat. Type	ID Code	POI Type	Waypoint Cat. Type
32	Food/Restaurants	Food	33	Gas Station	Information

Google Ex. 1028, p. 422

34	ATM/Banks	Finance
35	Department Store	
36	Apparel	Store
37	Sports	Store / Information
38	Books video	Store
39	Jewelry	Store
40	Toys/Photo/Elect.	Store
41	Music	Store
42	Gifts	Store
43	Furnishing	Store
44	Service	Service
45	Computers	Store/Service
46	Hairstyle/Cosmetics	Store/Service
47	Office	Office
48	Security/Police	Service / Emergency
49	Children's program	Service
50	Social Affairs	Religious Service
51	Religion	Religious
52	Phone	Service
53	Travel	Transportation Service
54	Parking	Transportation Service
55	Guest service	Service
56	Library	Service
57	Transportation	Management Service
58	Municipal	
59	Post Office	Service
60	Government	
61	Market	Store/Service
62	Alarm	Emergency
63	Emergency	
64	Hotel resort and cruise ship	
65	Education facility, school, university	
66	Sport facility, sports arena, stadium	
67	Conference and show	
68	Amusement park	
69	Implements as mail and address	

Google Ex. 1028, p. 423

70 Implements in a road as road sign or transportation entity

[00275] Be remember that the ID above is only suggested example, the fact is that part of the beacon ID will be to recognize the Facility/store type the location to provide instant detection and location determination by just being in a close proximity to the RF beacon in the area.

[00276] The navigation system enables remote and local update of the local floor plans and the information about the local area and waypoints business in the area, when the location's indoor application can be triggered to download at the destination. An example of this would be at the entrance of a shopping mall, department store, amusement park, museum, parking garage or the downtown area of a city where a sign or the shopping mall information sign will provides direct information a trigger to download the local application.

[00277] The system can work inside a building whereas GPS cannot. Local detection is obtained via popular Bluetooth interface.

[00278] The system provides information about each facility/store, including information about the type of the facility, for example: type of store or product etc., the information trigger to deliver to the user mobile device by being in proximity to the RF beacon ID that installed in the local area.

[00279] By providing the ability to locate a the user in an area using a Bluetooth enabled device or a cellular phone with the navigation application, the system overcomes the anxiety of "Where am I" and also facilitates finding a parked car later via the RTP (Return to Parking) feature.

[00280] The system has the capability to perform all the functions of a search and can become the "Next generation search out of the box".

[00281] The navigation system can be an attractive addition to existing deployments of Wi-Fi and Wi-Fi hotspots and a feature for business and cities that deploy Wi-Fi.

[00282] In case of an emergency or security situation, the system can provide authorities with information.

Google Ex. 1028, p. 424

[00283] Utilizing the navigation system, the facilities (waypoints) in the vicinity around the "user" car are displayed on a floating overlay using either a cellular phone application, or a standalone device, or an existing installed navigation system with or without any mapping, the information can be pushed to the user's device when he in proximity to the area.

[00284] The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[00285] The option of downloading a floor plan can be exercised either remotely or locally as part of mapping or navigation application.

[00286] With the navigation system, the user will have the information that they want, when they want it, where you they it ...(and at an affordable price) Once you are in the vicinity of your destination and you switch on your navigation device, you will automatically receive the facility information along your waking route and in all directions around you.

[00287] Additionally, each facility type can be ID-coded apart of the beacon ID to identify the type of the store etc., e.g. restaurants, men's wear, women's wear etc. the store type, real estate property, garage sale location, special sale and all up to date real time information that can't be displayed and located in today's navigation system, and tapping to the local business industry is known as local advertising.

[00288] Each ID-coded as part of the beacon ID can be trigger accessed to obtain complete information about the store e.g., automatic waypoint information.

[00289] The system can be operate on a cellular phone, and navigation system and is not limited to a GPS navigation system.

[00290] Moreover, the navigation system can solve the "RTP" (Return to parking) problem, where many forget where they parked their car. The system has an option to save the location on the "cellular phone-parking detector" application, which will make it easy to locate the parked car.

Google Ex. 1028, p. 425

[00291] The navigation system is designed for global use and is not limited to malls, stores, amusement parks, museums, sports stadiums etc. It can be implemented in parking garages or parking spaces metered or not, almost anywhere and in any place even in any infrastructure.

[00292] It is envisioned that in the future all new construction/infrastructure will have the beacons/tags included in the design or built in the structure..

[00293] One feature of the proposed invention integrates the navigation as part of the NAV4 concepts where it will provide complete solutions for local navigation in an area where the GPS and GPS mapping just can't provide accurate and updated information that is so essential to the user.

[00294] A typical application is navigating a pedestrian in an environment like a mall, department store, specialty store, conference, trade show, amusement park, university, hospital, school, municipal building, museum, subway, train station, airport, down town center, any type of parking facility ...or any place when and where GPS cannot be provided or is not accurate or precise enough. The system can be used for navigation by first responders to emergencies or disasters.

[00295] The navigation system is part of a broad suite of applications that include a complete solution to the "user" from the time that he parks, or begins looking for a space to park his car, walking to the store/mall to when he wants to return to his parked car, looking for the place that he parked.

[00296] The suite may include:

[00297] Parking detector-and navigation to the empty available parking space.

[00298] Nav4 mall/store navigation solution inside mall or store.

[00299] RTP-return to parking-locate the place that you parked your car.

[00300] For example, a typical application could be:

[00301] A pedestrian asks the way in a mall to a specific store.

Google Ex. 1028, p. 426

[00302] A pedestrian asks the way inside the store, to a specific aisle or product.

[00303] A shopper in a department store asks for a specific department.

[00304] A pedestrian asks the way to a Point Of Interest (POI).

[00305] In an emergency, the first response team has to navigate inside a smoke filled building.

[00306] A system and method to provide user information which is related to the Point Of Interest (POI)

[00307] The navigation system provides detection and navigation reference, position determination and information related to the object-Point Of Interest (POI) directly and automatically to the user interface-cellular phone without any communication help of Internet/web or cellular needed . . .

[00308] Special operation mode:-Shopping- NAV4SALE-provides navigation to the special sale item in a department store. A new unique tool for the business owner as well to the customers-to navigate and locate an item in a store/mall that's on a special sale, will provide the "user" a way to navigate in/out door for the "waypoint" represents the special sale, coupon, special event, promo etc ...an add-on to local advertising.

[00309] The local advertising market is estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of a local strategy. Due to the lack of availability of the GPS indoors as well with the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry, there is no real tapping to this huge market.

[00310] The navigation system can bring a new life to the navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the user a navigation to his desire location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. A new unique way to bring the customers to the product in sale . . ., direct the customer directly to the isle and to the product that you want to move. The store will also have an option to

Google Ex. 1028, p. 427

deliver more content (advertising, sale, coupons, promo etc ...) to the user when he approaches the store or is already inside via push technology to the user's Bluetooth enabled cellular phone.

[00311] Special operating mode:-Museums- NAY4Museums NAV SHOW and NAY CONFERENCE provides navigation and interactive information from the museum's show or conference exhibition to the "user's" cellular phone device via Bluetooth interface.

[00312] Explore museum or conference show exhibits in a new unique and easy way, find your way around when navigating on the floor map of the museum or conference, indoor navigation, navigate to exhibits, restaurants, cafes, lavatories etc., all to the "user's" navigation or cellular phone.

[00313] Any museum, conference, or show provides the attended a map to the exhibits, some also provide additional audio device (headset) to get more information on the exhibits.

[00314] The navigation system will provide a unique indoor tool that will allow the attended to navigate the museum, conference or show in an easy way directly to his Bluetooth enabled cellular phone, when he reaches his desired exhibit he will allow to download directly to his cellular or Bluetooth headset information about the exhibits. An indoor navigation to the exhibits as well to the restaurants, cafes, lavatories etc., all to the "user" navigation or cellular phone and based on the facility map.

[00315] Special operating Mode: Navtrain- For all the users of mass transportation system, the navigation system will allow, locate and point the "user" to the exact station or location on a route, an easy way to navigate in the train, subway, underground system, a new way of "sub-way" or bus mapping in/out door and directly to the user navigation or his cellular phone. Every day millions of people are using the mass transportation system, trains, subways, buses, each of the passengers depend on the transportation map for the route information as well as schedules and additional services provided by the transportation system. Most of the passengers today carry with them a cellular phone.

[00316] The navigation system will provide the passenger with the navigation inside the transportation system directly to the passenger's Bluetooth enabled phone, the passenger will know the exact location/station on the route as well with additional option information like

Google Ex. 1028, p. 428

schedules. A new add-on service to the transportation providers as well to the passengers, utilizes the indoor navigation method and the ability of the transportation entity to use the RF beacon installed in a transportation facilities to have add-on to transportation management control system .

[00317] Special operating mode:-Parking- NAY4PARKING describe in 2 patent applications, provides empty parking space detection and navigation. where is the RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking. the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details in US Patent 7,899,583 issued to the Inventor and claimed as priority herewith.

[00318] A new generation of urban parking innovation that answers the most demanding need of any driver knowing where to park ..., or more precisely, find and navigate to the empty parking spaces in and around the driver. It will also provide the answer to "where did I park my car?" syndrome, when returning to the parked car. In our society where time, convenience and comfort are precious commodities parking is a major headache.

[00319] Parking Detection System is the next generation of urban parking and the answer to the most demanding need of any driver-Where to park?

[00320] The navigation system provides a method of self organizing parking system will enable municipalities and other parking authorities to easily identify, exploit and manage revenue opportunities while at the same time providing better service at a lower operating cost. With the implementation of the navigation system, navigating and detecting available parking spaces will become part of the information revolution.

[00321] With the navigation system, drivers will save time and reduce the frustration of hunting for parking spaces, and will also save money on gas use and car maintenance costs.

Google Ex. 1028, p. 429

[00322] By using and modifying existing technology, our system will integrate easily with other transportation and communication systems. The RF beacon can be attached to existing parking meters, and in the future will interface with them and eventually will replace them.

[00323] Municipalities will have better control and centralized monitoring of their parking space inventory, resulting from the new generation of urban parking.

[00324] Special operating mode: NAYRealty - A new unique tool to accommodate the real estate industry by providing the seller/the real estate agent as well as the real-estate customer to locate and navigate to the available real estate property in the "user" area, according to his location and directly to his GPS navigator and/or cellular phone. The user may wish to see and locate the real estate property available in his area according to his location, where an RF beacon can be installed in each real estate property to trigger more information about the available property to the user/ possible client when he reach proximity to the property.

[00325] According to the Newspaper Association of America, the real estate advertising market is estimated at$11.5 Billion. Recently Mynewplace.com joined apartments.com and rent.com in the $3 Billion on-line apartment listing. **ZILLOW**, a new startup company just raised $32M in founding with the basic idea to put your house on Google Earth-satellite mapping. Google, Yahoo, AOL, ASK and Microsoft are looking to develop real estate products.

[00326] The navigation system brings the listing to the user's hand, by combining the GPS navigation and or cellular phone the user will be allowed to get the real estate property in his area updated according to his location in real time.

[00327] The user even will have the option to "search out of the box" of property in his area. The navigation system will serve as a new tool for the real estate industry as well to the search engine for the benefit of the seller/the real estate agent as well as the real-estate customer.

[00328] Special operating mode:-NAV4STORE and NAVMALL provides navigation inside a store/department store to a specific department/aisle or specific product, with the option for advertising methods and special promotions. Explore the indoor mall or inside a department store, navigate to the right place or the store or the department that you need.

Google Ex. 1028, p. 430

[00329] Navigate on the mall map/store mapping to find your way around using your cellular phone or navigation system without a GPS. It will be a new kind of service and a new marketing strategy for the malls/store business owners. An add-on to local advertising.

[00330] The local advertising market is estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of local strategy. Due to the lack of availability of the GPS indoors as well as the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry there is no real tapping to this huge market.

[00331] The navigation system can bring a new life to the Navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the user a navigation to his desired location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. The store will also have an option to deliver more content (advertising, sale, coupons, promo etc.) to the user when he approach the store or is already inside via push or Internet to the user's Bluetooth enabled cellular phone.

[00332] Special operating mode:-NAV Amusement Parks-Theme and amusements Park navigation, navigate to your desired attraction as well as a new way to register a "fast pass" kind off lane ...all in an easy way to the "user" cellular phone without the need for GPS. Provides a new media and-on service.

[00333] Ever wonder what it will be like to navigate inside the amusements park to the desired attraction, to know the schedules of the show events at the attractions and even to get your "fast pass" from a remote instead of standing in line ...With the navigation system, all this can become a reality and go directly to your cellular phone without the need for a GPS. It is understood that the present invention can provide a new tool and service to the benefit of the amusements parks as well to the user.

[00334] Special operating mode:-NAVSIGN-will pro- vide the user with automatic generating waypoint of the road sign to be displayed on the user navigation and or cellular phone or the car

Google Ex. 1028, p. 431

navigation or on the dash board as a way for secure driving, the information can interface to the car computer for example automatically slowing down when it enters a school zone-NAVSIGN.

[00335] Special operating mode:-NAV EMERGENCY: One of the important features of our indoor navigation techniques will enhance the ability of the first response team to navigate within the buildings in which it has been deployed.

[00336] The navigation system provides a method that is a low-cost, reliable solution for firefighters and other first responders, inside buildings, to navigate where a GPS is not reliable-indeed, the GPS signal may have been disabled temporarily to prevent exploitation by terrorists, or even more likely no signal can be received at all inside a building.

[00337] The navigation system envisioned this limitation of GPS based systems, and is intended for an environment that is potentially much less "friendly", the environment inside a building that first responders encounter may contain smoke, dust, or flames, and is intended to leverage advances in ubiquitous RF/Bluetooth tag technology.

[00338] The navigation system will exploit the capability of storing critical building information, such as the floor maps and the emergency escape plans, for retrieval and navigational assistance via a Bluetooth enabled cellular phone, when and where it is needed. Moreover the navigation system can serve as a navigator for the emergency exit route when and where it is needed. Each user can download the emergency exit floor plan and escape with the knowledge of his exact location in that route.

[00339] Aspects of the scenarios to be included:

[00340] Identifies and tracks the user (a first response team member).

[00341] Provides the user with navigation information and directions for safely exiting the building.

[00342] Provides location information of all team members, via an ad hoc network of radio terminals that combine RF/Bluetooth and allow communication chat and messaging between the team members without need for Internet or cell communication such option is not limit to the first response team but to a user in emergency and non-emergency use.

Google Ex. 1028, p. 432

[00343] From the outset, the navigation system was been designed with the capability to utilize existing technology so it can be deployed as a stand-alone system, or in tandem with existing systems.

[00344] With the implementation of the navigation system, a FIRST RESPONSE TEAM will be empowered to navigate and find its way in a case of emergency or a disaster. This capability can be a critical life saving power in modem congested urban living conditions that was not available before now.

[00345] It is believed that implementation of the navigation system will assist counter-terrorism activities and more importantly will help the first response teams to save the lives of people trapped inside buildings.

[00346] Waypoint Navigation

[00347] A waypoint is a fixed location with known address location, longitude and latitude and coordinates. The navigation system is capable of storing a database of waypoints for the following purpose:

[00348] Waypoints mark a destination, a point along the way to a destination, or a point of reference. Normally, navigating, a "route" consists of one or more waypoints. To traverse a route, the user navigates to the nearest waypoint, then to the next one in turn until the destination is reached. The system has the ability to compute a great-circle route towards a waypoint, enabling them to find the shortest route even over long distances. The system enables users to locate a destination on a map and define it as a waypoint. The system is intended for navigation; it can generate a suggested route between two waypoints, based on the cartographic database. The system indicates the user's current location and gives advance notice of an upcoming point.

[00349] Because the system knows the waypoint positions, and the distance between them it, it is easy to determine the "user's" exact location.

[00350] Map Matching

[00351] The navigation solution is further enhanced, although it is not essential, when the system knows that the person or object being located is traveling along known routes on a map;

Google Ex. 1028, p. 433

for example, the system can assume that people can only follow certain routes in a mall. This is priori information that can be used to "force" the estimated position to be on the nearest point on the possible routes. The constraints of indoor construction similarly can be used to refine estimates of the position of a person or object moving within a building-people and objects do not pass through walls, they pass along corridors and through doorways. It is the best solution for a system in case of an emergency or for a system for homeland security or a system to locate and inform the subway location, a good example is the hotel exit floor map.

[00352] In all, the unique method can be summarized as follows:

[00353] Direct communication between the area (way- points) and the user (navigation/GPS)

[00354] Automatic waypoint generation in real-time according to the user area

[00355] Indoor/outdoor even without GPS

[00356] Business model when the business/store owner will be subscribe to the listing in the navigation/GPS mapping

[00357] Provide overlay floating model to be work even without mapping

[00358] No Internet or cellular communication is needed to detect and determine a user's location for additional location based services (LBS) information and push and or data Internet service needed.

[00359] Can interface to the existing system and link to existing software and hardware system.

[00360] The option of search is done locally on the user device, no central database or Internet search needed.

[00361] Bluetooth interface to cellular phone, will run as application on the Bluetooth enabled device, such as a cellular phone.

[00362] Provides indoor navigation and indoor facility map and or floor images- guide and navigation.

Google Ex. 1028, p. 434

[00363] All global positioning system (GPS) navigation systems lack of real-time displays of the waypoints around the driver/user route, most likely, the information of GPS maps may be old and therefore inaccurate.

[00364] The navigation system provides a system and method for generating and updating in real time a navigation's waypoints automatically along the route according to the user associated with local detection of RF beacons installed in the area and will for the first time trigger an a delivery of real time waypoint information along the user route directly to the user's navigation and/or his cellular phone.

[00365] The navigation system will enable a circular omni-directional display on the map or floor images floating overlay on existing navigation map or floor mapping or indoor floor images .

[00366] The waypoint data trigger generates directly from the way- points beacons ID, no Internet or cellular communication is needed to determine the location.

[00367] The navigation system will bridge the existing navigation system and GPS mapping to new real time information according to the user's location.

[00368] The navigation system will allow for the first time the navigation and GPS industry to tap to the local advertising market estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of local strategy. Due to the lack of availability of the GPS indoors as well as the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry there is no real tapping to this huge market.

[00369] It is believed that the navigation system can bring a new life to the Navigation and mapping industry as well to the cellular providers by providing a unique innovation that combine the GPS and the existing navigation to the real time information directly from the waypoints, which can be referred to as a COOLSPOT.

[00370] This invention is directed generally to the field of navigation and, more particularly, to such a method to be used indoors or outdoors in a mall, store, buildings, department stores, and to provide local based services directly to the user's navigation or cellular phone.

Google Ex. 1028, p. 435

[00371] The proposed applications have identified and resolved a great deficiency in the technology available for local businesses. LBS represent a huge advertising and mapping market-estimated at over $150 billion a year. It represents a big opportunity in the navigation market that has not been explored yet

[00372] Existing System and Industry Trends:

[00373] Local mapping today is mostly paper: Mall maps, store maps, mapping of department stores, commercial buildings, hospitals, schools, campuses, municipalities, shopping centers, downtown districts, indoor facilities, building maps, parking areas, parking garages, amusements parks, subway systems, transit maps, museum maps, area attractions maps, hotel and resort maps and even more importantly the emergency maps and procedures posted in buildings.

[00374] Factors in Local Mapping

[00375] Local maps can be of either indoor or outdoor locations.

[00376] Local maps are available on paper, on the web, and in some cases on a kiosk in the facility.

[00377] A high degree of accuracy is needed in order to provide usable maps for navigation indoors-less than 10 m-to a store or even a parking space.

[00378] GPS cannot provide acceptably accurate mapping as it is only accurate to within 100-200 feet. This is the reason that the GPS industry does not provide this type of mapping. The same is true for cellular network providers, as the accuracy is also 100-300 feet, and then only when the signal is available. Signal availability is often a problem indoors and also when it is most needed-in an emergency situation when most of the cellular network fails due to high demand. Again, this is the reason that there is no local mapping available for cellular users. (Local mapping equates to accuracy in finding a store, room, or parking level within 5 m.)

[00379] At this time there is no indoor navigation solution. The most recent technology provides access to a user's location through a combination of group "social networking" and a "buddy list".

Google Ex. 1028, p. 436

[00380] Most technology available today attempts to "locate" a moving "user" in an area, the present invention reverses that idea and lets the "user" navigate the local area on the local maps, indoor navigation compared to outdoor navigation, pedestrian navigation is more than locating and navigating, most likely they are at or near their destination already. There are two possibilities, either they are in unknown surroundings and their task will be to explore the surrounding or they are looking for a specific product-their defined goal is like buying a new pair of shoes or getting a book or just going to shop around, exploring a new location, new deals, specials sales, or simply sightseeing.

[00381] The theory is based on the belief that "you are what you do" meaning, the services, specials, sales, coupons, discounts, and the like are one key element.

[00382] The main task of indoor navigation is to show the user where the specials, sales, and coupons are and direct-navigate the user to them and at the same time provides the business owner with a marketing tool that as of now is not exiting . The integration of multimodal journey planning and guidance to dynamic waypoints, sales, specials etc.... and complex public interchange facilities are not adequately addressed by existing systems.

[00383] In some aspects, indoor navigation looks simpler than outdoor navigation. For instance, the geographical area covered is much smaller and the expected speed of travel-walking-is much lower. However, other aspects make indoor navigation much more challenging. First among these is the unsuitability of GPS and related technologies. Second is that in a complex indoor environment the requirements are more stringent. For example, vertical positioning of the topology and the need for accuracy less than 10m-to the store, the product, and even to the aisle or the parking space-cannot be achieved with today's existing system.

[00384] The indoor market represents much greater potential than outdoor navigation, as on average people spend more than 90% of the time indoors ....

[00385] The Objectives and Goals Behind This Concept: The technology behind the navigation system is quite simple-a direct communication between the user's device/cellular phone, Bluetooth enabled device, and a Bluetooth tags/sensors/beacons installed in a known

Google Ex. 1028, p. 437

location in an area/ building/store/facility without relying on GPS, centralized servers, Internet bandwidth or even cellular communication-they can be supportive but are not essential.

[00386] The main concept is to use existing off-the-shelf technology (Bluetooth) with small modification and devices with a minimal cost of deployment and to provide a simple indoor/pedestrian technology which can delivers accuracy with an integrated suite of applications especially designed for the user/shopper indoors, the system is based upon RF beacons Bluetooth or Wi-Fi installed in the local area to be scan by the user device – cellular phone and use the proximity scan beacon ID and signal strength to provides an instant detection a notification of existence to the business owner and trigger delivery of update local based information all without even exchanging a real communication (no paring etc.. needed) with the proximity beacons.

[00387] The System Includes:

[00388] Local mapping or local floor images – the indoor view of the facility as part of the application, the facility can offer a download or participating from a proximity information sign or the store/mall/building information to trigger download the application or ability to pre load the maps as part of navigation or mapping application before reaching the area or download from the web according to location determine by the RF beacons.

[00389] Ability to have special navigation software either as an add-on to existing navigation on the user's cellular phone or existing navigation system (car, mobile) using the Bluetooth beacons to determine the exact location and trigger applications.

[00390] Ability to deploy Bluetooth beacons in the local area where the beacon will broadcast ID to be known the location-waypoints and trigger additional information and or local based applications and to provide the infrastructure needed to guide navigate in the area. A very low cost and fast deployment beacon system.

[00391] The ability to use the log of the "user" Bluetooth ID or the Bluetooth ID as a key (NOT THE CELLULAR NUMBER) for future marketing purposes or for emergency use. This aggregation of data with association to proximity Bluetooth beacons ID will be in valuable to retailers, business etc. Bluetooth enabled cellular phones can be used as beacons.

Google Ex. 1028, p. 438

[00392] The beacons-parts of the navigation system are Bluetooth tags/beacons installed in known locations in the area/facility and represent "waypoints" where is the beacon ID can represent the facility type, store/ special sales, places etc. and the location in the facility location....

[00393] The scanner detection part of the application -whenever a mobile phone or mobile device with a Bluetooth switched the Bluetooth on and loaded with the application, it will periodically scan the area for Bluetooth beacons; proximity to a tag/beacon and the tags/beacons ID as well with signal strength will determine the "user" location on the area/ facility map and will trigger an automatic notification automatic check-in to the business owner to trigger application with possible a link to existing system to provide the user and the business owner additional information just by being there an use the method above.

[00394] The navigation-can be plotted between way- points/store/places on the map.

[00395] In regards to the sale sense-marketing tools, the system works by passively observing the initial part of the scanning of movement. The proposed system does not monitor or listen to conversations or text messages. Nor does the proposed applications transmit or intercept any information or interfere with the mobile network operators in any way. The navigation system is a scanning detector (not a receiver or transmitter) which can observe the unique Bluetooth ID/key set of the device (not a telephone number or name ...) with association to the beacons ID which the device was near and aggregate resultant data to be server for habit and/or preference for triggering content delivery.

[00396] Sales sense represents a method to use dynamic user input profiling with proximity beacon ID installed in the known location indoors and outdoors for empowered presence and trigger content delivery for a real life interaction and all under the user's complete control and without compromising his privacy. The paradigm of proximity-based discovery and communication enabled by Bluetooth technology can be very relevant in Ambient Intelligence as an enabler for a situated interaction.

[00397] The navigation system explores the use of predefine user input (user profile or preference) as a key driver for situated interaction and trigger content delivery according to the

Google Ex. 1028, p. 439

user profile/preference. The approach is to use of RF Bluetooth beacons installed in a known location in a local area to trigger action witch associates the user cellular phone ID and or profile / preferences beyond self-exposure and introduces a method that can trigger actions.

[00398] The approach to the use of Bluetooth ID of the beacon beyond self-exposure and introduces as a technique in which the system can recognize the Bluetooth ID as explicit instructions to trigger actions/process.

[00399] Firstly, because it has an extremely Low entry barrier, Bluetooth is a widely available technology. Most of all phones include the Bluetooth, and setting new Bluetooth device ID is normally a relatively simple task that can be accomplished with the base functionality of any mobile phone. This easy availability is of huge importance in enabling social practices around the technology and represents a major difference to other sensing and interaction approaches that, albeit more sophisticated, may require specific hardware or software in personal devices. Secondly, the use of Bluetooth presence for situated interaction combines very well implicit and explicit forms of interaction, in fact blurring the distinction between them. Simply by scanning the proximity Bluetooth device, people are already part of the situation and implicitly engaging with the system.

[00400] This continuous, flow of presence information can be fundamental in the aggregation of situated content and may act as an important catalyst for more explicit forms of interaction. This is what mainly differentiates interactions based on Bluetooth presence from other interactions.

[00401] The chosen methodology combines a user define profile encode into the Bluetooth device by setting up a user like VIN number, with user privacy as a priority, the profile is encoded into the user Bluetooth device with an algorithm sequence protecting the user's privacy.

[00402] It provides important practical implementation of the Technique and on its usability within the complex set of social phenomena that characterize situated interaction in a public places without compromising the user privacy. Its effectiveness and simplicity can make it easily adoptable for applications like local social networking interactions, near field communication like secure transactions, payment methods, secure recognized methods and trigger secure

Google Ex. 1028, p. 440

processes and delivery of direct content according to the user profile or preference, all again without compromised user privacy and provides the user with complete control all the time. The method can be integrated and provide privacy and secure transaction to empower application that may otherwise exploit user ID, his profile and privacy as such the method can provides a secure payments transactions.

[00403] Every day millions of people access the Internet and enter their profile, personal information, or answer questions about their preferences in order to access a service / site, to get incentives, coupons, specials, etc... The sites use the information for marketing and in some cases share or sell the information. Recent research has found that most people are willing to give information for incentives.

[00404] Using the profile and records, the surfing habits of the user (IP) is the way that all the search engine companies make money on the Internet. At the same time they try to direct the content to the user according to their profile/habits.

[00405] But what about real life? People spend more and more time indoors (according to recent research, people spend more than 90% of their time indoors).

[00406] A scenario of searching for stores, items, special sales, and coupons according to our desire is repeated again and again... The question is how can the system transfer the success of the Internet marketing tool and the easy search for real life?

[00407] That is the main idea behind the navigation system – what if a system can take a profile / user statistics or even user input with them anywhere and provide one or more intelligence marketing tools. Moreover, the user is in complete control over their privacy, they can just shut the application off.

[00408] In the disclosed navigation system, the user has their profile sales preference and they are encoded into the user's cellular phone to be associated with the proximity beacon ID installed in the local area . (There is 3 ways: A. set segment - the segment keys are not unique and help to setup the user segment only. In that case the key is not unique. B. To generate a unique key – to be used like the Internet IP. C. Create a dynamic key and multiplies profile according to location/user preferences.

Google Ex. 1028, p. 441

[00409] The profile can include: Gender, age, and sales preference (interest), and does not include any personal profile. It may be the same as seeing the user and recognizing their gender, age, and other preferences just by looking at the user. The user is not revealing any kind of information that most sites ask for in a registration process and no personal information like name, address, or telephone number is exposed.

[00410] As part of the suite of LBS application, the user's phone will scan the area for the tags/beacons. For example – by being proximity close to the directory stand in a mall a decoding of the user key will be processed in order to allow the user preference segments and trigger delivery to the user with ads, specials, and incentives according to their profile as well as providing again the business owner with the best marketing tool- knowing his customers they profile and habit all using a very low cost RF Bluetooth beacons installed in the area and associate them with the user Bluetooth device-the cellular phone.

[00411] "Your customer is telling you what they want, are you listening?"

[00412] The main idea behind this is to provide the user with pin-point content according to their desired preference at the location trigger by the proximity beacons ID and also direct /navigate them to the desired location where they can find the store/sales/special/coupons or the information that they are looking for able to get meaningful data around shopper habits and store layouts statistics, as well as to help them partner up to offer better loyalty incentives to their customers through programs that extend beyond single storefronts, its sensing second-by-second a shoppers interest about specific product, place and can provides the business owner with a complete marketing tools not available until now and at the same time provides the user with offers directly from the business according to his habit preference profile.

[00413] The sales sense, user preference module is an add-on to the sales sense marketing where it joins the user behaviors module to create a very unique LBS business and marketing model. Imagine a potential customer standing in a crowded store aisle, feeling overwhelmed by all the choices. What if you could just reach out and give him or her something to help with the decision – a coupon, product information, discounts — right at that moment? Content marketers will soon have the ability to do this and a whole lot more just by implementing our method.

Google Ex. 1028, p. 442

[00414] Sales sense-Shopping Behavior: How consumers decide what to buy and when is going to drastically change. Winning marketing need to provides and will require getting exactly the right content in the right place at the right time with even more precision. Shoppers will have the ability to collect real-time information, comparison pricing, discounts and other helpful, highly tailored data as they walk through a store or browse near particular items. It will be imperative to produce well-timed, compelling content that is useful in those crucial moments before a choice is made. Sales sense – next generation marketing tools, from coupons and giveaways in stores to tours of museums to airports that provide real-time flight information, the possibilities are endless.

[00415] Consumers will start engaging with content in a whole host of new ways. Rather than just providing information suitable for a web browser or even a mobile user, marketers will need to think about ways to provide content that will be of value to users as they live their lives. From businesses to city parks to, the system provides a user tools to access helpful, real-time data like never before. As recently published research showed that on average people spend 90% of our time indoors. The proposed invention allows an effective integration of on-line and off-line shopping.

[00416] Moreover, according to research, indoor navigation may be more important than outdoor navigation and may represent a huge new market.

[00417] Our technology allows shopping centers, malls, department stores, buildings, airports, train stations, exhibition centers, museums, and amusement parks to understand the way that their customers or passengers flow through their premises. At the same time it provides the user/shopper with unique indoor navigation capability without compromising user privacy.

[00418] Our innovation will allow, for the first time, the navigation and GPS industry to tap into the local advertising market, estimated to be $134 Billion in the US alone.

[00419] Our technology provides a reliable method for identifying the path habits and the behavior that people take through an area. There are a number of advantages to our technology including:

- Extremely large sample size as mobile penetration is above 90%,

Google Ex. 1028, p. 443

- Shoppers remain anonymous,
- Accurate to within 2m, and
- Based on a Bluetooth technology.

[00420] For retail areas, malls in particular, the advantages of understanding shopper behavior are significant. Such information can assist the mall to:

- Evaluate and improve their retail tenancy mix by identifying which stores shoppers consider complementary,
- Identify underutilized areas in the mall,
- Understand the impact of anchor stores on the mall,
- Measure the implications of particular promotions or center events,
- Assist with planning day-to-day mall operations,
- Provide add-ons for the shoppers,
- Provide shoppers with a "web" like shopping experience,
- Provide shoppers with incentives /advertising,
- Increase security ,
- And in an emergency provide the shoppers with alarm and notification, and
- Allow shopper engagement with the store, the RF beacons can become the small neighborhood store by recognize the shopper, what is missing from the on-shopping.

[00421] Our technology is the only system on the market today that can gather information on shopper paths continuously and accurately based on locally installed RF beacons without any need to establish any communication relationship between the user cellular phone and the beacon

Google Ex. 1028, p. 444

(no paring or any communication needed to determine the location) and all without compromising the shopper ID or their privacy.

[00422] The various methods disclosed can also provide a way of surveying the behavior and preferences of the "user" shopper simply by observing the signals (encoding Bluetooth naming key) given off by their mobile phones and associate it with the proximity beacon ID which they are near and at the same time provide the shopper with a unique special application for indoor navigation triggering a local based services applications.

[00423] The present invention provides a next generation approach to the location based services (LBS) market, especially to indoor applications and to areas where a GPS cannot provide accurate navigation.

[00424] The data collect using the disclosed technology can be used to provide trend reports showing which shops are most visited and at what times, whether there are sufficient public facilities to serve the visiting shoppers or whether more security staff are needed to name only a few of the potential benefits. Ultimately, the collected data can provide assistance to shopping centers to become more in-tune with their customers so that they can create better, more pleasant places to visit.

[00425] The proposed analytics can turn shopping center/department store/store into finely tuned sites, enabling mall/store owners to direct the flow of traffic efficiently around the information coming from the user to the benefit of the user and the business owner to provide services such as VIP personalize services, and the like.

[00426] In contrast to alternative techniques, there is no device that tracks the user cellular phone. In the disclosed methods the user device/ cellular phone is the one that scans and tracks tags/beacons along the route, each scan includes the beacons ID and the user device mobile phone ID, and while these keys help track the movement of the signal and its owner, they don't reveal the identity of the user. This is a more precise method than what Google maps uses to detect a general location on a mobile phone by cell towers which are accurate between 300-1000m compared to our accuracy which is below 10m.its allow the business owner to be notify about the user existence in his vicinity and allow sending the user offers/deals more information

Google Ex. 1028, p. 445

and at the same time collect very important information to the business owner such as habits, profile, preference of the user to provide precise contents directly to the user cellular phone.

[00427] Example of Scenarios:

[00428] A user in a mall can use a local guide and navigation application suggest to him to download at the mall/building/facility or have the application already as a cellular phone mapping application.

[00429] As part of the application the Bluetooth on the user's mobile phone will scan signals from known locations-Bluetooth beacons and will determine the "user's" location on the local mall map (the same way as a GPS) with accuracy of less than 5m. (More beacons with LESS signal range=more accuracy)

[00430] For example, the Bluetooth beacon can broadcast an RF signal that includes its position coordinates (e.g., latitude, longitude), which can be detected by a mobile device. The position coordinates can provide a third location accuracy for the current location of the mobile device by virtue of the mobile device adopting the position coordinates of the beacon as its own position coordinates.

[00431] The known locations of a number of beacons in a geographic region (hereafter a "beacon infrastructure") can define a geofence that encompasses the geographic region.

[00432] In some implementations, the beacon can also advertise location based services provided by the beacon infrastructure. Upon determining that the mobile device crossed the geofence defined by the beacon infrastructure. The application can monitor for beacon signals and continuously update its location to be the location of the beacon currently in proximity with the mobile device.

[00433] When the mobile device loses contact with the beacon for a defined period of time (e.g., 5,10 minutes) or when the mobile device exits the geofence defined by the beacon infrastructure, the application can transfer the monitoring back to the application subsystem, so that the location of the mobile device can be determined using Wi-Fi and or Cellular ID.

Google Ex. 1028, p. 446

[00434] In some implementations, the application can distinguish between beacons in the beacon infrastructure and mobile beacons that may be detected in a scan, such as other Bluetooth enabled mobile phones operating within the beacon infrastructure.

[00435] For example, each beacon in the beacon infrastructure can provide data in its broadcast signal that indicates that the beacon is part of a beacon infrastructure.

[00436] Alternatively, or in addition, when a mobile device makes first contact with a beacon in the beacon infrastructure, that beacon can transmit to the mobile device a list of unique identifiers (e.g. beacons ID) of other beacons in the beacon close infrastructure and other information about the beacon infrastructure, such as a name, geofence data, one or more websites associated with the beacon infrastructure.

[00437] Beacon infrastructure can be located in any geographic region, including businesses (e.g., shopping malls, retail stores, restaurants), landmarks (e.g., museums, airports, parks, entertainment venues) and any other environments where location based services are desired.

[00438] The available local advertising marketing is huge with over $150 billion in revenue in the US alone.

[00439] Indoor LBS Applications

[00440] This is a concept that offers a complete suite of application from finding parking to navigation of indoor malls\stores and with a capacity to navigate to emergency exits with a low cost to implement and with a business model that can be used to attract customers.

[00441] The application represents a big opportunity in the navigation market and will open up new avenues for companies from telephone operators to mall/store/department storeowners to navigation and mapping companies.

[00442] The disclosed technology presents a low cost and easily deployed infrastructure for local based navigation outdoors and indoors without the need for GPS and or cellular networks. Moreover, the concept is especially suitable for local area (indoor and outdoor) services when and where the GPS and the cellular network can't provide the solution and the accuracy needed to provide such navigation (1OM or less).

Google Ex. 1028, p. 447

[00443] The disclosed technology provides a system is based on existing Bluetooth, a technology that is proven to be stable, simple, inexpensive and mature in market use. Moreover, it is a common communication tool and is available on more than 85% of all new mobile phones.

[00444] System Architecture:

[00445] The infrastructure consists of RF Bluetooth beacons installed in known locations in a local area. The beacons will respond to Bluetooth device scanning inquiries made by "user's" Bluetooth enabled cellular phone or other Bluetooth device with a the special application.

[00446] Each of the RF beacon are ID that represent the Location ID as well as represent the facility/product type. A mobile device as well as any Bluetooth device (desktop, laptop, tablet and cars etc.) can become also a beacon providing a new echo system where an infrastructure can include static and dynamic deployments of beacons interact with each other's.

[00447] The local area map (mall map, store, building map, area map etc....) will be available to be downloaded as part of a mapping system that can be triggered to download at the entrance of the building/mall/area or the directory to provide the mapping for the navigation or as part of a mapping and navigation application.

[00448] A "user's" Bluetooth cellular phone will scan the local area for the location beacons. When a "user" is within 5/10 meters, the location beacons respond, providing room- level navigation accuracy. The beacon ID as well with signal strength will provides instant localization determination, with multiple beacons installed and possibly receiving more than one beacon's signal, a simple triangulation calculation and options for signal strength will determine the exact location of the "user" on the downloaded map of the local area. Note that there is no communication establish between the beacons and the mobile phone (no pairing), and that no connections to the Internet are necessary (even so to be provide with more information you may need Internet).

[00449] Other signals not on the list will be ignored, There is a mixed use of beacons and delivery option depending on the application (for example in a mall application, the stores can have a WAP or use the Internet to automatically deliver more content push to a "user's" mobile device where the beacons serve as navigation "antennae" as well as trigger mechanism to

Google Ex. 1028, p. 448

provides application exploit and waypoints contents to help the "user" navigate in the area. Application can be: Sales Sense-Next Generation Marketing Tools: the Behavioral Module, Nav4Parking,Nav4Realty, Nav4Mall, Nav4Sale, Nav4Museurn, Nav4Show, Nav4Train, Nav4Sign, Nav4Emergency, Return2Parking, Nav4Store, Nav4Conference, Nav4Disney, Nav4Events,

[00450] Moreover, according to research, indoor navigation may be more important than outdoor navigation and may represent a huge new market.

[00451] The technology disclosed herein enables shopping centers, malls, department stores, buildings, airports, train stations, exhibition centers, museums, and amusement parks to understand the way that their customers or passengers flow through their premises. At the same time it provides the user/shopper with unique indoor navigation capability without compromising user privacy.

[00452] The innovation disclosed herein enables, for the first time, the navigation and GPS industry to tap into the local advertising market, estimated to be $150 Billion in the US alone.

[00453] The technology disclosed herein provides a reliable method for identifying the path habits and the behavior that people take through an area.

[00454] There are a number of advantages to the technology disclosed herein, including:

Extremely large sample size as mobile penetration is above 90%

Shoppers remain anonymous accurate to within 5 m

Based on a Bluetooth technology

[00455] For retail areas, malls in particular, the advantages of understanding shopper behavior are significant. Such information can assist the mall to:

[00456] Evaluate and improve their retail tenancy mix by identifying which stores shoppers consider complementary. The device/cellular phone is the one that scans and tracks tags/beacons along the route, each scan includes the cell's unique Bluetooth ID, and while these ID'S help

Google Ex. 1028, p. 449

track the movement of the signal and its owner, they don't reveal the identity of the user. This is a more precise method than what Google maps uses to detect a general location on a mobile phone by cell towers which are accurate between 300-1000 meters compared to accuracy of the disclosed technology which is below 10 meters.

[00457] Some reports about shoppers show how valuable behavioral information actually is and the profit opportunities that come along with this:

[00458] Where they go, Where they go next, Where they do what, When they do what, who does what?

[00459] Understand behavioral patterns across demographics. Similarities, differences and much more.

[00460] Sales Sense User Preference Module

[00461] Every day millions of people access the Internet and enter their profile, personal information, or answer questions about their preferences in order to access a service/site, to get to a mall, identify underutilized areas in the mall, understand the impact of anchor stores on the incentives, coupons, specials, etc.... The sites use the information for marketing and in some cases, share or sell the information. Recent research has found that most people:

[00462] Measure the implications of particular promotions or center events

[00463] Assist with planning day-to-day mall operations

[00464] Provide add-ons for the shoppers

[00465] Provide shoppers with a "web" like shopping experience

[00466] Provide shoppers with incentive/advertising and automatic check-in method

[00467] Increase security

[00468] And in an emergency provide the shoppers with alarm and notification

Google Ex. 1028, p. 450

[00469] The disclosed technology is the only system known today that can gather information on shopper paths continuously and accurately using a RF Bluetooth or Wi-Fi beacon technology and all without compromising the shopper ID or his privacy.

[00470] The disclosed unique and innovative system and method which can also provide a way of surveying the behavior and preferences of the "user" shopper simply by observing the signals (Bluetooth beacon ID) associate with their mobile phones and at the same time provide the shopper with a unique special application for indoor navigation and local based service for the benefit of the shopper and the business owner.

[00471] The data collected using the technology can be used to provide trend reports showing which shops are most visited and at what times, whether there are sufficient public facilities to serve the visiting shoppers or whether more security staff are needed to name only a few of the potential benefits. Ultimately, the data made available by the disclosed invention helps shopping centers to become more in-tune with their customers so that they can create better, more pleasant places to visit by providing a loyalty and reward program.

[00472] Analytics provided by the disclosed applications can turn shopping center/department store/store into finely tuned sites, enabling mall/store owners to direct the flow of traffic efficiently around.

[00473] In contrast to alternative techniques, there is no device that tracks the user's cellular phone. In the disclosed method the user is willing to give information for incentives.

[00474] Using the profile and records, the surfing habits of the user (IP) is the way that all the search engine companies make money on the Internet. At the same time they try to direct the content to the user according to their profile/habits. But what about real life? People spend more and more time indoors (according to recent research, people spend more than 90% of their time indoors).

[00475] As part of the blue umbrella suite of location based services (LBS) application, the user's cellular phone will scan the area for the tags/beacons. For example-by being proximity close to the directory stand in a mall a decoding of the user key will be processed in order to allow the user ID and/or preference profile and provide the user with ads, specials, and

Google Ex. 1028, p. 451

incentives according to their profile "Your customer is telling you what they want, are you listening?"

[00476] The main idea behind this is to provide the user with pin-point content according to their desired preference at the location and also direct/navigate them to the desired location where they can find the store/sales/special/coupons or the information that they are looking for. At the same time there is also a benefit to the mall/store owner by getting the next generation's sales tools, getting costumers' habits and their sales profile, and able to serve better and accordingly the costumers.

[00477] The sales sense, user preference module is an add- on to the sales sense marketing where it joins the user behaviors module to create a very unique LBS business and marketing model the analysis of these spatiotemporal data can supply high level human behavior information valuable to urban planners, local businesses, and the Local Based Services (LBS) marketing.

[00478] Mall/department store/store indoor applications are part of nav4mall/store

[00479] The indoor applications and navigation takes a further step to give the user/shopper next generation shopping tools by providing them with the following indoor applications that are part of nav4mall/store.

[00480] Map and indoor Navigation-brings the local mall/ store map to the digital age, allowing the user to navigate from waypoints to waypoints on the map Directory- It brings the store/mall directory to the cellular phone. Search and Find-store/place/item products that are on the directory represent waypoints/tags/beacons on the loading maps.

[00481] Sales/specials-discounts, sales, and coupons, that can be added-on or a replacement for the mall/store flyer that provides the shoppers at points in the mall/store, it can even direct the user/ shopper to the aisle with the products and to coupons and directs the shoppers to what they looking for.

Google Ex. 1028, p. 452

[00482] Parking and return2parking- although not directly the same beacons (for the parking the infrastructure employs long range beacons where in a store/mall the beacons can be a shorter range). The disclosed service allows the user to find parking spaces and location of parked cars.

[00483] Info-the information part can provide information about events, restrooms, ATM locations, seating area, kids playground, fountain, public phones etc....

[00484] Emergency-A very important part of the disclosed innovation is the ability to provide the user with a unique alarm and notification to the user without depending on other communication links like cellular phones that are prone to failure in emergencies. The present invention provides the user with the building/mall/store/place emergency procedure and in emergency will help navigate the user to safety.

[00485] Panic-part of nav4emergency allows the user to request being located in an emergency.

[00486] Privacy: The system does not collect personal information such as name or phone number. It does, however, record the phone's Bluetooth identification number to build a profile of the user or the use of the phone in the area. It is like surfing the web where a "user's" IP address is recorded for future marketing statistics and surfing habits (with permission from the user). Also as part of the encoding key into the Bluetooth device (user profile) as described in the sale sense part the privacy and security increases to the level where viewing the key broadcast by the Bluetooth device can't reveal any user identity unless the user requests to be registered to get incentive, specials, sales, etc., even then his name or other personal information is secure and only the Bluetooth device key/ ID are recorded.

[00487] By directly targeting the consumer standing right outside or inside a business, an event, or walking toward a kiosk or restaurant, merchants can maximize their marketing budget while incorporating a new, inexpensive and effective form of advertising.

[00488] The "user" is in complete control. They can disable their Bluetooth application any time or just reject content, there is no "spam" effect and the "user" is attracted by incentives rather than generic promotions. In a mall-like environment a "user's" incentive to use the

Google Ex. 1028, p. 453

disclosed technology can be further enhanced with the use of the associated key advantages and packages.

[00489] Isn't this all a bit like "big brother"? Not at all, and it isn't even "little brother"! The system simply logs the movement of a cellular phone around an area and aggregates this to provide trend data for businesses. It's much less intrusive or invasive than existing methods that are already in widespread use-for instance CCTV cameras and number plate monitoring as they do collect personal information such as your image or car number plate. The disclosed technology represents the next generation shopping experience in shopping centers, malls or stores and fits very well with today's business model. Such a service can be offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include the full "suite" of applications especially designed for shopping malls/stores and including the emergency part of it will also ease the fear of "locating" or any other privacy issue.

[00490] Who benefits from the disclosed technology? Everyone benefits from the trend data collected. The process enables a way to collect instant feedback from shoppers without having to bother them for information. In the old days centers would have used researchers to survey consumers but this information takes time to collate and response rates are very low these days as shoppers have increasingly become reluctant to stop and share their feedback. Hence the disclosed innovation provides a very effective method in the same way that TV networks know how many people watched particular programs and use that information to discern what programs to make and how to calculate the costs advertisers must pay to promote their products during different timeslots, the system provides the equivalent for shopping center owners and their resident retailers. It is believed that introducing the proposed system and marketing tools above can help users and merchants upgrade the real shopping experience of today with the advantage of the web like tools.

[00491] The disclosed innovation represents the next generation shopping experience in shopping centers and malls and fits very well within today's business model. Such a service can be offered for free to the "users" and backed by advertising and the use of the data by the stores.

Google Ex. 1028, p. 454

Such service and application and the ability to include, the emergency part of it will also ease the fear of "locating" or any privacy issue.

[00492] For the first time the shopper will experience Internet type marketing in the traditional sales and advertising venue.

[00493] Here are the benefits consumers could see from shopping center using the disclosed technology:

Better in-mall events-- the system can monitor how successful they were by monitoring the sheer volumes of people attending and for how long.

Provide shoppers with next generation sales tools: navigation in your mall store facility directly to the sales or specials that you want them to go to ....

Add-on to the store/mall directory and the in-store mall flyer.

Take the guessing from the customer's next want ...and then send them directly to the products, coupons, or specials they might want.

Improved public transport links-by monitoring how people traveled to a center. With the government's current emphasis on helping people to use public transport more effectively, having this kind of information can have a very positive, local environmental impact. Busy shopping centers can otherwise create large volumes of extra road traffic, also with the search4parking and return2parking application improves traffic, saving time and gas.

Eliminates congestion within the shopping center-- the disclosed innovation can help center management understand whether opening hours need to be extended or whether the center layout needs to be improved to avoid congestion.

Improves shopping center and public facilities efficiently- the disclosed innovation's data helps managers to understand which parts of their facility are very busy which means they know when to deploy extra employee/cleaners/security to ensure proper service.

Google Ex. 1028, p. 455

Better security--over-crowding also leaves shoppers vulnerable to pickpockets and other security risks. The disclosed system can identify congested areas and ensure security personnel are deployed appropriately. And in an emergency the disclosed system can provide instant alarm and notification even if the cellular communication or other system is not available.

Improved mix of stores and center layout-the system helps identify which stores are popular and which are not- making sure that the best possible layout and mix of shops is provided for visiting shoppers. If some shops are unpopular they can be switched for brands that customers actually want.

[00494] It is believed that shopping should be an enjoyable pastime. Who wants to go to shopping center that are congested, poorly laid out, have dirty toilets, are badly positioned for transport links and which pose a security threat to visitors? Altogether this makes for a much better shopping experience.

[00495] How do shopping center owners and retailers benefit? The benefits for shopping center owners of using the disclosed technology are huge and there are many possible uses for the information gathered. The disclosed applications can help shopping center owners get a better understanding of how people use their center such as the order of stores they visit and the time they spend in different areas of the center.

[00496] These days, visits to shopping malls are falling with increased competition from supermarkets, retail parks, and the Internet. With visit frequency going down it is critical that the shopper experience at the mall is exceptional and that is where the disclosed applications come in. The information can assists malls at all levels, from the very mundane to the more strategic questions that they face-such as whether or not they have the right mix of retailers across the mall.

[00497] Similarly it could help museums identify their most popular exhibits and help exhibition companies plan their venues more carefully around visitor traffic flows.

Google Ex. 1028, p. 456

[00498] The disclosed technology is able to provide a solution with quantitative feedback on whether the changes they make in the mall are successful. One of the ways to do this is by looking simply at how long shoppers tend to stay within a mall.

[00499] Don't retailers already measure shopper numbers? Yes they have infrared cameras and counting machines, which monitor and count the numbers of visitors to their stores. This measure is known as "footfall" and has been used by retailers for many years. The disclosed system provides another level of data by looking at the aggregate paths that mobile phone carrying visitors take and the length of time they spend-known as "dwell time".

[00500] In the past malls have focused solely on looking at the numbers of shoppers that they are drawing through the doors (footfall) but when combined with dwell time they can get a much more accurate predictor of their performance.

[00501] The system has no idea who the user is an individual. The system only looks at the path the user's phone takes. Essentially, it's like looking at a dot moving around a screen. In isolation this information isn't too interesting until you look at the wider patterns and trends and see lots of dots taking the same route or visiting the same areas of the mall.

[00502] What is the Bluetooth ID number? A Bluetooth ID is like the IP number in a computer network or the Internet which does not contain or reveal your phone number that the network operator uses to identify your phone. The system utilized the ID information as a key to find and detect the user.

[00503] The linkage between this identifier and your personal information is very critical to the business owner as it can provides a user habit preference profile and provides a new breed of tools to the business owner just by getting to know where the user is, and at the same time to provide the user with the best "VIP" like personalize shopping services.

[00504] The disclosed applications do not detect any personal information and have absolutely no idea who you are as an individual. Although the applications include an option for users to register as mall/store customers to provide more details about you (still no real ID), like a membership cards that will be provide the user with incentives, coupons, or special discounts if they participate. Moreover recent emergency events prove the need for emergency and

Google Ex. 1028, p. 457

notification to the "right people" at the "right time", by keeping the key/ID of the Bluetooth devices that are in the area/facility the disclosed nav4emergency can provide instant alarming and notification and navigation to the exit route and to safety all without revealing user ID or breaching privacy of the users.

[00505] The business model-Next Generation Marketing: The web advertising and the main focus of search engine success is based on technology that tracks the web user's habits and provides him with related ads according to his interests.

[00506] Using the disclosed infrastructure of a Bluetooth beacons, wherein the beacons are deployed about in a mall, store or shopping center environment. The disclosed invention represents a very unique ability to bring a web like shopping experience by its ability to keep up on the "user's" "surfing" or shopping habits in the shopping center, mall, or store. It will provide a better shopping experience (coupons, specials sales, according to the user's shop- ping habits) and service to the shopper.

[00507] Even though it may look like a privacy issue, the add-on services, the application, and the idea that it may save the user's life (nav4emergency application) combined with the fact that it does not reveal the person's name or telephone number, it is the same as the everyday use of surfing the Internet when the user's IP is recorded by the web sites and provides the basis for the "ad sense" or the web marketing tools, referred to as a "sale-sense".

[00508] It is believed that introducing the disclosed system and the associated marketing tools above can help the users and the sellers to upgrade the real shopping experience of today with the advantage of the web like tools.

[00509] The disclosed innovation represents the next generation shopping experience in shopping centers, malls and fits very well with today's business model. Such a service can be offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include the emergency part of it will also ease the fear of "locating" or any privacy issue.

[00510] For the first time the shopper will experience Internet type marketing in the traditional sales and advertising venue.

Google Ex. 1028, p. 458

[00511] The disclosed innovation provides valuable solutions that enhance the effectiveness of ad campaigns. The ability to optimize performance in real time has a positive effect on advertiser satisfaction. The fact that this service is well integrated into the disclosed system is a tremendous advantage.

[00512] The disclosed innovation is a performance-enhancing technology, providing great data and allowing improved customer service.

[00513] It can be an extremely effective way to optimize the performance of offline/online advertising campaigns in the mall/store environment. For excellence in client services the idea is a clear win-win for everyone.

[00514] Helping to understand where users are going in the mall/store in real life and their buying behavior patterns will allow the merchants to continually adjust offers, placements and creative content to improve buy-through and maximize sales.

[00515] The disclosed technology will evolve mobile content into a bonfire revenue center that will benefit the shopping mall operator and merchants alike.

[00516] The "user" is in complete control. He can disable his Bluetooth application- any time or just reject content, there is no "spam" effect and the "user" is attracted by incentives rather than generic promotions. Probably the best technical analogy would be to compare the disclosed technology with existing web-based systems that measure viewers of web sites, for example Google Analytics.

[00517] For example, the Bluetooth beacon can broadcast an RF signal that includes its position coordinates (e.g., latitude, longitude), which can be detected by a mobile device. The position coordinates can provide a third location accuracy for the current location of the mobile device by virtue of the mobile device adopting the position coordinates of the beacon as its own position coordinates.

[00518] The known locations of a number of beacons in a geographic region (hereafter a "beacon infrastructure") can define a geofence that encompasses the geographic region. In some implementations, the beacon can also advertise location based services provided by the beacon

Google Ex. 1028, p. 459

infrastructure. Upon determining that the mobile device crossed the geofence defined by the beacon infrastructure. The application can monitor for beacon signals and continuously update its location to be the location of the beacon currently in proximity with the mobile device.

[00519] When the mobile device loses contact with the beacon for a defined period of time (e.g., 5,10 minutes) or when the mobile device exits the geofence defined by the beacon infrastructure, the application can transfer the monitoring back to the application subsystem, so that the location of the mobile device can be determined using Wi-Fi and or Cellular ID.

[00520] In some implementations, the application can distinguish between beacons in the beacon infrastructure and mobile beacons that may be detected in a scan, such as other Bluetooth enabled mobile phones operating within the beacon infrastructure.

[00521] For example, each beacon in the beacon infrastructure can provide data in its broadcast signal that indicates that the beacon is part of a beacon infrastructure. Alternatively, or in addition, when a mobile device makes first contact with a beacon in the beacon infrastructure, that beacon can transmit to the mobile device a list of unique identifiers (e.g. beacons ID) of other beacons in the beacon close infrastructure and other information about the beacon infrastructure, such as a name, geofence data, one or more URLs to websites associated with the beacon infrastructure. Beacon infrastructure can be located in any geographic region, including businesses (e.g., shopping malls, retail stores, restaurants), landmarks (e.g., museums, airports, parks, entertainment venues) and any other environments where location based services are desired.

[00522] The system use and costs should scale well with its ability for multi-use in an emergency and in a non-emergency to provide local navigation on malls/store campuses, buildings, hospitals, hotels, malls etc.... using the Bluetooth beacon for navigation. Some of the key applications are:

[00523] NAV4Mall NAV4Store NAV4Sale or just University or Building Navigator, explore the indoor mall or inside a department store, navigate to the right place or the store or the department that you need. Navigate on the mall map/store mapping to find your way around all

Google Ex. 1028, p. 460

using your cellular phone or navigation system without a GPS. A new kind of service and new marketing way for the malls/store business owners, an add-on to local advertising.

[00524] With an indoor navigation based on the local map/ mall that will provide the user a navigation to his desired location in the mall/store and receives content according to his preferences or habits the user can be directed to a store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. The store will have also an option to deliver more content (advertising, sale, coupons, promo etc....) to the user when he approaches the store or already is inside via Bluetooth or Internet push to the user cellular Bluetooth enable. And in emergency-the nav4emergency will kick in, the nav4store mall module is the one that is described in more details in the patent application.

[00525] NAV4Museum NAV4Conference NAV4Show, explore museums or conference show exhibits in a new unique and easy way, find your way around when navigating on the floor map of the museum conference or the show, indoor navigation, navigate to exhibits restaurants, cafes, lavatories etc.... all to the "user" navigation or cellular phone. Any Museum Conference or show provided to the attended a mapping to the exhibits, some provide also additional audio device (headset) to get more information on the exhibits. The disclosed innovation will provide a unique indoor tools that will allow the attended to navigate the museum, conference or show in an easy way directly to his Bluetooth enabled cellular phone, when he reaches his desired exhibit he will be allowed to download directly to his cellular and or Bluetooth headset information about the exhibits. An indoor navigation to the exhibits as well to the restaurants, cafes, lavatories etc.... All to the "user" navigation or cellular phone and based on the facility map. And in emergency-the nav4emergency will kick in.

[00526] For all the users of mass transportation system the disclosed innovation will allow, locate, and point the "user" to the exact station or location on a route, an easy way to navigate in the train, subway, underground kind of system, a new way of "subway" or bus mapping in/out door and directly to the user's navigation or his cellular phone. Every day millions of people are using the mass transportation system, trains, sub- ways, buses, each of the passengers depend on the transportation map for the route information as well as schedules and additional services

Google Ex. 1028, p. 461

provided by the transportation system. Most of the passengers of today carry with them a cellular phone.

[00527] Such method can be used by the management of the transportation system, train, buses, taxi and road management where the RF beacons can be installed in any transportation facility or entity to provides traffic and even on-demand transportation request as well as on-line real time traffic and transportation "head count" of the mobile device exiting in the local area according to associate with a proximity beacons installed in the transportation entity of transportation infrastructure ether parking, traffic, sign, schedules and time to station and traffic – how many people at the station or bus stop or at area to create a need to taxi or public services as on-demand service.

[00528] Aside from such data gathering and the important of such statistically information to manage the flow of transportation in a local area where the beacon serve as "sensor" to detect the traffic in specific area to be monitored by collecting how many device are in that location and in event of emergency can provide emergency notification and alarming the local devices.

[00529] The method explained can be used to manage the transportation and provides automatic awareness into transportation managements and operators as well as the user on the road where he can automatically get information about traffic in his area generated from associates, his cellular id and/or the car Vin broadcasting method (a method where the car himself become an a long range RF beacon) and an RF beacon installed on the road – automatic traffic information that tracks the existence of the user in the area and proximity to a beacons installed in the road/transportation facility (even the traffic at intersection). infrastructure of wireless beacons to the benefit of transportation industry managements by providing automatic crowd sourcing data from the users along the road By delivering the beacons id they proximity to and have it statistically view as data guttering for events like traffic on the road automatically, adding such technology and infrastructure into the roads may take time so the use of the driver and passenger or the pedestrian cellular phone as a beacon and as automatic traffic notification can provide instant infrastructure- dynamic immediate deployment for the benefit of the transportation as well as the drivers in view of the driver and or the passenger and even the car

Google Ex. 1028, p. 462

can be set as a beacon and part of the automatic transportation system to alert for traffic and road safety and even for a car to car automatic notification of traffic and road information.

[00530] The disclosed innovation provides the passenger with the navigation inside the transportation system directly to the passenger's Bluetooth enabled phone; the passenger will know the exact location/station on the route as well as additional information on options like schedules. A new add-on service to the transportation providers as well to the passengers utilizes the disclosed indoor navigation method, and in an emergency-the nav4emergency will kick in.

[00531] The disclosed idea of implementing RF beacons alone the roads and in transportation facilities is designed to reduce the growing congestion on the roads and by providing a tools to provides intelligent transportation system, the implements of beacons can be part of a car, installed in red lights or in the road or in transportation facility, such system that installed in bus or subway or transportation entity n provides real time on line report if they empty or filled with travelers but just provide the automatic response from the user/car device associate with the RF beacons that will be installed in the bus/train the information will allow transportation control that can be done today only with installed high cost camera or sensors or depend on manually collect information from the users or GPS, and the GPS is not available indoor or provides an accurate information, in a simple way the user mobile phone automatically inform his "proximity" beacon ID, more of the same beacon ID reported meaning traffic or head count of cars/travelers etc.. in the transportation facility/entity area, in a way the method provides an "automatic waze" system, such system can even replace exiting sensors and provides the user as well of the transportation management with ability to know exactly where the bus/train/subway at a time, the data can be serve for schedule or on-demand public transportation, like sending bus/taxi to an area according to demand in the area. Such method can provide the user as add-on traffic and transportation information where he – the user play big part of it and it is not depend on manual transfer of information that some time proven to be not accurate enough. One application creates an echo system where the drivers of cars and the transportation entity are all integrated for an intelligent transportation system of tomorrow and all based on the same concept of infrastructure on RF beacons statics or dynamic in location where the user mobile phone as well as the car are integrated part of such system. Note that a mobile device as well as any Bluetooth device (desktop, laptop, tablet and cars etc.) can become also a beacon providing a

Google Ex. 1028, p. 463

new echo system where an infrastructure can be including static and dynamic deployments of beacons interact with each other's. Again, adding such technology and infrastructure into the roads may take time so the use of the driver and passenger or the pedestrian cellular phone as a beacon and as automatic traffic notification can provide instant infrastructure- dynamic immediate deployment for the benefit of the transportation as well as the drivers.

[00532] NAV4Theme Park -Theme and amusements Park navigation, navigate to your desire attractions as well with a new way for register to a "fast pass" kind off lane all in an easy way to the "user" cellular phone without the need for GPS Provides a new media and-on service. Ever wonder what it will be like to navigate inside the amusements park to the desired attraction, to know the schedules of the shows at the attractions and even to get your "fast pass" from a remote location instead of standing in line. All based on RF beacons that installed in the local attraction points and provides the triggering mechanism for guide navigation and the additional information about the ride/attraction. With the disclosed unique innovation, all can be become reality and directly to your cellular phone without the need for a GPS. It is understood that this technology can provide a new tool and service to the benefit of the amusements parks as well to the user.

[00533] Cellular next "Killer Application": Emerging technology markets are always on the lookout for that elusive "killer app"-the precious, irrefutable application that makes adopters stand up, take notice, and open their wallets. Once it's found, and as soon as adopters realize firsthand the value to be achieved, that killer application eventually expands into other, more advanced areas of adoption and innovation.

[00534] Hotel resort and cruise ship: A good example of use will be Nav4 Hotel Resort Cruise ship. The benefit of the proposed system and infrastructure of installed RF beacons in such places as cruise ships, hotels, resorts, and hospitality facilities to the business and to the guest.

[00535] The subject invention creates infrastructure of RF beacons in the facility, hotel, resort, and cruise ship areas to be integrated with the existing hospitality system and provide a trigger mechanism when the existence of the traveler/guest is detected.

Google Ex. 1028, p. 464

[00536] The association between the guest mobile phone or the hospitality employee mobile phone and the RF beacons ID will allow the example option below, as such there is two parts for the system to work, the infrastructure of the RF beacons installed in the local hotel, resort or cruise ship and the guest or employee mobile phone with the Bluetooth and or Wi-Fi and the application, note that the system can be work even without Internet and/or cellular communication and can utilize existing Wi-Fi system and local servers.

[00537] Example of some of the benefits and functionality to the hospitality system are:

Automatic check-in and interface to the front office system and billing folio

Link to key system or even replace the room key.

Recognize guest in-room, turn on Air condition and light – and turn off when the guest leaves the room to save electricity can be setup to automatic or manual.

Hotel resort cruise ship navigation.

Allow local messaging without Internet and or cellular communication based on local chat (especially fit to the cruise ships).

Allow push messaging to the guest by local services or by remote (when Internet is available).

Replace and ad-on to the guest in –room package of the area guide and deals and coupons.

Option of VIP services where the guest can be recognized automatically around the hotel, resort, and cruise ship for his profile preferences just by being in the area – providing personal treatment and services.

Room can be set to be open or close to clean according to guest or housekeeping existence.

Housekeeping management room status attended worksheet and productivity report.

Google Ex. 1028, p. 465

Increase security to the guest and to the hotel resort.

Allow the creation of profile preference of the guest companies group.

Provide check-in to a restaurant interface to a POS system bar system and menu selections.

Provide automatic ticketing and seat selection.

Guest loyalty, membership program incentive.

Increase security and provide add on to the security plan of the hotel, resort, and cruise ship to be part of the emergency evacuation and emergency procedure.

[00538] It is believed that the disclosed invention will meet the desire of hospitality service providers to increase their average revenue per user.

[00539] The main object of the present invention is to provide the indoor guide navigation and a special application for indoor use without the need for GPS communication.

[00540] It another object of the present invention to provide a method of providing special indoor application using an RF beacons Bluetooth and/or Wi-Fi and Bluetooth-enabled devices especially the cellular phone.

[00541] It is another object of the present invention to provide a method of special application for local business, mall/departments store or regular store, buildings, downtown centers and other facility area especially but not limited to indoors with a use of triggering application that uses the proximity ID of the detected beacons in the area.

[00542] It is another object of the present invention to provide a marketing model method especially but not limited for the LBS market.

[00543] It is another object of the present invention to provide a business model method especially but not limited for the LBS market.

Google Ex. 1028, p. 466

[00544] The foregoing and other objects of the present invention are achieved by providing an infrastructure of a Bluetooth beacons/tags installed in a known location in the area/facility, each tag/beacon has his own unique ID to ID the location in the area, the tags/beacons broadcast the ID to be pickup by the cellular Bluetooth mobile device.

[00545] An indoor mapping or mapping images of the area/facility will be part of the application and can be download before arriving to the area/ facility or trigger download at the area.

[00546] The application on the cellular phone/Bluetooth enabled device will scan the area/facility for the tags/beacons ID/name when a Bluetooth tag that matches the list responds to proximity detection and establishes a signal strength that may be calculated and when more than one beacon signal receives a simple triangulation can be done to find the current location. Other Bluetooth device not on the list will be filtered out.

[00547] The locating is established and will be displayed on the map. And because the location of the other tags/beacons is known navigation between the current location and a desired tag/beacons that represent waypoints are easy to achieve. In reality no communication is established at all between the tags/beacons and the cellular phone.

[00548] The disclosed innovation reverses the current idea of "locating" the user by letting the user navigate utilizing to the beacons of Bluetooth beacons (whose signal is sent by way points) directly to the user's mobile device. This will allow LBS (Local Base System) navigation, even indoors without GPS or Cellular network as well as triggering application and even link to existing system and software.

[00549] The RF beacons can reach from long distance depending on the application and the antenna used by the RF beacon (to get more accuracy less range and more beacons may needed so the 10 m is more than needed in building/room environment) getting more range to the "box" is as simple as attaching a bigger antenna or power buster to increase the signal.

[00550] The user is in a complete control, they have the choice to turn it on or off at any time.

Google Ex. 1028, p. 467

[00551] User can choose to be registered: membership privilege, student in a university, school, and business especially for receiving direct incentive specials coupons etc.... and for a full nav4emergency protection.

[00552] The disclosed applications let the user choose between participating and receiving incentives, specials, sales, coupons and local content tailor to the user preference, all for free, or they can choose not to participate and pay a small fee for the service and the software. In any case the user's privacy is still protected to the highest level compared to any normal daily use of the Internet ...!

[00553] There is also a great benefit to the user participating-they can have full emergency notification directly to their phone and in an emergency they can be directed by the emergency procedure in the area/building/mall/store and navigate to the exit route, even if the cellular network fails due to the high volume of traffic occurring in an emergency situation.

[00554] In the disclosed method, there is no detector or tracking for the user, the user themselves engage the scanning and detecting method to find the beacons in the area the user device with the proximity scan beacon providing the triggering mechanism.

[00555] Other than that, the proposed solutions create a full suite of applications for the benefit of the user, from parking to sales specials to indoor navigation, to be informed and notified in case of an emergency and directed to the exit route to safety.

[00556] The disclosed method can be attractive not only for shopping malls, department stores, or downtown strips but also to high-rise buildings, commercial buildings, universities, schools, museums, amusements parks, trains, subways, and hotels. It can also be attractive to search engines, advertising companies, cellular phone operators, manufactures, GPS companies, mapping, local businesses, local advertising, location based services (LBS), and the like. The disclosed method can give the LBS a new meaning-the business model that's made easy.

[00557] A facet of behavioral targeting has been around for a while but mostly on-line but it's been gaining traction among ad agencies retargeting program is now a key planning consideration for its advertisers.

Google Ex. 1028, p. 468

[00558] Why? The primary reason is because retargeting is a powerful means to bring lift to ad campaign results, generating higher conversion rates and lowering acquisition costs. You can't get much more effective than targeting a person who has shown interest in a product but didn't buy with a related ad that then gets him to buy, right? It generally fails to tap the unique opportunities of local advertising market estimates to be over $150 Billion in US alone . . ., Although people are spending more than 90% of their time indoor, there is no clear technology to provide indoor navigation and not clear business model, the advertisers, the business are disillusioned with the promise of location base services (LBS) but are still longing for a solution that properly addresses the significant audience represented by the explosion of cellular phones use and the availability of content.

[00559] It is understood that the disclosed innovation technology and business model can provide the next generation method for the LBS market to tap into the huge market opportunities.

[00560] The disclosed methods represent a very unique way of locating the exact location, in the method the user scans the area for a known list of beacons/tags, the user controls the scanning of the area for the known tags ID type, in reality there is no communication to be established at all between the user and the beacons (no pairing needed!), the user device scans the area for a known tags and the determination of the location done by beacon ID and signal strength to the proximity to the tag/beacon provides accuracy less than 5m.

[00561] Added to the navigation feature is the special indoor application design especially for indoor/store/mall shoppers from finding where the user parked his car to find/search of directory to an emergency alarming and notification.

[00562] Moreover this innovation is not depended on cell communication or Internet for the detection method as there is no need for central system nor expensive infrastructure, in fact the user device-cellular phone as well with the infrastructure tags/beacons have battery built in and can work even if the electricity is out, very important in emergency situations.

[00563] Moreover the sale sense marketing method comprising a unique way of delivering local content, advertising, coupons, special sales etc. pin point according to user ID and or profile preference that can be a record of behavioral activity and will provide simple and secure

Google Ex. 1028, p. 469

method for targeting user for LBS services and other services replacing like near field communication for marketing and even payments transactions.

[00564] The disclosed innovation provides a full line of indoor navigation application especially to places/area

[00565] An indoor navigation system may include a navigation computer, an arrival detection system. The navigation computer may be configured to receive a destination to which a user of the mobile navigation system wishes to travel and to provide guidance to the user about how to navigate to the destination. The arrival detection system may be configured to automatically detect when the mobile navigation system has arrived at the destination by being in a proximity to an RF beacon ID in the local area. The detection system is based on sense or scan of the existence of RF beacons installed in the local and be configured to wirelessly transmit automatically an arrival notice indicating when the user detects the existence of a proximity of a RF beacon and detects that the user has arrived at the destination in response to detection by the detection system of the arrival of the mobile navigation system at the destination.

[00566] The mobile navigation system may be part of a cellular telephone or any navigation device using a Bluetooth, part of the detection is a notification system is configured to wirelessly transmit the RF beacon ID of the proximity beacon and to associate the mobile ID of the user to determine the exact location of the user to provide for example: arrival notice to a representative of an airline. The arrival notice may be configured to cause the user to be checked into a flight of the airline.

[00567] The system may be configured to wirelessly transmit the arrival notice to a representative of a hotel. The arrival notice may be configured to cause the user to be checked into the hotel.

[00568] The system may be configured to wirelessly transmit the arrival notice to a representative of a food service.

[00569] The arrival notice may be configured to trigger the delivery of merchandise or a service to a vehicle in which the user is traveling. The arrival notice may include information about the location of the vehicle.

Google Ex. 1028, p. 470

[00570] The arrival notice may be configured to trigger promotional items to be delivered to the user relating to an establishment at or near the destination.

[00571] The system may be configured to wirelessly transmit the arrival notice to a representative of a conference that has been scheduled to take place at the destination.

[00572] The system may be configured to wirelessly transmit the arrival notice to multiple recipients. The multiple recipients may include attendees of a conference that has been scheduled to take place at the destination.

[00573] The system may be configured to wirelessly transmit the arrival notice to a social networking site in a fashion that causes notice of the arrival of the user to be published by the social networking site.

[00574] The system may be configured to ask the user for permission to transmit the arrival notice.

[00575] The system may be configured to automatically transmit the arrival notice upon detection by the arrival detection system of the arrival of the mobile navigation system at the destination.

[00576] At the time the navigation computer receives the destination to which the user wishes to travel, the system may be configured to ask the user whether the user wants the arrival notice to be transmitted in response to detection by the arrival detection system of the arrival of the mobile navigation system at the destination.

[00577] The system may include a global user setting which a user may set to automatically transmit or not transmit arrival notices in response to detection by the arrival detection system of the arrival of the mobile navigation system at destinations.

[00578] The system may be configured to ask the user to where it should transmit the arrival notice, to receive information indicative of this requested location from the user, and to transmit the arrival notice to this location.

Google Ex. 1028, p. 471

[00579] The system can create and utilize a network, which is referred to as dynamic deployment. The system will use the built-in Bluetooth protocol stack module that is able to simultaneously interconnect with other local devices, such as portable cellular phones in a "piconet", over the local area. The simultaneous connectivity limit of eight (8) devices at a time is overturned by the ability of creating a plurality of piconets which operate in a close proximity. It is understood that the Bluetooth enabled devices, such as portable cell phones, can rapidly move from one piconet to another. In fact, the Bluetooth devices need only remain a member of a piconet for the period of time required to complete one communication transaction. So the Bluetooth enabled devices can join and leave a local piconet frequently, effectively overcoming the eight (8) device limit. It is noted, even without the option to use a long range Bluetooth antenna, the configuration can effectively reach an unlimited distance.

[00580] The proposed invention provides an ability to form a wireless as hoc Bluetooth network or networks based on a collection of Bluetooth mobile devices that dynamically form a temporary network as long as these device are within a sufficient range (inside a room or a building, road store or a mall). The flexibility of the ad hoc network is what makes it a suitable choice for emergency deployment scenarios, where multiple devices would be deploy in a proximity area that is designated as an emergency to provide a new way of distributing emergency and alert information directly to those in the needed area.

[00581] Moreover, based upon normal human behavior, there is no need to inform everyone in a full room, or requiring all of the proximity devices participating in the network to be informed (for example in emergency). If only a few people within the occupied room are informed or receive the emergency information on their portable cell phone, they will convey the information to others located in the area..

[00582] The same method and idea is mimicked by the concept of dynamic deployment. The concept can be paralleled as a new way to deliver critical emergency alarming and notification without infrastructure in the localized area.

[00583] Moreover, the limitation of Bluetooth coverage can be overcome by utilizing the capabilities of the Bluetooth protocol in the methods described above. For example, in a very large conference location, the localized Bluetooth network (piconet) can join each other and form

Google Ex. 1028, p. 472

a larger network that covers the entire facility, which is much larger than the limited coverage of a single Bluetooth device. Portable cell phones located at one end of the facility can communicate with a second Bluetooth enabled device located at the opposite end, where the communication traffic is relayed by one or more intermediary, bridge devices. Any Bluetooth device, in our example Bluetooth enabled cellular phones, can become the bridge. The cellular phone owner does not need to know whether his/her device is a bridge, as the process is established and functions automatically as part of the Bluetooth protocol stack routine; in effect not changing any internal behavior of the Bluetooth.

[00584] And again, there is no need to reach all the people with an emergency or other message, as if the message were conveyed to only a few in a room, at least a portion of those would inform the remaining people of the emergency message.

[00585] Moreover, the present innovation will allow the user to use a "local instant emergency messaging system". The dynamic deployment configuration provides the ability for people to communicate with one another in the same local proximity using Bluetooth, where the people can chat and exchange important messaging for free exclusive of a need for a cellular network. Just think what it can be done in emergency or even in army deployment as other communication method.

[00586] From the old days in history, humans used messengers to deliver news and information. The disclosed invention uses applies these older concepts to a device that will make it easy to distribute and broadcast the information around, using the messengers as the mobile (emergency) notification, as referred to as dynamic deployment.

[00587] These, as well as other components, steps, features, objects, benefits, and advantages, will now become clear from a review of the following detailed description of illustrative embodiments, the accompanying drawings, and the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Google Ex. 1028, p. 473

[00588] The preferred embodiments of the invention will hereinafter be described in conjunction with the appended drawings provided to illustrate and not to limit the invention, in which:

[00589] FIG. 1 presents a schematic diagram representative of an infrastructure deploying a series of radio frequency(RF) wireless beacons;

[00590] FIG. 2 presents a schematic diagram representative of an indoor mapping system utilizing RF wireless beacons, wherein the diagram depicts an exemplary application within a shopping mall environment;

[00591] FIG. 3 presents a schematic diagram illustrating basic exemplary functions of an indoor mapping application as used on a mobile or cellular phone;

[00592] FIG. 4 presents an exemplary flow diagram representative of an indoor detection and navigation process;

[00593] FIG. 5 presents an exemplary series a gradient concentric circles indicative of a location;

[00594] FIG. 6 presents an exemplary flow diagram representative of a business based application utilizing a series of deployed RF beacons;

[00595] FIG. 7 presents an exemplary flow diagram representative of a marketing based application utilizing a series of deployed RF beacons, wherein the marketing based application utilizes a profile, preferences, and other information for sales and marketing purposes;

[00596] FIG. 8 presents an exemplary schematic diagram representative of a series of functions or applications associated with a series of deployed RF beacons, wherein the series of functions or applications are generally directed for use with an RF beacon infrastructure deployed within an indoor environment.

[00597] FIG. 9 presents an exemplary schematic diagram illustrating an infrastructure employing RF beacons deployed in the indoor environment;

Google Ex. 1028, p. 474

[00598] FIG. 10 presents an exemplary schematic diagram representative of a series of functions or applications associated with transportation and/or telematics applications, wherein the series of functions or applications are generally directed for use with a static and/or dynamic RF beacon infrastructure;

[00599] FIG. 11 presents an exemplary schematic diagram representative of a series of functions or applications associated with hospitality based applications, wherein the series of functions or applications are generally directed for use with hospitality related businesses and environments;

[00600] FIG. 12 presents an exemplary flow diagram representative of a next generation marketing tools employing RF beacon technology; and

[00601] FIG. 13 presents a schematic diagram illustrating an exemplary dynamic deployment of an RF based network for use in a variety of applications, including mobile to mobile communications, car to car communications, and emergency or local communications.

[00602] Like reference numerals refer to like parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[00603] In all the figures of the drawings, sub-features and integral parts that correspond to one another bear the same reference symbol.

[00604] Referring now to the drawings in detail and first particularly to FIGS. 1-13 thereof.

[00605] FIG. 1 presents an exemplary flowchart illustrating a use of RF beacons (102). The RF beacons can utilize at least one of Bluetooth and Wi-Fi signal protocols. The exemplary system utilizes a mobile cellular phone (101) to scan and detect a proximity of an installed beacon (102) in the most part for determining an indoor or outdoor location in a proximity to a known location of the installed beacon(102) and for initiating or triggering a notification of an existence to indoor and/or outdoor navigation and delivery of local content according to the

Google Ex. 1028, p. 475

determined location. The same method can be used by fix computers or portable computers (103), portable devices (104), pedestrians carrying a portable device (105)(such as a cellular phone), or a vehicle / car (106) that can be equipped with RF Bluetooth or Wi-Fi technology. It is noted that the static beacons (102) can be assisted by including other portable RF Bluetooth or Wi-Fi enabled devices within the network, thus creating a dynamic network. It is understood that a number of applications can be provided utilizing the infrastructure created by the series of deployed beacons. Additionally, the applications can utilize a precise location of the user, wherein the location is determined by information provided by beacons signals emitted from each of the deployed RF beacons (102).

[00606] FIG. 2 presents an exemplary use of the RF Bluetooth and/or Wi-Fi beacon infrastructure deployed in a mall environment. An indoor map (200) of the mall interior is downloaded and saved or installed on the cellular phone (101). The indoor map (200) includes building structure layout, business locations and descriptions, and known RF beacon (102) locations throughout the associated mall, building, or other facility. The RF beacons (102) can be deployed inside stores or at as any other Points of Interest (POI) located throughout or around the mall. Information associated with an RF beacon (102) located proximate the cellular phone (101) can be forwarded to the cellular phone (101) by the beacon signal. The associated information (109) can be displayed upon the cellular phone (101) as illustrated. A location of the beacon signal receiving device (such as a cellular phone (101)), can be determined based upon a close proximity to one or more of the RF beacons (102) of the series of deployed beacons, which create the infrastructure. The precise location of the receiving device (101) can be determined based upon an identified beacon ID and a signal strength from the detect beacon (102) or beacons (102). The precise location can then be displayed upon an indoor map (200), as shown in FIG. 9.

[00607] FIG. 3 presents an exemplary operational process completed by the cellular phone (101). The mobile device (101) activates an application program for indoor mapping of the facility, building, structure, and the like (200) and scans a local area for RF beacons (102) to determine the precise location (302) of the mobile phone (101). The location of the mobile phone (101) is determined done by scanning the infrastructure of RF beacons (102), wherein each beacon is installed in a known location within the structure, wherein the structure can be a mall,

Google Ex. 1028, p. 476

a building, any facility, or any other enclosed structure. The RF beacons (102) can be installed inside stores or at any specific Point of Information (POI), around the mall. The location of the cellular phone (101) can be determined by using information from any RF beacon (102) located in a close proximity to the cellular phone (101). The application would recognize the beacon ID embedded within a beacon signal emitted by the proximate beacon (102). The application would calculate the location of the cellular phone (101) by utilizing a signal strength of the emitted and received beacon signal. This process provides a solution for a user to determine their location exclusive of a global positioning system (GPS), access to the Internet, or any other bi-directional communication. The location of the cellular phone (101) is then displayed upon an indoor map (200) on a display on the cellular phone (101). Should the cellular phone (101) be located in a suitable area and comprise the ability to establish bi-directional communication, the cellular phone (101) can transmit a notification signal or message indicating that the cellular phone (101) is in a region proximate the RF beacon (102), such as by transmitting an "I am here" message to a predetermined recipient. This can provide an automatic check-in process, where the user "notifies" others of his local existence to the local area business to establish his local location. in turn, the system can forward local contents to the cellular phone (101), wherein the local contents would be information associated with the current position of the cellular device (101). The system can be enhanced to utilize a direction of travel of the cellular phone (101) and anticipate approaching beacons. The system would then determine and transmit information associated with RF beacons located along the current projected path of travel of the cellular phone (101).

[00608] FIG. 4 presents an exemplary flowchart illustrating an indoor detection and navigation procedure. A user of the mobile cellular phone (101) approaches a facility/area where the user can download the facility/area map (200) having a series of RF Bluetooth and/or Wi-Fi beacons (102) installed in known locations throughout the facility/area. The application installed on the cellular phone (101) will scan the area/facility for broadcasted beacon signals. Upon receiving a broadcast beacon signal, the application will determine if the received beacon signal is associated with any beacons included in the list of known beacons (102). If the signal is determined to be associated with any beacons included in the list of known beacons (102), then the application proceeds with a location determination process (303). The location of the user (cellular phone (101)) is determined to be in a proximity of the identified beacon (102)

Google Ex. 1028, p. 477

transmitting the received beacon signal. The location is refined by using a signal strength of the beacon signal of the identified beacon (102) enabling determination of a more precise indoor location of the cellular phone (101). The location is then identified and displayed on an associated indoor map (200). In a condition where the cellular phone (101) fails to receive a beacon signal, the cellular phone (101) continues to scan the area (107). An optional feature includes a step of transmitting a notification of existence upon identification of a location; essentially having the cellular phone (101) transmit a message stating "I am here" (304) to the local area as a way of automatically check-in and/or a method of notifying a system that the user is within a local region. For example, the system can notify a local area business that a user is within the vicinity. In another example, the system can convey local contents to the cellular phone (101) based upon receipt of the notification that the user is within the area. The system can provide the user with a navigation heading (305) to waypoints based upon the current location of the cellular phone (101). In yet another example, the system can transmit Points Of Interest (POI) to the cellular phone (101) as illustrated in FIG. 2.

[00609] FIG. 4 is a flowchart illustrating of the indoor detection and navigation procedure according to an embodiment of the present invention. Referring to FIG. 4, the user with mobile cellular phone (101) approach a facility/area where he can download the facility/ area map (200) with RF wireless Bluetooth and or Wi-Fi beacons (102) installed in the facility area in a known place. The user mobile cellular phone (101) application will scan the area/facility for the known list of the beacons (102), if beacons was found then a location determination process (303) where is location of the user is determine as proximity to the find and match beacon ID, being in a close proximity to a beacon and recognize the beacon ID as well as calculating the Signal strength from the detect beacons (102) allow determination of the precise location indoor and ability to show the location over the indoor mapping (200), scanning is continue if no beacons (407) was found, when found the location is display on the loaded map over the mobile cellular phone(101) or Bluetooth device (103-106), part of the detection is to notify of existence "I am her" (304) to the local area as a way of automatic check-in method where the user "notify" his local existence to the local area business to establish his local location (303) and receive local contents, according to his location a heading navigation(305) between Points Of Interest (POI) can be establish.

Google Ex. 1028, p. 478

[00610] FIG. 5 presents an exemplary RF beacon accuracy radius circle (501) that is utilized in at least two distinct manners: one manner is used for the application, and a second manner is used to identify when the user's cellular phone (101) enters and/or exits the area around and in a proximity to a beacon (102) of the series of beacons (102). The central circle (502) and inner circle (503) illustrate different radii from the respective beacon presenting an accuracy of the location of the cellular phone (101). The radius circle (501) would be placed as an overlay circle over a portion of the local indoor map (200). This displayed configuration would identify an accurate location of the cellular phone (101) respective to the proximity of the beacon signal received from the Bluetooth and or Wi-Fi RF beacon (102) installed in the vicinity of the cellular phone (101).

[00611] FIG. 6 presents an exemplary flow diagram of a business application utilizing the series of RF beacons (102) deployed throughout a facility, one or more buildings, a mall, a store, and the like. Each RF beacon (102) can be installed by the facility owner, a business owner (601), an advertising company, and the like. In one application, a business owner (601) would install an RF beacon(102) in their business. When the user of the cellular phone (101) approaches the RF beacon, the cellular phone (101) detects the beacon signal transmitted by beacon (102) in the proximity thereof. The cellular phone (101) receives the beacon signal and determines the identification of the beacon (102) associated with the received signal. Once the location and/or identity of beacon is known, the application initiates a procedure to obtain local content delivery (604) from the business and/or business owner. In one option, the system can provide business or local content (605) to the cellular phone (101). In a second option, the cellular phone (101) can transmit a signal that will directly or indirectly notify the business owner that the cellular phone (101) is located proximate a specific beacon (102), wherein the specific beacon (102) is associated with the business owner's store, located either proximate to or within the business owners store, and the like. In turn, the business owner can provide local content (605) to the cellular phone (101).

[00612] FIG. 7 presents a flow diagram illustrating an exemplary target marketing feature. The application uses a profile preference provided by the user's cellular phone (101) wherein the mobile device scans the local area and determines the location of the cellular phone (101) using information obtain from a beacon signal broadcasted by an RF beacon (102) and optionally

Google Ex. 1028, p. 479

utilizing a beacon identifier (302). The profile preference is associated with the user of the cellular phone (101). The profile preference is provided to the local business in conjunction with a notification that the cellular phone (101) is located in the proximity to the specific RF beacon (702). The process can filter information to determine local based services contents (704), wherein the local based services content (704) is based upon the profile preferences of the Local Based Services (LBS), and the user's behavior (703). The system can determine local based services content (704) such as deals, offers, coupons and specials, and the like, as well as store or business information, and provide the information accordingly to the user through the user's cellular phone (101).

[00613] FIG. 8 presents a series of Local Based Service (LBS) applications that can be utilized in conjunction with infrastructure provided by the series of deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. One application (Parking and Return to Parking (810)) provides a method for searching for available parking spaces and/or a process for assisting a user to return to the parking location of the user's car. The Parking and Return to Parking (810) application can provide parking information within a parking garage, in a mall parking area, for street parking, and the like, wherein the Parking and Return to Parking (810) provides the user with direct navigation to empty parking spots and/or to provide the user guidance to return to the location where the car was previously parked.

[00614] In another application (Nav realty (802)), information associated with real estate is provided to a user using RF beacons (102) installed at each real estate property. Each RF beacon (102) would provide local information about the associated real estate property and can include navigation information respective to the local area real estate directly to the user's cellular phone (101).

[00615] In yet another application Navmall/store (803), information can be provided to business operators and subsequently, business related information can be provided to the application user.

[00616] In yet another application, Navsale marketing (804), sales, specials, coupons and the like can be transmitted to the cellular phone (101) and/or the system can provide directions /

Google Ex. 1028, p. 480

navigation to the user to guide the user to areas displaying items associated with the sales, specials, coupons and the like.

[00617] In yet another application, Navmuseum, Navconference, Navshow 805, the RF beacons (102) would be installed in known locations within a museum, a conference center, and any other related location, whereby the RF beacons (102) directly or indirectly provide information and/or navigation associated with the location to the user of the application.

[00618] In yet another application, Navamusement (819), the RF beacons (102) would be installed in known locations about any amusement park, theme park, or other entertainment venue, whereby the RF beacons (102) directly or indirectly provide information and/or navigation associated with the venue to the user of the application. The application can be enhanced by including an optional feature to assist a user in reducing wait times for access to rides, events, shows, and the like.

[00619] In yet another application, Navemergency (818), the RF beacons (102) provide critical information and/or navigation to the user during an emergency event including instructions pertaining to an emergency procedure, an emergency evacuation map and directions for evacuating the facility to a safe location.

[00620] In yet another application, Transportation (810), the RF beacons (102) would be deployed in a subway, on a train, on a bus, and/or in any mass transit system. This infrastructure would provide the user with information directly to their cellular phone (101) from the deployed RF beacons (102) installed along the route. This gives the user a complete navigation on a map of the train/subway mass transit directly to the user's cellular phone (101). In an alternative mode of the Transportation Application (810), the RF beacons (102) can be deployed along a side of a road, a cellular phone (101) residing within a vehicle, integrated into a vehicle, and the like. When the cellular phone (101) is mobile, the cellular phone (101) provides wireless vehicle-to-vehicle communication. One optional feature of this application would be an inclusion of automatic traffic notifications, what can be referred to as automatic "waze", whereby the cellular phone (101) can provide automatic traffic and road notifications. In an alternate embodiment, a Bluetooth device can be located within a vehicle (106) (as either a fixed or a portable device), on

Google Ex. 1028, p. 481

a driver (105), on a pedestrian, and the like. The cellular phone (101) can be included as an integral element in gathering traffic information.

[00621] In yet another application, Navsign (811), the RF beacons (102) can be installed along a roadway at locations either proximate traffic signs or at locations exclusive of traffic signs, but would be appropriate for conveying traffic related information to a driver. Each RF beacon (102) would be installed at a location enabling passing vehicles to receive beacon signals from the deployed series of RF beacons (102). The related infrastructure would provide a telematics system to the driver's cellular phone (102), a system integrated into a vehicle, and the like.

[00622] In yet another application, Indoor Navigation (808), the RF beacons (102) can be employed to provide an infrastructure enabling the application to determine a precise location of the receiving device. The application would additionally include a capability of providing navigation between various deployed RF beacons (102). This application provides a solution in areas where the global positioning system (GPS) is ineffective, such as indoors. The system also eliminates a need for bidirectional communication.

[00623] In yet another application, Nav Hotel, Resort, Cruise Ship (816), the RF beacons (102) can be deployed within a hospitality environment to provide an infrastructure enabling the application to determine a precise location of the receiving device within the hospitality environment or venue. Since most of the environments of the hospitality venues are located indoors, this application provides a solution in areas where the global positioning system (GPS) is ineffective.

[00624] In yet another application, Notification/Automatic Check-In (815), the cellular phone (101) is directed to automatically transmit an arrival message, which notifies a recipient that the cellular phone (101) has received a beacon signal from an RF beacon (102) within the infrastructure of beacons and that the cellular phone (101) is in proximity of the RF beacon (102). The application can additionally consider elements of the user's profile when determining whether to send the arrival message and/or what is included in the arrival message.

Google Ex. 1028, p. 482

[00625] In yet another application, Payments (814), a payment transaction method can utilize a location determined by the proximity of the cellular phone (101) to an RF beacon (102) of the series of RF beacons (102). The location, the identification of the RF beacon (102) and/or the user profile can be associated with the payment.

[00626] In yet another application, NAV Dating / Social Networking Link (812), a precise location of the cellular phone (101) is determined using information associated with the beacon signal. The location information is then utilized to assist the user in regards to social networking as well as indoor navigation.

[00627] In yet another application, Dynamic Deployment / Local Communication (813), the application establishes an ad hoc network between a series of mobile Bluetooth based RF beacons, such as Bluetooth transceivers of cellular phones (101) to provide local messaging between a message transmitting user and a message receiving user, wherein the message is conveyed through at least one intermediary Bluetooth RF beacon.

[00628] In yet another application, Nav Emergency (818) the RF beacons (102) provide navigation to the cellular phone (101) from the current location of the cellular phone (101) to an exit location using a predetermined optimal emergency exit route. The location and routing would be based upon the initial location, which is determined by a proximity to an RF beacon (102) of the localized RF beacon infrastructure. The application can additionally provide an emergency procedure and any other necessary notifications to the user through the user's cellular phone (101).

[00629] In yet another application, Scanning For Life (817), the cellular phone (101) converts into a beacon in a condition where two-direction communication networks are unavailable by either lack of installation or an outage. The beacon repetitiously transmits a beacon signal using at least one of cellular transmissions, Bluetooth transmissions, and Wi-Fi Transmissions. Search and rescue parties utilize a portable receiver to scan for and locate the Scanning for Life beacon signal. The beacon signal can optionally include embedded information associated with the cellular phone (101), which can include specific information associated with the user of the cellular phone (101).

Google Ex. 1028, p. 483

[00630] It is noted that the RF beacon infrastructure enables execution of the above-described application exclusive of cellular communications and/or access to the Internet.

[00631] FIG. 9 presents an exemplary indoor infrastructure of RF beacons (102), wherein the RF beacons (102) are installed in known locations throughout a local area. Each RF beacon (102) broadcasts at least one of a Bluetooth signal and a Wi-Fi signal. The RF beacons (102) enable an application to determine a precise location of the cellular phone(101) on a local map (200). Once the application determines the location of the cellular phone (101) respective to a proximate RF beacon (102), the application can utilize a user profile or profile preferences to obtain marketing information. The user profile or profile preferences can be used to filter information provided to the cellular phone (101). The application can provide information to a remote recipient using Application Information (API (901) triggering or initiating content delivery (604). When triggering content delivery (604), a 3rd party application (903) would respond to the transmission directed by the application by conveying or pushing local content or other associated information to the cellular phone (902). The bi-directional communication can be accomplished using cellular communication, an ad hoc network, an Internet based communication, and the like. In another embodiment, the remote recipient can include a local business owner, thus notifying the business owner that the specific cellular phone (101) is in a vicinity of the business.

[00632] FIG. 10 presents a series of transportation based applications that can be utilized in conjunction with infrastructure provided by the series of fixed or dynamically deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. A portion of the applications introduce telematics therewith.

[00633] One application (Automatic Traffic Alert (1103)) provides beacon signals comprising telematics including traffic alerts.

[00634] In a second application (Dynamic Deployment (1104)), an ad hoc network is created between vehicles providing vehicle to vehicle communication using an intermediary communication link. The vehicle to vehicle communication is preferably accomplished using a Bluetooth protocol.

Google Ex. 1028, p. 484

[00635] In another application (Find Parking and Return to Parking (1105)), the RF beacon infrastructure is used to inform a user of available parking locations and/or provide navigation guiding the user to the location where the user parked their vehicle.

[00636] In yet another application (Automatic Traffic Alert (1103)), a driver (105) can employ their cellular phone (101) to deliver automatic traffic information (1103).

[00637] In yet another application (Trigger Application (1102)), the system identifies an RF beacon, which subsequently triggers or initiates an application.

[00638] In yet another application (Local Tracking (1106)), the system utilizes a Bluetooth beacon that can recognize the car/driver ID and subsequently track the car/driver.

[00639] In yet another application (Access Control (1107)), recognition of either a proximate RF beacon or an approaching cellular phone (102) causes activation of a device. This can be accomplished using any of many suitable processes. For example, when a vehicle is approaching a gate, the vehicle would receive a beacon signal from a local beacon. The signal would be deciphered to determine the identity of the beacon. Once known, the system would act according a directive that is associated with the proximate beacon identity. In one example, the system would transmit a signal to open a gate when the vehicle approaches the gate.

[00640] In yet another application (Theft Prevention (1109)), the RF beacon (102) would recognize the vehicle and prevent theft.

[00641] In yet another application (Automatic Payment (1114)), the cellular phone (101), an RF beacon device integrated into a vehicle, and the like, broadcasts a beacon signal comprising a beacon identifier, wherein the beacon identifier is used in conjunction with an automatic payment method.

[00642] In yet another application (Transportation Management (1110)), the RF beacons provide assistance for management of transportation systems.

[00643] In yet another application (Accident Prevention (1111)), the RF beacons provide assistance for prevention of accidents, such as by notification to a user when two RF beacons become too close to one another.

Google Ex. 1028, p. 485

[00644] In yet another application (Saving Fuel (1114)), the application or series of applications can reduce fuel consumption by optimize navigation, reducing time finding parking spots, provide telematics associated with traffic, provide management support of transportation systems, and the like.

[00645] In yet another application (GPS Add-On Navigation (1113)), the series of RF beacons (102) can be used to determine a location of a receiving device and can additionally be used to obtain navigation. This is particularly beneficial in areas where the global positioning system (GPS) is ineffective (such as indoors).

[00646] In yet another application (Nav Sign (1112)), the RF beacons can convey information associated with road signs.

[00647] FIG. 11 presents a series of navigation based applications that can be utilized in conjunction with infrastructure provided by the series of deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. Each RF beacon (102) contains and broadcasts a beacon signal comprising a beacon identifier to enable a receiving device to determine a precise location of the device within a facility, a mall, a show, a store, and the like. The RF beacons would broadcast a beacon signal using at least one of Bluetooth and Wi-Fi protocol. At least a portion of the RF beacons (102) can be associated with a Waypoint.

[00648] Each of the series of exemplary applications provides a location determining solution and navigation in an environment that is not conducive for the global positioning system (GPS), such as within a mall, a store, a parking garage, and any other indoor location.

[00649] One application (Parking and Return to Parking (1510)), the RF beacons (102) are deployed in a parking area. Each RF beacon (102) includes at least one sensor to determine a presence of a vehicle in the associated parking spot. The RF beacons (102) identify vacant parking spots and provide navigation to each vacant parking spot to a user. The application can additionally or alternatively provide navigation directing the user to the parking spot containing their vehicle.

Google Ex. 1028, p. 486

[00650] In a second application (Stores Directory (1520)), a directory of merchants is provided to the cellular phone (101). The directory can include displaying locations of the merchants on a local map (200).

[00651] In another application (Search and Find (1111)), the RF beacon infrastructure is used to provide directions or navigation between known waypoints within an indoor facility, such as a mall. The known waypoints would be displayed upon the indoor map (200).

[00652] In yet another application (Sales, Deals, and Specials (1540)), the network provides information pertaining to sales, deals, specials, and the like to the receiving device. The sales, deals, specials, and the like can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102).

[00653] In yet another application (Entertainment (1530)), the network provides information pertaining to entertainment to the receiving device. The entertainment can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a location associated with the entertainment.

[00654] In yet another application (Information and Events (1590)), the network provides information pertaining to entertainment to the receiving device. The entertainment can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a location associated with the entertainment.

[00655] In yet another application (Dining (1580)), the network provides information pertaining to dining in the local area to the receiving device. The dining information can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a dining location.

[00656] In yet another application (Emergency (1560)), the network provides a notification of an emergency situation, emergency procedural information, and navigation from the current

Google Ex. 1028, p. 487

location, through the structure, and to a predetermined exit location. The information would be respective to the proximate RF beacon (102).

[00657] FIG. 12 presents an exemplary flow diagram illustrating a next generation of marketing tools utilizing the RF beacon (102) infrastructure deployed in a local area. The network obtains a user's profile or preferences (701) as well as a user's behavioral pattern (704) associated with the user's cellular phone (101). The information is conveyed to a business owner (702) for marketing purposes. The profile and/or preferences are filtered to determine applicable local based services (LBS) (703). The information can trigger or initiate an application (304), establish a link to an existing system and software, and the like to provide at least one of local content (503) and indoor navigation (108) to the cellular phone (101) or similar receiving device.

[00658] FIG. 13 presents an exemplary schematic diagram illustrating a method of utilizing dynamic deployment to create an ad hoc network. Exemplary applications include vehicle-to-vehicle communication, emergency communication, local communication, and the like. The method establishes communication between a series of Bluetooth devices located proximate one another. One exemplary implementation employs cellular phones (101), utilizing the Bluetooth transceivers integrated therewith. The dynamic network is created by placing proximally located Bluetooth devices into an ad hoc or mesh network. The network is based upon overlapping signal transmission radii. The network can include installed and/or mobile Bluetooth devices, exclusive of cellular or other higher powered and costly communication interfaces. The method can be utilized in transportation creating a road size networking of vehicles and/or drivers for telematics or traffic information, a push alert providing road information, and creating a vehicle-to-vehicle communication capability. In another option, the network can be utilized in an emergency situation, more specifically, when and where the cellular network are unavailable, interrupted, down, or fail. The ad hoc network creates a longer range communication capability utilizing local low power Bluetooth and/or Wi-Fi devices to convey information to local emergency responders or other parties. Another optional feature of the dynamic deployment enables creation of an ad hoc network within a structure, a mall, a store, a building, an office, an entertainment complex, and the like, exclusive of cellular communication. The ad hoc network provides capability for local messaging between users in a proximity area. The network can be utilized to deliver local content to the cellular phone (101) exclusive of any broader and higher powered

Google Ex. 1028, p. 488

communication networks, such as cellular, and the like. The network would be applicable between cellular phones (101) vehicles comprising the appropriate transceiver technology (106), within a facility/building/area, and the like.

Google Ex. 1028, p. 489

Electronic Acknowledgement Receipt

EFS ID:	22639211
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	15-JUN-2015
Filing Date:	22-MAY-2014
Time Stamp:	22:41:03
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		MEN-14-003_Mendelson_Hospitality_Restric_Elec_041515_Reply_061515.pdf	1236272 20cbee1fd303a2d0f8e757d1285b8dc32a22238e	yes	231

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response to Election / Restriction Filed	1	5
	Claims	6	13
	Applicant Arguments/Remarks Made in an Amendment	14	20
	Specification	21	126
	Specification	127	231
Warnings:			
Information:			
	Total Files Size (in bytes):	1236272	

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 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/285,332	Filing Date 05/22/2014	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☒ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	**140**
☒ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	**300**
☒ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	**360**
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	* 0	x $40 =	**0**
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	* 0	x $210 =	**0**
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ 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	**800**

APPLICATION AS AMENDED – PART II

AMENDMENT **06/15/2015**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x $40 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	x $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**0**

AMENDMENT

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

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

LIE
/DIANE JOHNSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/285,332	05/22/2014	Ehud Mendelson	MEN-14-003	9630

31877 7590 04/15/2015

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EXAMINER
LY, NGHI H

ART UNIT	PAPER NUMBER
2642	

MAIL DATE	DELIVERY MODE
04/15/2015	PAPER

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

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

Office Action Summary	Application No. 14/285,332	Applicant(s) MENDELSON, EHUD	
	Examiner NGHI H. LY	Art Unit 2642	AIA (First Inventor to File) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☒ Responsive to communication(s) filed on *05/22/2014*.

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

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

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

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

Disposition of Claims*

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

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

6)☐ Claim(s) _____ is/are allowed.

7)☐ Claim(s) _____ is/are rejected.

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

9)☒ Claim(s) *1-20* are subject to restriction and/or election requirement.

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

Application Papers

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

11)☒ The drawing(s) filed on *05/22/2014* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

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

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-5 and 7-11, drawn to encoding identifying information into a beacon signal, wherein the identifying information identifies each beacon of the series of beacons, and decoding each received the at least one of the broadcast beacon signal, determining an identify of the beacon from the series of beacons based upon the received, decoded beacon signal, initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal, classified in class 455, subclass 456.3.

II. Claim 6, drawn to initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein the provide local based services information is associated with the beacon identifying information, classified in class 455, subclass 414.1.

III. Claims 12-20, drawn to determining a location of a mobile device in accordance with following steps: determining a current location of the mobile device

within the interior of the hospitality venue, determining an indoor map associated with the hospitality venue, displaying the hospitality venue indoor map, and displaying the current location of the mobile device on the hospitality venue indoor map, classified in class 455, subclass 566.

2. The inventions are distinct, each from the other because of the following reasons:

Invention **II** and **III** are related as subcombinations disclosed as usable together in a single combination. The *subcombinations* are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, *subcombination* **II** has initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein the provide local based services information is associated with the beacon identifying information, and *subcombination* **III** has determining a location of a mobile device in accordance with following steps: determining a current location of the mobile device within the interior of the hospitality venue, determining an indoor map associated with the hospitality venue, displaying the hospitality venue indoor map, and displaying the current location of the mobile device on the hospitality venue indoor map.

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a

continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGHI H. LY whose telephone number is (571)272-7911. The examiner can normally be reached on 9:30am-8:00pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez Gutierrez can be reached on (571) 272-7915. 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.

Nghi H. Ly
/Nghi H. Ly/
Primary Examiner, Art Unit 2642

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

BIB DATA SHEET

CONFIRMATION NO. 9630

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/285,332	05/22/2014	455	2642	MEN-14-003

APPLICANTS

INVENTORS

Ehud Mendelson, Coral Springs, FL;

**** CONTINUING DATA ***************************

This application is a DIV of 14/285,273 05/22/2014
which is a DIV of 14/285,209 05/22/2014
which is a DIV of 12/930,735 01/14/2011 PAT 9020687
which is a DIV of 11/396,843 04/03/2006 PAT 7899583
which claims benefit of 60/670,097 04/12/2005

This application 14/285,332 05/22/2014
is a DIV of 13/135,421 07/05/2011
which is a DIV of 12/932,811 03/07/2011 PAT 8941485
which is a DIV of 12/069,899 02/13/2008 PAT 7924149
which is a DIV of 11/472,706 06/22/2006 PAT 8896485
which is a DIV of 11/429,864 05/08/2006 PAT 8836580
which claims benefit of 60/678,947 05/09/2005

This application 14/285,332 05/22/2014
is a DIV of 12/587,042 10/01/2009 PAT 8866673
which is a DIV of 11/429,864 05/08/2006 PAT 8836580
which claims benefit of 60/678,947 05/09/2005

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

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/04/2014

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /NGHI H LY/ Examiner's Signature	☐ Met after Allowance nly Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		FL	13	20	3

ADDRESS

ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428
UNITED STATES

TITLE

HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

FILING FEE	FEES: Authority has been given in Paper	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time)

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14285332	MENDELSON, EHUD
	Examiner	Art Unit
	NGHI H LY	2642

✓	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	04/13/2015								
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
14/285,332	05/22/2014	3646	730	MEN-14-003	20	3

CONFIRMATION NO. 9630

CORRECTED FILING RECEIPT

31877
ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428



Date Mailed: 06/06/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Ehud Mendelson, Coral Springs, FL;

Applicant(s)

Ehud Mendelson, Coral Springs, FL;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a DIV of 14/285,273 05/22/2014
which is a DIV of 14/285,209 05/22/2014
which is a DIV of 12/930,735 01/14/2011
which is a DIV of 11/396,843 04/03/2006 PAT 7899583
which claims benefit of 60/670,097 04/12/2005
This application 14/285,332
is a DIV of 13/135,421 07/05/2011
which is a DIV of 12/932,811 03/07/2011 ABN
which is a DIV of 12/069,899 02/13/2008 PAT 7924149
which is a DIV of 11/472,706 06/22/2006
which is a DIV of 11/429,864 05/08/2006
which claims benefit of 60/678,947 05/09/2005
This application 14/285,332
is a DIV of 12/587,042 10/01/2009
which is a DIV of 11/429,864 05/08/2006
which claims benefit of 60/678,947 05/09/2005

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

Google Ex. 1028, p. 501

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

If Required, Foreign Filing License Granted: 06/04/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/285,332**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No

**** SMALL ENTITY ****

Title

HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

Preliminary Class

342

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

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

Google Ex. 1028, p. 502

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

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign 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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Google Ex. 1028, p. 504

In The United States Patent and Trademark Office

Application No.	: 14/285, 332	Confirmation No. 9630
Applicant	: Ehud Mendelson	
Title	: **HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS**	
Filed	: May 22, 2014	
TC/A.U.	: 3646	
Examiner	: Not Yet Assigned	Tel: 571 272-4000
Docket No.	: MEN-14-003	
Customer No.	: 31877	

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

Request For Corrected Official Filing Receipt

Sir:

Applicant received an Official Filing Receipt identifying one entry of the Domestic Priority that was provided by Applicant and not consistent with the PTO records. The submission of a corrected, Supplemental Application Data Sheet is being submitted before the four (4) month anniversary of the filing date of the subject application. Therefore, Applicant believes this response is considered to be timely submitted.

Remarks begin on page 02 of this paper.

Conclusions begin on page 03 of this paper.

Google Ex. 1028, p. 505

REMARKS

The Official Filing Receipt identified a discrepancy between the Domestic Benefit/National Stage Information section of the submitted Application Data Sheet and the PTO Records dated October 04, 2013.

Applicant is submitted a Supplemental Application Data Sheet (ADS), wherein the Supplemental ADS is amended to reflect the proper filing date for the following applications:

US Patent Application Ser. No.: 60/670,097, by changing the originally indicated filing date of 2005-12-04 to properly read as 2005-04-12.

US Patent Application Ser. No.: 11/472,706, by changing the originally indicated filing date of 2006-22-06 to properly read as 2006-06-22.

US Patent Application Ser. No.: 11/429,864, by changing the originally indicated filing date of 2006-08-05 to properly read as 2006-05-08. (First Instance)

US Patent Application Ser. No.: 11/429,864, by changing the originally indicated filing date of 2006-08-05 to properly read as 2006-05-08. (Second Instance)

Applicant earnestly believes the Supplemental ADS is now consistent with the PTO Records.

Applicant respectfully requests the USPTO issue a Corrected Official Filing Receipt reflecting the correction.

Google Ex. 1028, p. 506

CONCLUSIONS

This correspondence is in response to the inconsistency between data provided by Applicant and the PTO records that was identified in the Official Filing Receipt issued on June 04, 2014.

Applicant is submitting a Supplemental ADS resolving the discrepancy between the data provided by Applicant and the PTO records within four (4) months of the filing date of the application. Therefore, Applicant believes this response is considered to be timely submitted.

Applicant respectfully requests the USPTO issue a Corrected Official Filing Receipt.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, a telephone call to the undersigned Attorney of Record is respectfully solicited.

Respectfully submitted,
Allen D. Hertz
(Customer No. 31877)

By _____
Allen D. Hertz
Reg. No.50,942
12784 Tulipwood Circle
Boca Raton, FL 33428
Tel.: (561) 883-0115
Cell: (561) 716-3915

Attachments:
- Supplemental Application Data Sheet (7 pages)

Google Ex. 1028, p. 507

Supplemental Data Sheet

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	14/285,332
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

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

Secrecy Order 37 CFR 5.2

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

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
Mr.	Ehud		Mendelson	

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

City	Coral Springs	State/Province	FL	Country of Residence	US

Mailing Address of Inventor:

Address 1	11190 Heron Bay Blvd		
Address 2			
City	Coral Springs	State/Province	FL
Postal Code	33076	Country	US

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

Correspondence Information:

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

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

Customer Number	31877		
Email Address	Patents@AllenHertz.com	Add Email	Remove Email

Application Information:

Title of the Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS		
Attorney Docket Number	MEN-14-003	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	13	Suggested Figure for Publication (if any)	

Filing By Reference :

Supplemental Data Sheet

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	14/285,332
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

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

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

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

Publication Information:

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

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

Representative Information:

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

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	31877		

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	14285273	2014-05-22
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
14285273	Division of	14285209	2014-05-22
Prior Application Status	Pending		Remove

Google Ex. 1028, p. 509

Supplemental Data Sheet

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	14/285,332
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
14285209	Division of	12930735	2011-01-14
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12930735	Division of	11396843	2006-04-03	7899583	2011-03-01
Prior Application Status	Expired			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11396843	Claims benefit of provisional	60670097	~~2005-12-04~~ 2005-04-12
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	13135421	2011-07-05
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13135421	Division of	12932811	2011-03-07
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12932811	Division of	12069899	2008-02-13	7924149	2011-04-12
Prior Application Status	Pending			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12069899	Division of	11472706	~~2006-22-06~~ 2006-06-22
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11472706	Division of	11429864	~~2006-08-05~~ 2006-05-08
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11429864	Claims benefit of provisional	60678947	2005-05-09
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	12587042	2009-10-01
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12587042	Division of	11429864	~~2006-08-05~~ 2006-05-08
Prior Application Status	Expired		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11429864	Claims benefit of provisional	60678947	2005-05-09

Google Ex. 1028, p. 510

Supplemental Data Sheet

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	14/285,332
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

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

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Supplemental Data Sheet

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	14/285,332
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◯ Assignee	◯ Legal Representative under 35 U.S.C. 117	◯ Joint Inventor
◯ Person to whom the inventor is obligated to assign.	◯ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☐

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

Supplemental Data Sheet

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	14/285,332
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Mailing Address Information For Applicant:			
Address 1			
Address 2			
City		**State/Province**	
Country[i]		Postal Code	
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

Assignee 1

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

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

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

Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1			
Address 2			
City		**State/Province**	
Country[i]		Postal Code	
Phone Number		Fax Number	
Email Address			

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

Supplemental Data Sheet

PTO/AIA/14 (12-13)
Approved for use through 01/31/2014. OMB 0651-0032
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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	14/285,332
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Signature:

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

Signature				Date (YYYY-MM-DD)	2014-06-05
First Name	Allen D.	Last Name	Hertz	Registration Number	50942

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

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

Electronic Acknowledgement Receipt

EFS ID:	19216380
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	05-JUN-2014
Filing Date:	22-MAY-2014
Time Stamp:	00:35:36
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		MEN-14-003_Mendelson_Hospitality_Correction_Of_OFR_060514.pdf	957121 2c926e921a405c0603ec57396534fb22d5362305	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Request for Corrected Filing Receipt	1	3
	Application Data Sheet	4	10
Warnings:			
Information:			
	Total Files Size (in bytes):	957121	

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

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

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

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

In The United States Patent and Trademark Office

Application No.	: 14/285, 332	Confirmation No. 9630
Applicant	: Ehud Mendelson	
Title	: **HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS**	
Filed	: May 22, 2014	
TC/A.U.	: 3646	
Examiner	: Not Yet Assigned	Tel: 571 272-4000
Docket No.	: MEN-14-003	
Customer No.	: 31877	

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

Request For Corrected Official Filing Receipt

Sir:

Applicant received an Official Filing Receipt identifying one entry of the Domestic Priority that was provided by Applicant and not consistent with the PTO records. The submission of a corrected, Supplemental Application Data Sheet is being submitted before the four (4) month anniversary of the filing date of the subject application. Therefore, Applicant believes this response is considered to be timely submitted.

Remarks begin on page 02 of this paper.

Conclusions begin on page 03 of this paper.

Google Ex. 1028, p. 517

REMARKS

The Official Filing Receipt identified a discrepancy between the Domestic Benefit/National Stage Information section of the submitted Application Data Sheet and the PTO Records dated October 04, 2013.

Applicant is submitted a Supplemental Application Data Sheet (ADS), wherein the Supplemental ADS is amended to reflect the proper filing date for the following applications:

US Patent Application Ser. No.: 60/670,097, by changing the originally indicated filing date of 2005-12-04 to properly read as 2005-04-12.

US Patent Application Ser. No.: 11/472,706, by changing the originally indicated filing date of 2006-22-06 to properly read as 2006-06-22.

US Patent Application Ser. No.: 11/429,864, by changing the originally indicated filing date of 2006-08-05 to properly read as 2006-05-08. (First Instance)

US Patent Application Ser. No.: 11/429,864, by changing the originally indicated filing date of 2006-08-05 to properly read as 2006-05-08. (Second Instance)

Applicant earnestly believes the Supplemental ADS is now consistent with the PTO Records.

Applicant respectfully requests the USPTO issue a Corrected Official Filing Receipt reflecting the correction.

Google Ex. 1028, p. 518

CONCLUSIONS

This correspondence is in response to the inconsistency between data provided by Applicant and the PTO records that was identified in the Official Filing Receipt issued on June 04, 2014.

Applicant is submitting a Supplemental ADS resolving the discrepancy between the data provided by Applicant and the PTO records within four (4) months of the filing date of the application. Therefore, Applicant believes this response is considered to be timely submitted.

Applicant respectfully requests the USPTO issue a Corrected Official Filing Receipt.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, a telephone call to the undersigned Attorney of Record is respectfully solicited.

Respectfully submitted,
Allen D. Hertz
(Customer No. 31877)

By _____
Allen D. Hertz
Reg. No.50,942
12784 Tulipwood Circle
Boca Raton, FL 33428
Tel.: (561) 883-0115
Cell: (561) 716-3915

Attachments:
- Supplemental Application Data Sheet (7 pages)

Google Ex. 1028, p. 519

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 14/285,332

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	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

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

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

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

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
14/285,332	05/22/2014	3646	730	MEN-14-003	20	3

CONFIRMATION NO. 9630

31877
ALLEN D. HERTZ
ALLEN D HERTZ, P.A.
12784 TULIPWOOD CIRCLE
BOCA RATON, FL 33428

FILING RECEIPT

OC000000068814896

Date Mailed: 06/04/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Ehud Mendelson, Coral Springs, FL;

Applicant(s)

Ehud Mendelson, Coral Springs, FL;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a DIV of 14/285,273 05/22/2014
which is a DIV of 14/285,209 05/22/2014
which is a DIV of 12/930,735 01/14/2011
which is a DIV of 11/396,843 04/03/2006 PAT 7899583
which claims benefit of 60/670,097 04/12/2005 *
This application 14/285,332
is a DIV of 13/135,421 07/05/2011
which is a DIV of 12/932,811 03/07/2011 ABN
which is a DIV of 12/069,899 02/13/2008 PAT 7924149
which is a DIV of 11/472,706 06/22/2006
which is a DIV of 11/429,864 05/08/2006
which claims benefit of 60/678,947 05/09/2005
This application 14/285,332
is a DIV of 12/587,042 10/01/2009
which is a DIV of 11/429,864 05/08/2006 *
which claims benefit of 60/678,947 05/09/2005
(*)Data provided by applicant is not consistent with PTO records.

Google Ex. 1028, p. 521

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

If Required, Foreign Filing License Granted: 06/04/2014

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/285,332**

Projected Publication Date: Request for Non-Publication Acknowledged

Non-Publication Request: Yes

Early Publication Request: No
**** SMALL ENTITY ****
Title

HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

Preliminary Class

342

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

Google Ex. 1028, p. 522

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

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign 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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor

community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

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PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT2878983

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
EHUD MENDELSON	05/23/2014

RECEIVING PARTY DATA

Name:	GAMBA GROUP LIMITED
Street Address:	260 TRIQ SAN ALBERT
City:	GZIRA
State/Country:	MALTA
Postal Code:	GZR 1150

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14285332

CORRESPONDENCE DATA

Fax Number: (561)883-0115

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: 561-716-3915
Email: Patents@AllenHertz.com
Correspondent Name: ALLEN D. HERTZ, P.A.
Address Line 1: 12784 TULIPWOOD CIRCLE
Address Line 4: BOCA RATON, FLORIDA 33428

ATTORNEY DOCKET NUMBER:	MEN-14-003
NAME OF SUBMITTER:	ALLEN D. HERTZ
SIGNATURE:	/allen d hertz/
DATE SIGNED:	06/01/2014
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 3
source=MEN-14-003_Mendelson_Hospitality_Assignment-Executed#page1.tif
source=MEN-14-003_Mendelson_Hospitality_Assignment-Executed#page2.tif
source=MEN-14-003_Mendelson_Hospitality_Assignment-Executed#page3.tif

ASSIGNMENT

WHEREAS, I:

(4) **Ehud Mendelson**,

residing, respectively, at:

(4) **11190 Heron Bay Blvd. Suite 916, Coral Springs, FL, 33076**,

have made an invention entitled: **HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS**

and [ ] are about to make application for United States Letters Patent therefor, the same being executed by us on _____, 2014; and

[X] has made application for United States Letters Patent thereof, filed **May 22, 2014**, under **Serial No. 14/285,332**, currently pending; and

WHEREAS, **Gamba Group Limited**, a For Profit Corporation organized and existing under the laws of the state of **Malta** and having an office and place of business at **262 Triq San Alber, Gzira, Malta, GZR 1152**, is desirous of acquiring the entire interest in said invention, said United States patent application, and in any Letters Patent which may issue thereon;

NOW, THEREFORE, be it known that for and in consideration of my employment **Gamba Group Limited**, and other good and valuable consideration, I do hereby sell, assign, and transfer unto **Gamba Group Limited**, its successors, assigns, and legal representatives, all right, title, and interest in and to said invention and any improvements thereon for all countries of the world, and in and to said application, including any continuations and divisions thereof, and any substitute applications therefor, and any patent which may issue thereon, and any reissues of the same; and all right, title, and interest in and to every patent application filed on said invention in any other country, including renewals, revivals, continuations, and divisions thereof, and any substitute applications therefor, and any and all patents which may issue thereon, and any reissues and extensions of the same; and we hereby authorize and request competent authorities to grant and issue any and all patents on said invention to **Gamba Group Limited** as the assignee of the entire interest therein; and we further agree to execute upon request of the assignee such additional documents, if any, as are necessary and proper to secure patent protection on said invention throughout all countries of the world, and otherwise to give full effect to and perfect the rights of the assignee under this Assignment.

IN TESTIMONY WHEREOF, I have hereunto signed my name on the dates indicated hereinafter:

05/23/2014
Date

Ehud Mendelson

STATE OF Florida)
) ss.:
COUNTY OF Broward)

Before me a Notary Public for Said County, personally appeared Ehud Mendelson, to me known and known to me to be the person who executed the foregoing instrument and acknowledged it to be a free act and deed.

Witness my hand and seal May 23rd, 2014.

Claudia Valeria Nickerson
Notary Public

CLAUDIA VALERIA NICKERSON
Notary Public, State of Florida
Commission# EE 183883
My comm. expires Dec. 18, 2015

[Notary Seal]

My Commission expires:
Dec 18, 2015

PTO/AIA/15 (03-13)
Approved for use through 01/31/2014. OMB 0651-0032
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.

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	MEN-14-003
First Named Inventor	Ehud Mendelson
Title	[illegible]
Express Mail Label No.	Filed via EFSweb

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: **Commissioner for Patents**
P.O. Box 1450
Alexandria, VA 22313-1450

1. [✓] **Fee Transmittal Form** (PTO/SB/17 or equivalent)
2. [✓] **Applicant asserts small entity status.** See 37 CFR 1.27
3. [ ] **Applicant certifies micro entity status.** See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent.
4. [✓] **Specification** [*Total Pages* 113] Both the claims and abstract must start on a new page. *(See MPEP § 608.01(a) for information on the preferred arrangement)*
5. [✓] **Drawing(s)** (35 U.S.C. 113) [*Total Sheets* 13]
6. **Inventor's Oath or Declaration** [*Total Pages* 1] *(including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e))*
   a. [✓] Newly executed (original or copy)
   b. [ ] A copy from a prior application (37 CFR 1.63(d))
7. [✓] **Application Data Sheet** * *See note below.* See 37 CFR 1.76 (PTO/AIA/14 or equivalent)
8. **CD-ROM or CD-R** in duplicate, large table, or Computer Program (*Appendix*)
   [ ] Landscape Table on CD
9. **Nucleotide and/or Amino Acid Sequence Submission** *(if applicable, items a. – c. are required)*
   a. [ ] Computer Readable Form (CRF)
   b. [ ] Specification Sequence Listing on:
      i. [ ] CD-ROM or CD-R (2 copies); or
      ii. [ ] Paper
   c. [ ] Statements verifying identity of above copies

ACCOMPANYING APPLICATION PAPERS

10. [ ] **Assignment Papers** (cover sheet & document(s))
    Name of Assignee _____
11. [ ] **37 CFR 3.73(c) Statement** *(when there is an assignee)* [✓] **Power of Attorney**
12. [ ] **English Translation Document** *(if applicable)*
13. [ ] **Information Disclosure Statement** (PTO/SB/08 or PTO-1449)
    [ ] Copies of citations attached
14. [ ] **Preliminary Amendment**
15. [ ] **Return Receipt Postcard** *(MPEP § 503) (Should be specifically itemized)*
16. [ ] **Certified Copy of Priority Document(s)** *(if foreign priority is claimed)*
17. [✓] **Nonpublication Request** Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
18. [ ] **Other:** _____

*Note: (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 must be included in an Application Data Sheet (ADS).
(2) For applications filed under 35 U.S.C. 113, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

19. CORRESPONDENCE ADDRESS

[✓] The address associated with Customer Number: 31877 OR [ ] Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Email	

Signature		Date	May 22, 2014
Name (Print/Type)	Allen D. Hertz	Registration No. (Attorney/Agent)	50,942

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

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

PTO/AIA/01 (06-12)
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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

As the below named inventor, I hereby declare that:

This declaration is directed to:

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

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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

WARNING:

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

LEGAL NAME OF INVENTOR

Inventor: Ehud Mendelson Date (Optional): May 16, 2014

Signature: _____

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

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

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

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

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

Secrecy Order 37 CFR 5.2

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

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
Mr.	Ehud		Mendelson	

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

City	Coral Springs	State/Province	FL	Country of Residence	US

Mailing Address of Inventor:

Address 1	11190 Heron Bay Blvd		
Address 2			
City	Coral Springs	State/Province	FL
Postal Code	33076	Country	US

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

Correspondence Information:

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

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

Customer Number	31877		
Email Address	Patents@AllenHertz.com	Add Email	Remove Email

Application Information:

Title of the Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS		
Attorney Docket Number	MEN-14-003	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	13	Suggested Figure for Publication (if any)	

Filing By Reference :

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

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

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

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

Publication Information:

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

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

Representative Information:

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

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	31877		

Domestic Benefit/National Stage Information:

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

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	14285273	2014-05-22
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
14285273	Division of	14285209	2014-05-22
Prior Application Status	Pending		Remove

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
14285209	Division of	12930735	2011-01-14
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12930735	Division of	11396843	2006-04-03	7899583	2011-03-01
Prior Application Status	Expired			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11396843	Claims benefit of provisional	60670097	2005-12-04
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	13135421	2011-07-05
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
13135421	Division of	12932811	2011-03-07
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12932811	Division of	12069899	2008-02-13	7924149	2011-04-12
Prior Application Status	Pending			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12069899	Division of	11472706	2006-22-06
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11472706	Division of	11429864	2006-08-05
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11429864	Claims benefit of provisional	60678947	2005-05-09
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	12587042	2009-10-01
Prior Application Status	Pending		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
12587042	Division of	11429864	2006-08-05
Prior Application Status	Expired		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11429864	Claims benefit of provisional	60678947	2005-05-09

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

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

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date o f filing this Authorization.

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

◯ Assignee	◯ Legal Representative under 35 U.S.C. 117	◯ Joint Inventor
◯ Person to whom the inventor is obligated to assign.	◯ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☐

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

PTO/AIA/14 (12-13)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Mailing Address Information For Applicant:			
Address 1			
Address 2			
City		**State/Province**	
Country[i]		Postal Code	
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

Assignee 1

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

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

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

Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1			
Address 2			
City		**State/Province**	
Country[i]		Postal Code	
Phone Number		Fax Number	
Email Address			

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

PTO/AIA/14 (12-13)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MEN-14-003
	Application Number	
Title of Invention	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS	

Signature:

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

Signature				Date (YYYY-MM-DD)	2014-05-22
First Name	Allen B.	Last Name	Hertz	Registration Number	50942

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

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

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

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

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

Application Number	Not Yet Assigned
Filing Date	Filed Herewith
First Named Inventor	Ehud Mendelson
Title	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
Art Unit	Not Yet Assigned
Examiner Name	Not Yet Assigned
Attorney Docket Number	MEN-14-003

SIGNATURE of Applicant or Patent Practitioner

Signature		Date (Optional)	May 22, 2014
Name	Allen D. Hertz	Registration Number	50,942
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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

☑ *Total of 1 forms are submitted.

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

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

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

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POWER OF ATTORNEY BY APPLICANT

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

Application Number	Filing Date

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

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 31877

OR

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

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

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

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

☑ Inventor or Joint Inventor (title not required below)

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

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

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

SIGNATURE of Applicant for Patent

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

Signature		Date (Optional)	May 16, 2014
Name	Ehud Mendelson		
Title	Inventor		

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

☑ Total of 1 forms are submitted.

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

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

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NONPUBLICATION REQUEST UNDER 35 U.S.C. 122(b)(2)(B)(i)

First Named Inventor	Ehud Mendelson
Title	HOSPITALITY VENUE NAVIGATION, GUIDE,
Attorney Docket Number	MEN-14-003

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	May 22, 2014
	Date
Allen D. Hertz	50,942
Typed or printed name	Registration Number, if applicable
561-716-3915	
Telephone Number	

This request must be signed in compliance with 37 CFR 1.33(b) and submitted with the application **upon filing.**

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HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

RELATED APPLICATIONS

[0001] This application is:

is a Divisional Application of U.S. Patent Application Ser. No. 14/285,273 filed on May 22, 2014,

which is a Divisional Application of U.S. Patent Application Ser. No. 14/285,209 filed on May 22, 2014,

which is a Divisional Application of U.S. Patent Application Ser. No. 12/930,735 filed on January 14, 2011,

which is a Divisional Application of U.S. Patent Application Ser. No. 11/396,843 filed on April 03, 2006 (now US Patent 7,899,583 on March 01, 2011),

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/670,097 filed on April 12, 2005 (now expired); and

a Divisional Application of pending U.S. Patent Application Ser. No. 13/135,421 filed on July 05, 2011,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/932,811 filed on March 07, 2011,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/587,042 filed on October 01, 2009,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 12/069,899 filed on February 13, 2008 (issued as US Patent 7,924,149 on April 12, 2011),

Google Ex. 1028, p. 541

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/472,706 filed on June 22, 2006,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/429,864 filed on May 08, 2006,

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/678,947 filed on May 09, 2005 (now expired), and

a Divisional Application of pending U.S. Patent Application Ser. No. 12/587,042 filed on October 01, 2009,

which is a Divisional Application of pending U.S. Patent Application Ser. No. 11/429,864 filed on May 08, 2006,

which is a Non-Provisional U.S. Patent Application claiming the benefit of U.S. Provisional Patent Application Ser. No. 60/678,947 filed on May 09, 2005 (now expired).

FIELD OF THE INVENTION

[0002] This invention is directed generally to the field of RF beacons. More specifically, the application of a series of deployed RF beacons creating an infrastructure for use in applications associated with a hospitality environment, including: navigation, marketing, local based services (LBS), emergency information and evacuation procedures, ticketing and other event access features, parking assistance, and the like, wherein the information is presented upon a map of the hospitality environment displayed on a user's cellular phone or similar device.

BACKGROUND OF THE INVENTION

[0003] Introduction to location based services:

Google Ex. 1028, p. 542

[0004] Location based services are rapidly expanding. Outdoor location technologies are mainly based on GPS technologies. GPS cannot perform properly indoors and is therefore inadequate. As a result, indoor location systems are appearing on the market.

[0005] The need for a system arises from various market segments and applications. One example in the market is the GPS based systems that use integrated positioning and navigation systems based on GPS receivers as the primary positioning technology. Subsequent to the events of September 11th' the Federal government mandated that GPS capability be built in to all cellular phones. However, the fact that uninterrupted satellite reception is not possible in many locations is a major limitation of GPS based systems. Densely populated areas and radio-frequency-signal shadowed locations, such as urban centers (a.k.a. "urban canyons"), generally do not allow proper operation of GPS, yet it is in these locations that the need is greatest.

[0006] There is a clear need for a cost effective system that maintains performance indoors, in urban canyons and in city centers.

[0007] Another important consideration is that GPS itself is susceptible to jamming and other man-made interference.

[0008] Description of GPS System:

[0009] The Global Positioning System (GPS) is a satellite- based navigation and time transfer system developed by the U.S. Department of Defense. GPS serves marine, airborne and terrestrial users in the military as well as civilians. Specifically, GPS includes the Standard Positioning Service (SPS) that pro- vides civilian users with 100 meter accuracy as to the location or position of the user. For military users GPS provides the Precise Positioning Service that is accurate to within 20 meters. Both of these services are available worldwide with no requirement for any local equipment.

[0010] View of GPS limitations:

[0011] First limitation of GPS is that upon activation the GPS receiver scans for signals from the GPS satellites. A unit must locate and receive signals from at least four satellites to be able to

Google Ex. 1028, p. 543

determine its location. This process of locating the satellites, receiving the data and achieving a position fix can take several minutes. This delay is problematic for many GPS applications.

[0012] Second limitation of GPS is that the receiver needs a clear view of the sky to successfully receive signals from the satellites, again under unfriendly RF conditions such as inside buildings, or in "urban canyons" or in the shadows of high buildings, the GPS suffers from multi-path effects and therefore shows poor performance or none at all.

[0013] Third Limitation-limited accuracy: There is a problem of limited accuracy of the civilian GPS signal. While knowing your position to within 50 to 200 feet anywhere on the planet is a major technological feat, it is still not accurate enough, to locate and navigate to an a store in a mall or to empty parking space, where each space measures about 10 feet, and most indoor store/malls are located where the GPS cannot work effectively.

[0014] Existing navigation systems, such as the new mandatory GPS equipped cellular phones, are based on GPS and have the aforementioned limitations.

[0015] Another significant factor adding to the limitations of the GPS based systems is the important role of map production; normally a user requires a map to be as detailed and as up-to-date as possible. The existing maps used by the GPS based systems provide limited detail and are not able to reflect changes on a real time basis, more over there is no mapping for indoor facilities at all. The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[0016] <u>The Proposed Solutions:</u>

[0017] In general, the subject invention is based on applying machine-learning techniques to the task of inferring aspects of the user's status from a stream of input from Small RF tags/beacons are installed in local area indoor or outdoor or in places designated as Point Of Interest (POI), be it at a mall, department store, product inside a store, street or garage parking, inside or outside location, public or commercial, The tags/beacons can be RFID (long range type), or a Bluetooth with the option to long range Bluetooth, or a Wi-Fi or any RF type. The

Google Ex. 1028, p. 544

tags/beacon broadcast a unique ID by wireless that identifies the location by the unique ID, the address and type of facility/store/product. The tag/beacon broadcasts its information to be picked up by the mobile phone application, via the cellular phone or other Bluetooth device with application.

[0018] The focus of the application for the indoor guide navigation and local based services, or navigation in crowded urban areas, where GPS based systems, due to lack of access to satellites or the GPS limitations detailed previously, cannot achieve the required results.

[0019] The disclosed applications focus on the task of interactively guiding the user to a desired indoor destination.

[0020] Examples of indoor applications:

[0021] The user may wish to locate an empty available parking space in his vicinity.

[0022] The user may wish to locate a specific store in a shopping mall, or a particular aisle in a department store, or a specific item on a shelf.

[0023] The user may wish to locate a specific conference room in a convention center, or a Point Of Interest (POI) in an amusement park or a Point Of Interest (POI) in a museum.

[0024] The user may be looking for a train location in a station, or stops in a subway or underground train system.

PRIOR ART

[0025] At present, however, no prior art device utilizes the capabilities to display a real-time representation of navigating directly from the sensors without a central system; and without using a GPS based system directly to the "user". Also most systems are designed for the old query type search where interface to Internet and or database to a central system is needed

[0026] The navigation system automatically detects a signal directly from the bacon, no communication needed not even cellular communication to do the determination of the location

Google Ex. 1028, p. 545

where is other systems must have bandwidth available, over which to send a request to a central system, or to a database, and then must wait for a response. This takes time!

[0027] Even if the other systems have bandwidth, they are still based on the existing search concept where the user submits a query, searches and waits for the response. This is impractical. The subject system provides the information automatically, without submitting any query, and the response is according to the user's location, wherein the user's location is determined by proximity to the beacon in the local area.

[0028] Again, most of the existing prior arts are based either on a GPS based system or the existing car navigator, that depends on a GPS too. And the existing mapping that these systems use has the same limitations described previously and is impractical.

[0029] The present invention bridges the gap between the GPS based navigation and provides a complete solution.

[0030] Patent U.S. Pat. No. 7,031,875 Ellenby et al. describe a pointing system for addressing objects, provide a system and method based on GPS and Internet/database communication, it is not exactly a navigation but an information based system that needs the GPS to locate the user location so indoor services is likely out of the questions and the need for communication as well with GPS limits its availability and accuracy.

[0031] The system, as provided by the present invention, determines the location using the beacon/tag ID, Proximity Detection (PD), and Received Signal Strength (RSSI), Time of Arrival (TOA)=and Angle of Arrival (AOA).

[0032] Proximity Detection (PD)

[0033] This method relies upon a dense grid of antennas, each having a well-known position. When a mobile device is detected by a single antenna, it is considered to be collocated with it. When more than one antenna detects the mobile, it is considered to be collocated with the one that receives the strongest signal.

[0034] This method is relatively simple to implement. It can be implemented over different types of physical media. In particular, IR and RFID are based on this method.

Google Ex. 1028, p. 546

[0035] Triangulation

[0036] In case more than one beacon/tag signal a Triangulation takes PD a step further, in the sense that it is based on measuring the signal level measurements from each antenna (possibly by using a triangulation mechanism), with respect to each mobile device. Following that, mobile is located by using a triangulation algorithm.

[0037] Like the PD method, triangulation is relatively simple to implement.

[0038] Time of arrival (TOA)

[0039] Time of arrival (TOA)is based on triggering the mobile devices to respond, and measuring the time it takes for the response to fly back to the antenna. The elapsed time represents the distance between the two. By using distances from a few antennas, a mobile's position can be triangulated. TOA is considered to be the most accurate method, because multi-path effects can be filtered out. Yet, it is considerably more complex to implement, as it requires a modification to the hardware on the mobile side, as well as special modifications on the antenna side.

[0040] Angle of Arrival (AOA)

[0041] Angle of Arrival (AOA) is based on finding the direction of maximal signal intensity for each antenna-device pair. By finding the intersection of several such direction vectors, a mobile's position can be estimated AOA is considerably less accurate than TOA, due to limited angular resolution and the fact that indoors much of the signal is reflected. Also, AOA antennas are more complex, as they require multi-section, highly directional antennas, and multiple RF circuitries.

[0042] Bluetooth is a newer wireless local networking standard that operates in the 2.4 GHz ISM band. and the range is shorter (typically 10-15m, although there are tags with a range of over 300 feet). On the other hand, Bluetooth is a "lighter" standard, highly ubiquitous (embedded in most phones, PDAs, PC peripherals, etc.) and supports, in addition to IP, several other networking services. Notably, Bluetooth supports serial port emulation, voice, and various types of object exchange. Bluetooth tag/beacons are small, pocketsize transceivers.

Google Ex. 1028, p. 547

[0043] Every Bluetooth device's tag/beacon has a unique ID. This ID can be used for locating the tag/beacon and providing location information of the mobile device in the proximity.

[0044] The relevant location scenario of the present invention is that of searching for a certain tag. It is the most accurate and the faster response time and it is this method in indoor navigation and locating when and where each tag/beacon ID is a known address position-waypoint.

[0045] Why use Bluetooth for indoor location?

[0046] Bluetooth has some advantages in the context of indoor location. These include:

[0047] Bluetooth uses RF-in the 2.4 GHz ISM band, specifically. In this frequency range, radio waves penetrate obstacles, such as walls and human bodies, albeit with a substantial loss.

[0048] This has two implications:

[0049] Availability of a “high-there” application is always some signal received from the tags/beacons.

[0050] Tags/beacons can be placed relatively far apart (typical range is 10-15 meters, i.e. not necessarily of one in each way point).

[0051] Bluetooth is ubiquitous-Bluetooth chipsets are being implanted everywhere nowadays (phones, accessories, computing devices, etc), the tags/beacon can be implements anywhere, inside buildings roads inside cars transportation entities, inside home for home automation triggering, or in any kind of business triggering application or and link to exiting system .

[0052] The fact that a Bluetooth location system can locate any Bluetooth enabled device, makes it more cost-effective. This means that an increasing fraction of humans and mobile assets around would become locatable in a Bluetooth covered site, with no additional hardware cost (no tags/beacons attached). The only need is to pre-register these devices. Bluetooth is a low power technology-tags need recharge, approx. once a week (or longer, depends on the usage scenario). Non-tags (e.g. BT enabled phones) are being recharged anyway on a regular basis, so they do not

Google Ex. 1028, p. 548

need special recharges. If they are being used for location, the fraction added to their usual (no Bluetooth) power consumption is relatively small.

[0053] Bluetooth is a low cost technology, having expected high production volumes (hundreds of millions annually) lead to sub-$5 per chip. It is noted that several IC manufacturers have already met this goal. This would eventually result in a low price for the Bluetooth tags/beacons, if and when Bluetooth location systems would become sufficiently ubiquitous. Bluetooth is a multi-functional communication standard - location is only one of the services that can be supported by a Bluetooth infrastructure. The same infrastructure can be used to provide additional network services, particularly remote monitoring and control or just trigger link to exiting system. In addition, Bluetooth provides voice and IP services (although for the later, WLAN is typically more suitable).

[0054] In open spaces, relatively free of obstructions and walls (e.g. a large warehouse or a public hotspot), Bluetooth alone would suffice to provide a -2 meter error range.

[0055] Conclusions

[0056] The proposed beacon technology offers unique advantages: one is the ability to locate ubiquitous "any tags" (any Bluetooth enabled device can be associate and be use the advantage of the Bluetooth beacons, e.g. most of the newer mobile phones). The other advantage is the multiservice nature of the Bluetooth beacons infrastructure that enables using the tags/beacons for other purposes, such as for locating and navigating, remote monitoring and control, trigger existence and link to existing systems and software and for a variety of local based services and local push messaging services.

SUMMARY OF THE INVENTION

[0057] In accordance with the present invention, these are the navigation project's characteristics:

[0058] The proposed system is a locating and navigation method based on the following unique characteristics:

Google Ex. 1028, p. 549

[0059] In an indoor or outdoor navigation situation the RF beacons tags, replace the satellite in a GPS based system, to provide the user with the information and directions needed to reach the destination.

[0060] The proposed system has three major parts:

[0061] The detection and navigator, the special method used to display the data and the information from the area trigger as result of being in close proximity to the RF beacons in the area.

[0062] It is not a location and tracking system as offered by other systems.

[0063] Small RF tags/beacons are installed in each place designated as Point Of Interest (POI), be it at a mall, department store, product inside a store, street or garage parking, inside or outside location, public or commercial. The tags/beacons can be RFID (long range type), or a Bluetooth with the option to long range Bluetooth, or a Wi-Fi or any RF type. The tags/beacon broadcast a unique ID by wireless that identifies the location by the unique ID, the address and type of facility/store/product . The tag/beacon broadcasts its information to be picked up by the mobile phone application navigator, via the cellular phone or other Bluetooth device with application, the beacon ID trigger application and push information to the Bluetooth device or the cellular phone with the Bluetooth.

[0064] The system can serve as add on to the mall's/store's guide/mapping to provide extra assistance to user.

[0065] The navigator.

[0066] The navigator, cellular phone application Bluetooth application

[0067] The user device scan the local area for ID broadcast by the tags/beacons in the vicinity via the wireless Bluetooth interface with a cellular telephone utilizing the cellular phone's Bluetooth capability. It is important to note that no cellular communication or Internet or database access is needed to determine the location of the device and that any Bluetooth enabled device will operate the navigation application as a stand-alone device. The beacon system can interface with existing in car system and/or car navigation system.

Google Ex. 1028, p. 550

[0068] The display method.

[0069] The display method is a unique way to bridge existing devices like cellular phones, in-car system and in-car navigation and other Bluetooth devices. The system provides an overlay display method over the existing navigation system mapping or floor map or floor images, as a real-time floating display, or as a waypoint to overcome the limitations of GPS based systems and the existing mapping systems, the indicator placed overlay on the floor plan image, it may further include providing a visual indication a circle on the floor plan image of the path, wherein the visual indication – the circle indicates an area of the indoor map where the location information identifies a particular location and the circle provides the accuracy radius circle.

[0070] The mapping: a system and method for mapping an indoor environment is provided. a user device may receive an indication of a starting point on a floor plan.

[0071] The user device may prompt the user to travel in a particular direction, or the direction of travel may be determined by the user device in response to the user indicating a second location after the user has traveled to the second location.

[0072] As the user travels from the starting point in the designated direction, the user device may gather information about the indoor environment. For example, the user device may gather wireless signal strength data, from proximity RF beacons Wi-Fi or Bluetooth while the user travels in the designated direction.

[0073] The user device may associate the gathered information with the path the user traveled from the starting point to the ending point. The operation can be done at the user device – the cellular handheld, the association may also be performed by a remote server using data provided by the user device. As the user travels from point to point, the client device may indicate the area for which valid location information is available based on the path the user traveled and the information the user collected.

[0074] The Mapping can be offered as an additional service for the indoor based on area building floor or image mapping.

Google Ex. 1028, p. 551

[0075] The navigation system will enable remote planning based on downloaded local floor-plans the floor mapping or floor images – the indoor view images of the local building facility, or local navigation, when the location's floor plan can be triggered to down- loaded at the destination. An example of this would be at the entrance of a shopping mall, a department store, an amusement park, a museum, a parking garage, a downtown area of a city, and the like.

[0076] The navigation system is based on a network of tags/beacons that can be deployed anywhere. The system is accurate to within 10 feet, significantly better existing navigation systems and GPS. The system can work inside a building whereas GPS cannot.

[0077] Local detection is obtained via popular Bluetooth interface.

[0078] The system provides information about each facility/store, including information about the type of the facility, for example: type of store or product etc.

[0079] By providing the ability to locate a the user in an area using a Bluetooth enabled device, or a cellular phone with the navigation application and the RF beacons method, the system overcomes the anxiety of "Where am I "and also facilitates finding a parked car later via the RTP (Return to Parking) feature.

[0080] The system has the capability to perform all the functions of a search for and can become the "Next generation search out of the box".

[0081] The navigation system can be attractive for places that already deploy WI-FI and can be used for the existing WI-FI devices as a tags/beacons.

[0082] In case of an emergency or security situation, the system can provide authorities with information.

[0083] The system eases and facilitates navigation to indoor locations, without a navigation map or GPS. Indoor Mapping can be provided as part of the navigation system. The system provides "local" navigation as well as "remote" detection.

[0084] The system allows easy interface or trigger application with existing networks or existing system.

Google Ex. 1028, p. 552

[0085] The system saves gas, time, money and eases global warming by reducing the time spent searching for destination.

[0086] The navigation method is unique. The navigation system is based upon RF tags/beacons with interface to Bluetooth enabled devices. This feature allows detection and navigation in locations where GPS cannot work, as well as outside, with the ability to guide the user to within 10 feet of the destination, significantly better than any other navigation and GPS based systems on the market.

[0087] The Bluetooth RF tags/beacons are based on a long-range version of the popular short distance communication. This unique feature affords the user the ability to plan ahead from a remote location, by obtaining ID about the destination directly from the tags/beacons and by accessing the indoor floor plan to be navigated at the destination.

[0088] A major problem with In-Car navigation and GPS mapping is that they cannot guide the user closer than 50 to 200 feet, and only in open places. The navigation system can provide accurate directions to within 10 feet.

[0089] The navigation system will be a challenge to navigation providers and GPS providers as they cannot provide mapping or navigation inside a mall, department store, a parking garage or lot, and anywhere the GPS /Navigation map cannot accurately help navigate.

[0090] Utilizing this innovation, the facilities in the vicinity around the "user" car are displayed on a floating overlay using either a cellular phone application, or a stand-alone device, or an existing installed navigation system with or without any mapping.

[0091] The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[0092] Navigation using the mapping or floor plan of a location can be offered as a part of the system. The option of downloading a floor plan can be exercised either remotely or locally.

Google Ex. 1028, p. 553

[0093] The tags/beacons broadcast their signal continuously and any of the navigation devices will detect them and display the ID/data on the user's device in an easy to understand method.

[0094] With our innovation you have the information that you want, when you want it, where you want it ...(and at an affordable price)

[0095] Once you are in the vicinity of your destination and you switch on your navigation device, by being in proximity to installed beacons in the area you will automatically receive the facility information along your waking route and in all directions around you.

[0096] No further action is required, there is no need to send a request or to access the Internet/web or log on and search a database or central system the access to the Internet is to provide a local based services like push information or messages or offers, deals, advertising to the mobile user .

[0097] Other systems are still based on the existing search concept where the user submits a query, searches and awaits for the response. All impractical while the user needs the information immediately. The navigation system provides the information automatically, without submitting any query, and the response takes into account the user's location determined by the proximity RF beacons.

[0098] The unique approach to detection of the mobile inside the buildings does not need an Internet bandwidth or cellular communication. The Internet or cellular communication provides local based services and additional information that can be pushed to the user device.

[0099] And as a result there is no delay or waiting for communication and access time, the communication is instantaneous, triggered directly between the tags/beacons ID and the user's device.

[00100] Additionally, each facility type can be ID coded to identify the type of the store etc., e.g. restaurants, men's wear, women's wear etc.

[00101] Each ID-coded display of facility can be trigger accessed to information about the store e.g., providing automatic waypoint information.

Google Ex. 1028, p. 554

[00102] The ability to operate the innovation using the disclosed applications on a cellular phone, the navigator, with no need for cellular connection to determine the current location, means the user does not need any GPS system.

[00103] Moreover, the navigation system can solve the "RTP" (Return to parking) problem, where many forget where they parked their car. The system has an option to save the location on the "cellular phone-parking detector" application that will make it easy to locate the parked car.

[00104] The navigation solution is designed for global use and is not limited to malls, stores, amusement parks, museums, sports stadiums etc. It can be implemented in parking garages or parking spaces metered or not, the tags/beacons can be implemented anywhere and in any place to trigger and initiate existing and local application and even link to exiting system and existing software.

[00105] It is envisioned that in the future all new construction will have the tags/beacons included in the design, even place addresses, a building addresses can be replaced or use an add-on with the implementation of a tags/beacon in the area to be recognized or scanned by the mobile device.

[00106] The system integrates the navigation as part of the NAV4 concepts where it will provide complete solutions for local navigation in an area where the GPS can't work.

[00107] The navigation system consists of the following parts:

[00108] An infrastructure of tags/beacons, wherein each tag/beacon is installed in a local and known location.

[00109] The navigation system is based on mapping and navigation to and in the location, and its aim is to replace or supplement the mall/store guide/map, by installing the tags/beacons in each store or Point Of Interest (POI).

[00110] The mapping: As GPS and GPS mapping is not available indoors, the navigation system is based upon the floor plan mapping or floor images available from each facility. For planning ahead, the floor plan or the floor images can be downloaded as part of user's

Google Ex. 1028, p. 555

navigation/cellular phone remotely-via Internet as mobile application before reaching the destination or triggered when the destination is reached.

[00111] The Navigation uses the most commonly used device in the world today, the cellular phone with Bluetooth interface.

[00112] As a difference from other systems and other local based systems, this solution offers a unique approach that can be described as the "Search out of the box" as neither query nor database search is needed; all needed is to know the proximity tags/beacons ID and the cellular phone, working as a Bluetooth device, that automatically scans and recognizes the local area tags/beacons and determines the "user's" location, and provides instant information to the user and to the business in the area.

[00113] A typical application is guide and navigating a pedestrian in an environment like a mall, department store, specialty store, conference, trade show, amusement park, university, hospital, school, municipal building, museum, subway, train station, airport, down town center, a finance facility, cruise ship and any type of parking facility ...or any place when and where GPS cannot be provided or is not accurate or precise enough. The system will be used for navigation by first responders to emergencies or disasters.

[00114] The navigation system is part of the broad suite of applications that include a complete solution to the "user" from the time that he parks, or begins looking for a space to park his car, walking to the store/mall or to any indoor facility to when he wants to return to his parked car, looking for the place that he parked.

[00115] The suite may includes:

[00116] Parking detector-and navigation to the empty available parking space.

[00117] Automatic notification of user existence in the place/store/facility

[00118] Nav4 mall/store navigation solution inside mall/store.

[00119] RTP-return to parking-locate the place that you parked your car.

Google Ex. 1028, p. 556

[00120] For example, a typical application could be:

[00121] A pedestrian asks the way in a mall to a specific store.

[00122] A pedestrian asks the way inside the store, to a specific aisle or product.

[00123] A shopper in a department store asks for a specific department.

[00124] A pedestrian asks the way to a Point Of Interest (POI). In an emergency, the first response team has to navigate inside a smoke filled building.

[00125] A store owner can use the notification and the knowledge of existence for loyalty and rewards

[00126] The beacons ID can trigger a link to exiting software and aware the local system of the user existence – such as:

A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

The pedestrian reach an advertising area or billboard that can recognize the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

A customer is entering a store/bank/facility front would be identified/recognized for additional information or services.

The RF beacons/tags can serve to track employee time, including check-in and checkout times from designate area.

Google Ex. 1028, p. 557

The RF beacons/tags can serve as part of payment process where the user mobile and the local proximity beacons/tags can provide additional security for a mobile payment system to replace a current payment method such as those using credit cards.

The local RF beacons associate with the user mobile can be part of local dating system.

The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

The location of the user as associate with the local beacons can be interface with social networking .

The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking.

The RF beacon can be installed or be a part of a vehicle to provide car application like payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically.

[00127] A system and method to provide a user information which is related to the Point Of Interest (POI), the navigation system provides detection and navigation reference, position determination and information related to the object-Point Of Interest (POI), directly and automatically to the user interface-cellular phone upon arriving to a close proximity to the RF tags/beacons installed in the area.

[00128] Special operation mode: Shopping: provides navigation to the special sale item in a department store.

[00129] Special operating mode: Museums: provides navigation and interactive information from the museum's exhibition to the "user's" cellular phone device via Bluetooth interface.

[00130] Special operating mode: Parking: describe in 2 patent applications, provide empty parking space detection and navigation.

Google Ex. 1028, p. 558

[00131] Special operating mode: Nav store provides navigation inside a store/department store to a specific department/aisle or specific product, with an option for advertising method and special promotion it also provides the business owner with ability to know, in a way of automatic notification when the "user" cellular phone device is in proximity to the local area for automatic delivery of information related to the store/business owner such information can be but is not limited to deals, coupons, special and even statistically information about the "user" habit.

[00132] Every Bluetooth device's tag/beacon has a unique ID. This ID can be used for locating the tag/beacon and providing location information of the mobile device in the proximity.

[00133] A relevant location scenario is that of searching for a certain tag. The relevant location scenario is the most accurate and the faster response time and is one solution for indoor navigation and locating when and where each tag/beacon ID is a known address position-waypoint.

[00134] Why use Bluetooth for indoor location?

[00135] Bluetooth has some advantages in the context of indoor location. These include:

[00136] Bluetooth uses RF-in the 2.4 GHz ISM band, specifically. In this frequency range, radio waves penetrate obstacles, such as walls and human bodies, albeit with a substantial loss.

[00137] This has two implications:

[00138] Availability of a "high-there" application based upon receipt of a signal from the tags/beacons.

[00139] Tags/beacons can be placed relatively far apart (typical range is 10-15 meters, i.e. not necessarily of one in each way point).

[00140] Bluetooth is ubiquitous-Bluetooth chipsets are being implanted everywhere nowadays (phones, accessories, computing devices, etc), the tags/beacon can be implements anywhere, inside buildings roads inside cars transportation entities, inside home for home automation triggering, or in any kind of business triggering application or and link to exiting system.

Google Ex. 1028, p. 559

[00141] The fact that a Bluetooth location system can locate any Bluetooth enabled device, makes it more cost-effective. This means that an increasing fraction of humans and mobile assets around would become locatable in a Bluetooth covered site, with no additional hardware cost (no tags/beacons attached). The only need is to pre-register these devices. Bluetooth is a low power technology-tags need recharge, approx. once a week (or longer, depends on the usage scenario). Non-tags (e.g. BT enabled phones) are being recharged anyway on a regular basis, so they do not need special recharges. If they are being used for location, the fraction added to their usual (no Bluetooth) power consumption is relatively small.

[00142] Bluetooth is a low cost technology anticipating high production volumes (hundreds of millions annually) leading to sub-$5 per chip. Several IC manufactured have already met this goal. This would eventually result in a low price for the Bluetooth tags/beacons, if and when Bluetooth location systems would become sufficiently ubiquitous. Bluetooth is a multi-functional communication standard - location is only one of the services that can be supported by a Bluetooth infrastructure. The same infrastructure can be used to provide additional network services, particularly remote monitoring and control or just trigger link to exiting system. In addition, Bluetooth provides voice and IP services (although for the later, WLAN is typically more suitable).

[00143] In open spaces, relatively free of obstructions and walls (e.g. a large warehouse or a public hotspot), Bluetooth alone would suffice to provide a -2 meter error range.

[00144] Waypoint Navigation

[00145] A waypoint is a fixed location with known address location, longitude and latitude and coordinates. The navigation system is capable of storing a database of waypoints for the following purpose:

[00146] Waypoints mark a destination, a point along the way to a destination, or a point of reference. Normally, in navigating, a "route" consists of one or more waypoints. To traverse a route, the user navigates to the nearest waypoint, then to the next one in turn until the destination is reached. The system has the ability to compute a great-circle route towards a waypoint, enabling them to find the shortest route even over long distances. The system enables users to

Google Ex. 1028, p. 560

locate a destination on a map or indoor floor plan or indoor image and define it as a waypoint. The system is intended for navigation; it can generate a suggested route between two waypoints, based on the cartographic database. The system indicates the user's current location and gives advance notice of an upcoming point.

[00147] Because the system knows the waypoint positions, and the distance between them, it is easy to determine the "user's" exact location.

[00148] Map Matching

[00149] The navigation solution is further enhanced, although it is not essential, when the system knows that the person or object being located is traveling along known routes on a map; for example, the system can assume that people can only follow certain routes in a mall. This is priority information that can be used to "force" the estimated position to be on the nearest point on the possible routes, note that it is easier to predict indoor than outdoor.

[00150] The constraints of indoor construction similarly can be used to refine estimates of the position of a person or object moving within a building-people and objects do not pass through walls, they pass along corridors and through doorways. It is a best solution for a system in case of an emergency or for a system for homeland security or a system to locate and inform the subway location, a good example is the hotel exit floor map.

[00151] Configuration and Use

[00152] In the indoor application, instead of GPS, the system uses known waypoint positions that are manually detected and identified as a demonstration of the concept of using another sensing method, such as RF tags/beacon, to detect and identify the location and the waypoints. Theoretically, it would be possible to convert the waypoint positions into GPS coordinates and emulate an external GPS data source.

[00153] This system can be useful for providing navigation to first responder personnel indoors waypoints have been installed in a particular building in the form of RF tags/beacons whose identities are associated with locations- the meaning of identifier, it may be possible to associate magnetic anomaly information with individual tags as well.

Google Ex. 1028, p. 561

[00154] One of the important features of the indoor navigation techniques will enhance the ability of tactical team's first response team to navigate within the buildings in which it has been deployed. RF (Bluetooth) Tag/bacon devices commonly are attached to persons or to moveable objects, so that the objects can be tracked using fixed readers (special- purpose radios) at different locations. This is the most common indoor navigation that exists today.

[00155] The navigation method is the "flip side" of this practice and is based on the concept that the detection of an RF (Bluetooth) device, or RF Tags/beacon, in a known, fixed location, by a moving reader, such as a Bluetooth enabled cellular phone or other Bluetooth enabled device, provides a precise location of a person or a moving object, by the carrier of the telephone or device, who can supply indoor navigation without GPS.

[00156] The navigation method provides a low-cost, reliable system for firefighters and other first responders, inside buildings, to navigate, where a GPS is not reliable-indeed, the GPS signal may have been disabled temporarily to prevent-exploitation by terrorists, or even more likely no signal can be received at all inside a building.

[00157] The navigation system foresees this limitation of GPS based systems, and is intended for an environment that is potentially much less "friendly" to RF signals, the environment inside a building that first responders encounter may contain smoke, dust, or flames, and is intended to leverage advances in RF/Bluetooth tag/beacon technology. The navigation system will exploit the capability of storing critical building information, such as the floor maps and the emergency escape plans, for retrieval and navigational assistance via a Bluetooth enabled cellular phone, when and where it is needed,

[00158] Moreover the navigation system can serve as a navigator for the emergency exit route when and where needed. Each user can load the emergency exit floor plan and escape with the knowledge of his exact location in that route.

[00159] Aspects of the scenarios to be included:

[00160] Identifies and tracks the user (a first response team member)option to use the cellular phone as a beacon by himself.

Google Ex. 1028, p. 562

[00161] Provides the user with navigation information and directions for safely exiting the building.

[00162] Provides location information of all team members, via an ad hoc network of radio terminals that combine RF/Bluetooth and allow communication chat and messaging between the team members without need for Internet or cell communication such option is not limit to the first response team but to a user in emergency and non-emergency use.

[00163] From the outset, the navigation system was designed with the capability to utilize existing technology so it can be deployed as a stand-alone system, or in tandem a link with existing systems. The system focuses on employing technology that is already in place that simply needs to be expanded.

[00164] With the implementation of the navigation system, a FIRST RESPONSE TEAM will be empowered to navigate and find its way in a case of emergency or a disaster. This capability can be a critical life-saving power in modem congested urban living conditions, not available before now.

[00165] It is believed that the implementation of the navigation system will assist counter-terrorism activities and more importantly will help the first response teams to save the lives of people trapped inside buildings.

[00166] Conclusion

[00167] The Bluetooth technology offers few unique advantages: one is the ability to scan and locate a small tag/beacon installed in an local area using the tags/beacon ID a low cost and battery power and low battery use and the use of the newest Bluetooth devices (any Bluetooth enabled device that is not a tag/beacon, e.g. most of the newer mobile phones) can be used as a tag/beacon.

[00168] The other advantage is the multiservice nature of the Bluetooth infrastructure that enables using the tags/beacons for other purposes, such as for navigating, remote monitoring and control, a triggering mechanism to application and system even a link to existing systems and for a variety of messaging a push information and local based services.

Google Ex. 1028, p. 563

[00169] Location based services are rapidly expanding. Outdoor location technologies are mainly based on GPS technologies. GPS cannot perform properly indoors, and is therefore inadequate. As a result, indoor location systems are appearing on the market.

[00170] The need for a system arises from various market segments and applications. One example in the market is the GPS based systems that use integrated positioning and navigation systems based on GPS receivers as the primary positioning technology. Subsequent to the events of September 11th' the Federal government mandated that GPS capability be built in to all cellular phones.

[00171] However, the fact that uninterrupted satellite reception is not possible in many locations is a major limitation of GPS based systems. Densely populated areas and radio-frequency-signal shadowed locations, such as urban centers (a.k.a. "urban canyons"), generally do not allow proper operation of GPS, yet it is in these locations that the need is greatest.

[00172] There is a clear need for a cost effective system that maintains performance indoors, in urban canyons and in city centers.

[00173] The disclosed application includes finding a solution to this task by providing a system and method to generate automatically the waypoint along the user route ether indoor, or outdoor.

[00174] The disclosed application addresses the task of interactively guiding the user to a desired indoor and outdoor destination.

[00175] The method for mapping an indoor environment is provided. A user device may receive an indication of a starting point on a floor plan. The user device may prompt the user to travel in a particular direction, or the direction of travel may be determined by the user device in response to the user indicating a second location after the user has traveled to the second location.

[00176] As the user travels from the starting point in the designated direction, the user device may gather information about the indoor environment. For example, the user device may gather

Google Ex. 1028, p. 564

wireless signal strength data, from proximity RF beacons Wi-Fi or Bluetooth while the user travels in the designated direction.

[00177] The user device may associate the gathered information with the path the user traveled from the starting point to the ending point. The operation can be done at the user device – the cellular handheld, the association may also be performed by a remote server using data provided by the user device.

[00178] As the user travels from point to point, the user's device may indicate the area for which valid location information is available based on the path the user traveled and the information the user collected.

[00179] The method may include displaying a floor plan image or floor mapping or the floor indoor view – the floor images corresponding to an indoor location, receiving a first input to indicate a first location on the floor plan image, gathering initial location information at the first location, and generating an indoor map, using a processor, using the initial location information wherein the indoor map includes an association of the initial location information with the first location.

[00180] The method may further include repeating the location information gathering process at a new location to associate new location information with the new location in the indoor map.

[00181] The method may include gathering additional location information as the user travels from the first location to a second location, receiving a second input to indicate the second location on the floor plan image, determining a path from the first location to the second location, and associating the additional location information with at least one location within the map corresponding to the path.

[00182] The method may include prompting the user to walk in a straight line when traveling from the first location to the second location.

[00183] The method may include providing instructions to a user to travel in a particular direction. The location information may be wireless signal data associated with one or more RF

Google Ex. 1028, p. 565

wireless beacons installed in the local area. The first input may include performing a selection operation with an indicator placed on the floor plan image.

[00184] The method may also include providing a visual indication on the floor plan image of the path. The visual indication may indicate an area of the indoor map where the location information identifies a particular location. The building floor plan may be received from a remote via Internet or cellular communication as part of the mapping and navigation application.

[00185] The method may also include determining an approximate location determine by proximity to the RF beacons, providing the approximate location to the remote server, receiving a list of floor plans associated with indoor environments proximate to the approximate location, and selecting the building floor plan from the list.. The method may include identifying the user's direction of travel by at least one of determining a relative orientation using the first location and the second location, or using at least one of an user device built-in sensors, accelerometer, a gyroscope, or a compass.

[00186] The method may include determining a location precision for the data gathering operation, and using the location precision to determine a location resolution for the indoor map. The location precision may be determined using a number of available RF wireless beacons for which signal strength data and the beacons ID are available. The location precision may determine at least one of the size of an indicator for indicating the current location or the accuracy radius circle, or the width of a stripe for indicating an area of the indoor map for which the location information has been gathered and will display overly on the floor map image map building map. The method may include determining a coverage level of the indoor map compared to the floor plan images.

[00187] The navigation system and method automatically updates waypoints, when each Point Of Interest (POI) will have an RF tag/beacon that will broadcast an RF ID signal that will provide an instant detection, the navigation system will execute the specified file/program that will trigger automatically, executing a waypoint generation program.

[00188] For some years, local governments in cooperation with various FM radio stations and recently a navigation system have been putting together an automated way to get real-time traffic

Google Ex. 1028, p. 566

data into cars so drivers can avoid traffic. Real time traffic information includes news such as: congestion, construction, traffic accidents, recommended alternative routes, recent navigation systems depend on fix sensors or camera and some navigation on manual information provided by the users/drivers.

[00189] A tag/beacon will be installed at the location or at each Point Of Interest (POI). The tag/sensor will broadcast RF signal contain ID to be recognized by the mobile phone and such information (the RF beacon ID) will transfer automatically via the user mobile phone to the provided location detection of the user as well as statistically information about the possible "traffic" in the area/road, such method can be extremely helpful to manage and control transportation system.

[00190] The "user" will no longer need to enter his way- points manually and then wait for the providers of maps or GPS to update their maps with the information (this can take about a year in some cases). This way the "user" will receive the information that he needs when he needs it and where he needs it upon entering an area with tags/beacons, providing an automatic "check-in" to the user and the facility business.

[00191] Again, no communication is need to be established between the tags/ beacon and the user mobile device and the detection can be done without any communication at all, In the event that more information is required it may be necessary to connect to the Internet website.

[00192] It is believed that sooner or later it will be a standard procedure to install a tag/sensor on every location of interest (waypoint) or any place on road indoor and even outdoor or any business will provide waypoint information to the "users". Most stores or POI/waypoints will be willing to pay for a tag/beacon or pay subscription fee to be on the mapping system on the local area that will show their location and information on a map. Or they will pay for an annual listing (similar to the yellow pages).

[00193] The System can interface with existing GPS mapping outdoors as well as indoors, it can switch automatically where the user outdoor to receive an outdoor map and information based on GPS and when in the indoor to receive an indoor mapping and indoor navigation based on RF beacons detections.

Google Ex. 1028, p. 567

[00194] Presently GPS providers, map providers and search engines provide: City Navigator and Metro Guide Maps that contain many thousands of attractions.

[00195] These include: Food and Lodging, Attractions, Entertainment, Shopping, Services, Transportation, Emergency, and Government offices. In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be very old and the information associated with them is not update. Listed Attractions include theme parks, museums, libraries, schools, parks and such. This feature is very useful in an unfamiliar area.

[00196] Waypoints will be located automatically in the local area and plotted on the map screen. The waypoints can be stored on the local map at the handheld phone for future access.

[00197] The navigation system will revolutionize the GPS based systems and the mapping industry, from GPS, mapping companies' communication providers, car manufacturers to yellow pages and local guides; for the first time the user of a GPS navigation system will have an easy, reliable way to reach a destination inside buildings facilities – the indoor world.

[00198] The most common problem with today's GPS based systems is indoors where the navigation and mapping is not existing. The navigation system provides the solution for this problem. Using the navigation system, the user will know where he is, be able to identify "landmarks" around him accurately, and receive automatic updates directly from the Points Of Interest (POI) in the vicinity that get automatic notifications about his presence in their area.

[00199] The navigation system is based on RF tag/beacons, each tag or waypoints has its own ID (identifying the waypoint by type, address, etc.). The beacon will broadcast, via RF the ID to be scan and pickup by the Bluetooth device, provides a detection and trigger a location determination as a floating information display on the indoor map referenced to the user's location. The floating display will provide automatic waypoint updates around the local area and will allow the user to search local providers (waypoints/store), even without any connections, no communication, Internet, or cellular is needed to determine the location as well as accuracy radius circle. The Internet web communication provides more information such as push

Google Ex. 1028, p. 568

notification and messaging and local based services such as deals, advertising directly and automatically to the user's mobile phone.

[00200] Once you are in the vicinity of your destination and, a notification is sent automatically to the business Internet or web site and you will automatically receive the facility information along your waking route and in all directions around you .

[00201] No further action is required, there is no need to send a request or to access and search a database or central system.

[00202] Other systems must send a request to a central system, or to a database, and then must wait for a response. This takes time!

[00203] The disclosed unique approach results in no delay or waiting for communication or authentication and access time as there is no real communication between the tags/beacons and the user mobile device, the result are instantaneous association, directly between the tags/beacons and the user's mobile or navigation device

[00204] The RF tags/beacons broadcast their ID to be scanned and pickup by the user's mobile phone to identify the location of the user as proximity to the tags/beacon.

[00205] Additionally, the ID identifies the type of facility, store etc., e.g. restaurants, men's wear, women's wear etc. and the location in the store, e.g. front, back etc.

[00206] Each facility can provide information about the store e.g., automatic waypoint information as the user's presence triggers initiates automatically notifies the business or waypoint in the local area.

[00207] Do to the limitation of the mapping system currently used by the GPS navigation system the associated display method is our unique way to bridge existing devices like cellular phones, in-car navigation and other Bluetooth devices. The system provides an associated overlay navigation display method as a real-time floating display, or as a waypoint to overcome the limitations of GPS based systems and the existing mapping systems; especially indoors where each waypoint will be displayed over mapping or floor map images.

Google Ex. 1028, p. 569

[00208] The display method is one unique way to bridge existing devices like cellular phones, as a real-time floating overlay on a directional circular display to overcome the limitations of GPS based systems and the existing mapping systems.

[00209] The overlay add-up device/display works like a VOR and provides add-up display shows automatically the user location in the immediate area in a circle represent a radius of accuracy and proximity distance from the local detect beacon/tag.

[00210] The overlay displays over an existing navigation system, portable device or cellular phone without GPS support providing a circle that shown the location accuracy of the user on the local map.

[00211] The fact is: no digital maps are entirely accurate. A user needs to know which map makers are used by the product that they are interested in and check the maps for the area that they are concerned about. In addition some map databases are created from vector data while others are just scanned copies of paper maps. In addition to mapping data these same map makers can often provide Points Of Interest (POI) data. However, a software company might use the maps from one company and the poi data from another. POI data normally takes three forms. One is public buildings, parks, airports, and possibly geographic objects. A second is government locations that include specialized points lists like marker buoys, and airplane markers. Finally, there are commercial establishments that usually include some information about their product and contact data. Note that the location of commercial places is often derived from the street address and is not based on the actual lat/Ion location. Moreover there is the sky-high cost of digitizing and updating the poi and the waypoints.

[00212] The task is to provide a solution when the "user" will receive real-time Point Of Interest (POI) or waypoints in the area where he is automatically associate with a located proximity beacons/tags in the area, the waypoints information can be information that are real-time information updates in real-time and can be changed according to the waypoints and all according to a proximity detection of the RF tags/beacons ID in the area, the information can be used in these example applications:

Google Ex. 1028, p. 570

[00213] The user may wish to locate an empty available parking space in his vicinity. Just think of the empty parking spaces as waypoints the parking space occupied with RF beacon and sensor to find if the parking is empty, and the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details with US Patent 7,899,583 (included in the claim of priority and issued to the Applicant and incorporated herein by reference).

[00214] The user may wish to see and locate the real estate property available in his area according to his location, where an RF beacon can be installed in each real estate property to trigger more information to the user/ possible client when he reach proximity to the property.

[00215] The user may wish to locate a specific store in a shopping mall, each store in a mall is a waypoint, or a particular aisle in a department store, or a specific item on a shelf.

[00216] The user may wish to locate a specific conference room in a convention center, or a Point Of Interest (POI) in an amusement park or a Point Of Interest (POI) in a museum.

[00217] The user may wish to find the emergency exit route in a time of emergency or the first response team needs to navigate in a facility in an emergency situation.

[00218] The user may be looking for a train location in a station, or stops in a subway or underground train system. All of that is updated waypoints in real-time.

[00219] It is believed that the automatic waypoint updates revolutionize the GPS and Navigation Industry.

[00220] For the first time the user will know what he wants and when he wants and according to his location

[00221] The local business owner can introduce his content in real-time to the (navigation) users in his area automatically when the user access or enter to his store the contents can be deals, coupons, specials and provides more information to user about the business, the business in turn can benefit from statistically information about the client/s. such as habits, profile, loyalty and rewards.

Google Ex. 1028, p. 571

[00222] The GPS and navigation industry can tap to the huge local advertising market (estimated at 134B in US alone ...)

[00223] Automatic notification of user existence in the place/store/facility

[00224] Mall/store navigation solution inside mall/store.

[00225] RTP-return to parking-locate the place that you parked your car.

[00226] For example, a typical application could be:

[00227] A pedestrian asks the way in a mall to a specific store.

[00228] A pedestrian asks the way inside the store, to a specific aisle or product.

[00229] A shopper in a department store asks for a specific department.

[00230] A pedestrian asks the way to a Point Of Interest (POI). In an emergency, the first response team has to navigate inside a smoke filled building.

[00231] A store owner can use the notification and the knowledge of existence for loyalty and rewards

[00232] The beacons ID can trigger a link to exiting software and aware the local system of the user existence – such as:

[00233] A traveler is check in into a hotel/resort, the hotel/resort can provides with automatic check-in and interface to the hotel/resort front system.

[00234] A traveler is check-in into a flight in the airport, the airline provides the traveler with automatic check in to the flight when the traveler reach close proximity to a RF local beacon.

[00235] A customer are check into a restaurant or food service, the business will recognize the customer when he in proximity to the local RF beacon.

Google Ex. 1028, p. 572

[00236] The pedestrian reaches an advertising area or billboard that can be recognized by the user by being in a close proximity to the advertising area and provide the user with customize personalize advertising or offer.

[00237] A customer is entering a store/bank/facility front to be recognized for additional information or services.

[00238] The RF beacons/tags can serve to track employee's work times, including a check-in and checkout time from a designate area.

[00239] The RF beacons/tags can serve as part of a payment process, where the user's cellular phone and the local proximity beacons/tags can provide additional security for a mobile payment process, which can be used to replace other current payment methods, such as credit cards.

[00240] The infrastructure provided by local RF beacons can be integrated into a local dating system.

[00241] The local RF beacons with associate with the user mobile can create virtual secure zone for child or elderly or any care monitoring.

[00242] The location of the user as associate with the local beacons can be interface with social networking.

[00243] The RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking. the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details in US Patent 7,899,583 issued to the Inventor and claimed as priority herein.

[00244] The RF beacon can be installed or be a part of a vehicle to provide car application like payments security car broadcasting car tracking car communication and automatic car counting to provide transportation managements with statistically information automatically.

Google Ex. 1028, p. 573

[00245] A system and method to provide a user information which is related to the Point Of Interest (POI), the navigation system provides detection and navigation references, position determination and information related to the object-Point Of Interest (POI) directly and automatically to the user interface-cellular phone upon arriving to a close proximity to the RF tags/beacons installed in the area.

[00246] Moreover the application provides more than simply an icon.

[00247] At present, no prior art device utilizes the capabilities to display a real-time representation of navigating and get an update directly from the waypoints. Also most systems are designed for the old query type search where interface to Internet and or database central system is needed.

[00248] The navigation system automatically detects a signal directly from the RF tags/beacons installed in the waypoints, no communication needs to be established between the mobile phone and the RF tag/beacon not even cellular communication, and no pairing needed. Other systems must have bandwidth available, over which to send a request to a central system or to a database and then must wait for a response, or they need Internet connections. This takes time!

[00249] Even if the other systems have bandwidth, they are still based on the existing search concept where the user submits a query, searches and waits for the response. This is impractical. The navigation system provides the information automatically, without submitting any query, and the response is according to the user's location based on RF tags/beacons installed in the local area.

[00250] Again, most of the existing prior arts are based either on a GPS based system or the existing car navigator, that depends on a GPS too.

[00251] And the existing mapping that these systems use has the same limitations, described previously, and is impractical.

[00252] This navigation system bridges the gap between the GPS based navigation and provides a complete solution.

Google Ex. 1028, p. 574

[00253] U.S. Pat. No. 7,031,875 Ellenby et al. describes a pointing system for addressing objects, and provides a system and method based on GPS and Internet/database communication, it is not exactly a navigation but an information based system that need the GPS to locate the user location so indoor services is likely out of the questions and the need for communication as well with GPS limits its availability and accuracy. It is not a real-time update of the waypoints and needs Internet and or central database communication.

[00254] The most common problem with today's GPS based systems is that the mapping and the waypoints are not updated on a timely basis. In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be about 2 years old. The new service like Google Earth provides satellite images that are almost 2 years old and for sure can't provide on-line real-time accurate picture of the existing area and the waypoints.

[00255] The disclosed technology offers a solution to this task by providing a system and method to generate automatically the waypoint along the user route ether indoor or outdoor the update is based on determine location of the mobile device indoor in proximity to installed RF beacons and the update information triggered by the location determination, such method is not exist in today navigation or mapping especially indoor.

[00256] The disclosed technology offers a solution that interactively guides the user to a desired indoor and outdoor destination.

[00257] The navigation system and method automatically updates waypoints, by means of an interface to an existing GPS based system, when each Point Of Interest (POI) will have an RF tag/sensor that will broadcast an RF signal that can be converted to a GPS waypoint, In response to the RF signal (from the tags/sensors,) the navigation system will execute the specified file/program that will trigger automatically, executing a waypoint generation program.

[00258] For some years, local governments in cooperation with various FM radio stations have been putting together an automated way to get real-time traffic data into cars so drivers can avoid traffic. Real time traffic information includes news such as: congestion, construction, traffic accidents, and recommended alternative routes.

Google Ex. 1028, p. 575

[00259] An RF tag/beacon Bluetooth and or Wi-Fi will be installed at each Point Of Interest (POI). When each Point Of Interest (POI) will have an RF tag/beacon that will broadcast an wireless RF signal with ID that will provide an instant detection, the navigation or the application for local based services system will execute the specified file/program that will trigger automatically, executing a waypoint generation program and at the same time provides the business owner a notification of existence of the user in his vicinity to allow the business to provide the user with relevant messages or offers, more information or push message to the user cellular phone just by being in proximity to the RF beacon .

[00260] The "user" will no longer need to enter his way- points manually and then wait for the providers of maps or GPS to update their maps with the information (this can take about a year in some cases). This way the "user" will receive the information that he needs when he needs it and where he needs it.

[00261] It provides trigger information according to the beacon/tag, directly from the local area business waypoints and to the user's display device, the detection can be done without any communication In the event that more information is required and the business need to provide more information it may be necessary to connect to the Internet, its allow interaction/engagement as proximity to the RF Bluetooth beacon can trigger a specific application functionalities and provides automatic notification "I am here" to the business owner.

[00262] It is believed that sooner or later it will be a standard procedure to install a tag/beacon on every location of interest (waypoint) or any business will provide a waypoint information to the to provide "users" with the information. Most stores or POI/waypoints will be willing to pay for a tag/beacons or pay subscription fee to be on the GPS system providers that are able to show their location and information on a map. Or they will pay for an annual listing (similar to the yellow pages).

[00263] The System can interface with existing GPS.

[00264] Present GPS providers, map providers and search engines providers: City Navigator and Metro Guide Maps contain many thousands of attractions.

Google Ex. 1028, p. 576

[00265] These include: Food and Drink, Lodging, Attractions, Entertainment, Shopping, Services, Transportation, Emergency and Government offices.

[00266] In most areas, the maps provided are not updated and sometimes provide misleading information. Some of the waypoints listed appear to be about 2 years old. Listed Attractions include theme parks, museums, libraries, schools, parks and such. This feature is very useful in an unfamiliar area. Waypoints will be located automatically in the local area and plotted on the map screen. The waypoints can be stored on the GPS database for future access or store at the user mobile device .

[00267] The navigation system will revolutionize the GPS based systems and the mapping industry, from GPS, mapping companies' communication providers, car manufacturers to yellow pages and local guides; for the first time the user of a GPS navigation system will have an easy, reliable way to reach a destination.

[00268] The most common problem with today's GPS based systems is that the mapping and the waypoints are not updated on a timely basis. The navigation system provides a solution for this problem. Using the navigation system, the user will know where he is, be able to identify "landmarks" around him accurately, and receive automatic updates directly from the Points Of Interest (POI) in the vicinity.

[00269] The navigation system is based on RF tag beacons installed in the local area, each tag or waypoints has its own ID (identifying the waypoint by type, address, etc.). The tag beacon ID and proximity to the RF beacons will allow local detection and interface with existing or indoor application and navigation, GPS based systems, as a floating information display on the GPS map referenced to the user's location. The floating display will provide automatic waypoint updates and will allow the user to search local providers (waypoints/store and more information about the store/business, the detection allows the local business to have an automatic notification about the user whereabouts in proximity to his business and allow him to provide the user with more information about his store/business/deals.

[00270] The fact is no digital maps are entirely accurate. A user needs to know which map makers are used by the product that they are interested in and check the maps for the area that

Google Ex. 1028, p. 577

they are concerned about. In addition some map databases are created from vector data while others are just scanned copies of paper maps. In addition to mapping data these same map makers can often provide Points Of Interest (POI) data. However, a software company might use the maps from one company and the poi data from another. POI data normally takes three forms. One is public buildings, parks, airports, and possibly geographic objects. A second is government locations that include specialized points lists like marker buoys and airplane marker. Finally, there are commercial establishments that usually include some information about their product and contact data. Note that the location of commercial places is often derived from the street address and is not based on the actual lat/Ion location.

[00271] Moreover there is the sky-high cost of digitizing and updating the poi and the waypoints.

[00272] The task is to provide a solution where the "user" will receive real-time Point Of Interest (POI) or waypoints in the area automatically to his existing navigation system or to his cellular phone, the waypoints information can be a real-time information update in real-time and can be changed according to the waypoints.

[00273] A cellular phone application, which the user will scan the area for exiting RF Bluetooth beacons or Wi-Fi beacons will receive data and more information utilizing the cellular phone's Bluetooth capability.

[00274] The system can trigger application as well as link to existing systems and software. A notification can be sent to a web, email a cloud application or even social network, The navigation system will interface with existing in-car media system and in car navigation systems.

[00275] It is understood that the waypoint or Point of Interest (POI) will be represented by the following suggested ID examples as part of the beacon ID to be recognized by the user Bluetooth mobile device (cellular phone), according to the type of the POI:

ID Code	POI Type	Waypoint Cat. Type	ID Code	POI Type	Waypoint Cat. Type

Google Ex. 1028, p. 578

32	Food/Restaurants	Food
33	Gas Station	Information
34	ATM/Banks	Finance
35	Department Store	
36	Apparel	Store
37	Sports	Store / Information
38	Books video	Store
39	Jewelry	Store
40	Toys/Photo/Elect.	Store
41	Music	Store
42	Gifts	Store
43	Furnishing	Store
44	Service	Service
45	Computers	Store/Service
46	Hairstyle/Cosmetics	Store/Service
47	Office	Office
48	Security/Police	Service / Emergency
49	Children's program	Service
50	Social Affairs	Religious Service
51	Religion	Religious
52	Phone	Service
53	Travel	Transportation Service
54	Parking	Transportation Service
55	Guest service	Service
56	Library	Service
57	Transportation	Management Service
58	Municipal	
59	Post Office	Service
60	Government	
61	Market	Store/Service
62	Alarm	Emergency
63	Emergency	
64	Hotel resort and cruise ship	
65	Education facility, school, university	

Google Ex. 1028, p. 579

66 Sport facility, sports arena, stadium

67 Conference and show

68 Amusement park

69 Implements as mail and address

70 Implements in a road as road sign or transportation entity

[00276] Be remember that the ID above is only suggested example, the fact is that part of the beacon ID will be to recognize the Facility/store type the location to provide instant detection and location determination by just being in a close proximity to the RF beacon in the area.

[00277] The navigation system enables remote and local update of the local floor plans and the information about the local area and waypoints business in the area, when the location's indoor application can be triggered to download at the destination. An example of this would be at the entrance of a shopping mall, department store, amusement park, museum, parking garage or the downtown area of a city where a sign or the shopping mall information sign will provides direct information a trigger to download the local application.

[00278] The system can work inside a building whereas GPS cannot. Local detection is obtained via popular Bluetooth interface.

[00279] The system provides information about each facility/store, including information about the type of the facility, for example: type of store or product etc., the information trigger to deliver to the user mobile device by being in proximity to the RF beacon ID that installed in the local area.

[00280] By providing the ability to locate a the user in an area using a Bluetooth enabled device or a cellular phone with the navigation application, the system overcomes the anxiety of "Where am I" and also facilitates finding a parked car later via the RTP (Return to Parking) feature.

[00281] The system has the capability to perform all the functions of a search and can become the "Next generation search out of the box".

[00282] The navigation system can be an attractive addition to existing deployments of Wi-Fi and Wi-Fi hotspots and a feature for business and cities that deploy Wi-Fi.

Google Ex. 1028, p. 580

[00283] In case of an emergency or security situation, the system can provide authorities with information.

[00284] Utilizing the navigation system, the facilities (waypoints) in the vicinity around the "user" car are displayed on a floating overlay using either a cellular phone application, or a standalone device, or an existing installed navigation system with or without any mapping, the information can be pushed to the user's device when he in proximity to the area.

[00285] The recent introduction of imagery services, such as Google Earth and its competitors, that are offered as an enhancement to GPS at a fee, still provide out of date information, with the unsatisfactory result that users encounter road changes and area development not shown on the maps and imagery.

[00286] The option of downloading a floor plan can be exercised either remotely or locally as part of mapping or navigation application.

[00287] With the navigation system, the user will have the information that they want, when they want it, where you they it ...(and at an affordable price) Once you are in the vicinity of your destination and you switch on your navigation device, you will automatically receive the facility information along your waking route and in all directions around you.

[00288] Additionally, each facility type can be ID-coded apart of the beacon ID to identify the type of the store etc., e.g. restaurants, men's wear, women's wear etc. the store type, real estate property, garage sale location, special sale and all up to date real time information that can't be displayed and located in today's navigation system, and tapping to the local business industry is known as local advertising.

[00289] Each ID-coded as part of the beacon ID can be trigger accessed to obtain complete information about the store e.g., automatic waypoint information.

[00290] The system can be operate on a cellular phone, and navigation system and is not limited to a GPS navigation system.

[00291] Moreover, the navigation system can solve the "RTP" (Return to parking) problem, where many forget where they parked their car. The system has an option to save the location on

Google Ex. 1028, p. 581

the "cellular phone-parking detector" application, which will make it easy to locate the parked car.

[00292] The navigation system is designed for global use and is not limited to malls, stores, amusement parks, museums, sports stadiums etc. It can be implemented in parking garages or parking spaces metered or not, almost anywhere and in any place even in any infrastructure.

[00293] It is envisioned that in the future all new construction/infrastructure will have the beacons/tags included in the design or built in the structure..

[00294] One feature of the proposed invention integrates the navigation as part of the NAV4 concepts where it will provide complete solutions for local navigation in an area where the GPS and GPS mapping just can't provide accurate and updated information that is so essential to the user.

[00295] A typical application is navigating a pedestrian in an environment like a mall, department store, specialty store, conference, trade show, amusement park, university, hospital, school, municipal building, museum, subway, train station, airport, down town center, any type of parking facility ...or any place when and where GPS cannot be provided or is not accurate or precise enough. The system can be used for navigation by first responders to emergencies or disasters.

[00296] The navigation system is part of a broad suite of applications that include a complete solution to the "user" from the time that he parks, or begins looking for a space to park his car, walking to the store/mall to when he wants to return to his parked car, looking for the place that he parked.

[00297] The suite may include:

[00298] Parking detector-and navigation to the empty available parking space.

[00299] Nav4 mall/store navigation solution inside mall or store.

[00300] RTP-return to parking-locate the place that you parked your car.

Google Ex. 1028, p. 582

[00301] For example, a typical application could be:

[00302] A pedestrian asks the way in a mall to a specific store.

[00303] A pedestrian asks the way inside the store, to a specific aisle or product.

[00304] A shopper in a department store asks for a specific department.

[00305] A pedestrian asks the way to a Point Of Interest (POI).

[00306] In an emergency, the first response team has to navigate inside a smoke filled building.

[00307] A system and method to provide user information which is related to the Point Of Interest (POI)

[00308] The navigation system provides detection and navigation reference, position determination and information related to the object-Point Of Interest (POI) directly and automatically to the user interface-cellular phone without any communication help of Internet/web or cellular needed . . .

[00309] Special operation mode:-Shopping- NAV4SALE-provides navigation to the special sale item in a department store. A new unique tool for the business owner as well to the customers-to navigate and locate an item in a store/mall that's on a special sale, will provide the "user" a way to navigate in/out door for the "waypoint" represents the special sale, coupon, special event, promo etc ...an add-on to local advertising.

[00310] The local advertising market is estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of a local strategy. Due to the lack of availability of the GPS indoors as well with the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry, there is no real tapping to this huge market.

[00311] The navigation system can bring a new life to the navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the

Google Ex. 1028, p. 583

user a navigation to his desire location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. A new unique way to bring the customers to the product in sale . . ., direct the customer directly to the isle and to the product that you want to move. The store will also have an option to deliver more content (advertising, sale, coupons, promo etc ...) to the user when he approaches the store or is already inside via push technology to the user's Bluetooth enabled cellular phone.

[00312] Special operating mode:-Museums- NAY4Museums NAV SHOW and NAY CONFERENCE provides navigation and interactive information from the museum's show or conference exhibition to the "user's" cellular phone device via Bluetooth interface.

[00313] Explore museum or conference show exhibits in a new unique and easy way, find your way around when navigating on the floor map of the museum or conference, indoor navigation, navigate to exhibits, restaurants, cafes, lavatories etc., all to the "user's" navigation or cellular phone.

[00314] Any museum, conference, or show provides the attended a map to the exhibits, some also provide additional audio device (headset) to get more information on the exhibits.

[00315] The navigation system will provide a unique indoor tool that will allow the attended to navigate the museum, conference or show in an easy way directly to his Bluetooth enabled cellular phone, when he reaches his desired exhibit he will allow to download directly to his cellular or Bluetooth headset information about the exhibits. An indoor navigation to the exhibits as well to the restaurants, cafes, lavatories etc., all to the "user" navigation or cellular phone and based on the facility map.

[00316] Special operating Mode: Navtrain- For all the users of mass transportation system, the navigation system will allow, locate and point the "user" to the exact station or location on a route, an easy way to navigate in the train, subway, underground system, a new way of "sub-way" or bus mapping in/out door and directly to the user navigation or his cellular phone. Every day millions of people are using the mass transportation system, trains, subways, buses, each of the passengers depend on the transportation map for the route information as well as schedules

Google Ex. 1028, p. 584

and additional services provided by the transportation system. Most of the passengers today carry with them a cellular phone.

[00317] The navigation system will provide the passenger with the navigation inside the transportation system directly to the passenger's Bluetooth enabled phone, the passenger will know the exact location/station on the route as well with additional option information like schedules. A new add-on service to the transportation providers as well to the passengers, utilizes the indoor navigation method and the ability of the transportation entity to use the RF beacon installed in a transportation facilities to have add-on to transportation management control system .

[00318] Special operating mode:-Parking- NAY4PARKING describe in 2 patent applications, provides empty parking space detection and navigation. where is the RF beacons can be part of solving the parking problems where each parking location can be user an RF beacon with additional sensor to find if the parking area is empty and provide parking information – nav4parking. the RF beacon will broadcast ID only when the parking space is available, the user Bluetooth device will scan the area for the broadcast beacons to find the available parking, such method describe in more details in US Patent 7,899,583 issued to the Inventor and claimed as priority herewith.

[00319] A new generation of urban parking innovation that answers the most demanding need of any driver knowing where to park ..., or more precisely, find and navigate to the empty parking spaces in and around the driver. It will also provide the answer to "where did I park my car?" syndrome, when returning to the parked car. In our society where time, convenience and comfort are precious commodities parking is a major headache.

[00320] Parking Detection System is the next generation of urban parking and the answer to the most demanding need of any driver-Where to park?

[00321] The navigation system provides a method of self organizing parking system will enable municipalities and other parking authorities to easily identify, exploit and manage revenue opportunities while at the same time providing better service at a lower operating cost.

Google Ex. 1028, p. 585

With the implementation of the navigation system, navigating and detecting available parking spaces will become part of the information revolution.

[00322] With the navigation system, drivers will save time and reduce the frustration of hunting for parking spaces, and will also save money on gas use and car maintenance costs.

[00323] By using and modifying existing technology, our system will integrate easily with other transportation and communication systems. The RF beacon can be attached to existing parking meters, and in the future will interface with them and eventually will replace them.

[00324] Municipalities will have better control and centralized monitoring of their parking space inventory, resulting from the new generation of urban parking.

[00325] Special operating mode: NAYRealty - A new unique tool to accommodate the real estate industry by providing the seller/the real estate agent as well as the real-estate customer to locate and navigate to the available real estate property in the "user" area, according to his location and directly to his GPS navigator and/or cellular phone. The user may wish to see and locate the real estate property available in his area according to his location, where an RF beacon can be installed in each real estate property to trigger more information about the available property to the user/ possible client when he reach proximity to the property.

[00326] According to the Newspaper Association of America, the real estate advertising market is estimated at$11.5 Billion. Recently Mynewplace.com joined apartments.com and rent.com in the $3 Billion on-line apartment listing. **ZILLOW**, a new startup company just raised $32M in founding with the basic idea to put your house on Google Earth-satellite mapping. Google, Yahoo, AOL, ASK and Microsoft are looking to develop real estate products.

[00327] The navigation system brings the listing to the user's hand, by combining the GPS navigation and or cellular phone the user will be allowed to get the real estate property in his area updated according to his location in real time.

[00328] The user even will have the option to "search out of the box" of property in his area. The navigation system will serve as a new tool for the real estate industry as well to the search engine for the benefit of the seller/the real estate agent as well as the real-estate customer.

Google Ex. 1028, p. 586

[00329] Special operating mode:-NAV4STORE and NAVMALL provides navigation inside a store/department store to a specific department/aisle or specific product, with the option for advertising methods and special promotions. Explore the indoor mall or inside a department store, navigate to the right place or the store or the department that you need.

[00330] Navigate on the mall map/store mapping to find your way around using your cellular phone or navigation system without a GPS. It will be a new kind of service and a new marketing strategy for the malls/store business owners. An add-on to local advertising.

[00331] The local advertising market is estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of local strategy. Due to the lack of availability of the GPS indoors as well as the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry there is no real tapping to this huge market.

[00332] The navigation system can bring a new life to the Navigation and mapping industry by providing a unique innovation that combines the GPS and the existing navigation as well as the cellular phone users with an indoor navigation based on the local map/mall that will provide the user a navigation to his desired location in the mall/store to the right store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. The store will also have an option to deliver more content (advertising, sale, coupons, promo etc.) to the user when he approach the store or is already inside via push or Internet to the user's Bluetooth enabled cellular phone.

[00333] Special operating mode:-NAV Amusement Parks-Theme and amusements Park navigation, navigate to your desired attraction as well as a new way to register a "fast pass" kind off lane ...all in an easy way to the "user" cellular phone without the need for GPS. Provides a new media and-on service.

[00334] Ever wonder what it will be like to navigate inside the amusements park to the desired attraction, to know the schedules of the show events at the attractions and even to get your "fast pass" from a remote instead of standing in line ...With the navigation system, all this can become a reality and go directly to your cellular phone without the need for a GPS. It is

Google Ex. 1028, p. 587

understood that the present invention can provide a new tool and service to the benefit of the amusements parks as well to the user.

[00335] Special operating mode:-NAVSIGN-will pro- vide the user with automatic generating waypoint of the road sign to be displayed on the user navigation and or cellular phone or the car navigation or on the dash board as a way for secure driving, the information can interface to the car computer for example automatically slowing down when it enters a school zone-NAVSIGN.

[00336] Special operating mode:-NAV EMERGENCY: One of the important features of our indoor navigation techniques will enhance the ability of the first response team to navigate within the buildings in which it has been deployed.

[00337] The navigation system provides a method that is a low-cost, reliable solution for firefighters and other first responders, inside buildings, to navigate where a GPS is not reliable-indeed, the GPS signal may have been disabled temporarily to prevent exploitation by terrorists, or even more likely no signal can be received at all inside a building.

[00338] The navigation system envisioned this limitation of GPS based systems, and is intended for an environment that is potentially much less "friendly", the environment inside a building that first responders encounter may contain smoke, dust, or flames, and is intended to leverage advances in ubiquitous RF/Bluetooth tag technology.

[00339] The navigation system will exploit the capability of storing critical building information, such as the floor maps and the emergency escape plans, for retrieval and navigational assistance via a Bluetooth enabled cellular phone, when and where it is needed. Moreover the navigation system can serve as a navigator for the emergency exit route when and where it is needed. Each user can download the emergency exit floor plan and escape with the knowledge of his exact location in that route.

[00340] Aspects of the scenarios to be included:

[00341] Identifies and tracks the user (a first response team member).

[00342] Provides the user with navigation information and directions for safely exiting the building.

Google Ex. 1028, p. 588

[00343] Provides location information of all team members, via an ad hoc network of radio terminals that combine RF/Bluetooth and allow communication chat and messaging between the team members without need for Internet or cell communication such option is not limit to the first response team but to a user in emergency and non-emergency use.

[00344] From the outset, the navigation system was been designed with the capability to utilize existing technology so it can be deployed as a stand-alone system, or in tandem with existing systems.

[00345] With the implementation of the navigation system, a FIRST RESPONSE TEAM will be empowered to navigate and find its way in a case of emergency or a disaster. This capability can be a critical life saving power in modem congested urban living conditions that was not available before now.

[00346] It is believed that implementation of the navigation system will assist counter-terrorism activities and more importantly will help the first response teams to save the lives of people trapped inside buildings.

[00347] Waypoint Navigation

[00348] A waypoint is a fixed location with known address location, longitude and latitude and coordinates. The navigation system is capable of storing a database of waypoints for the following purpose:

[00349] Waypoints mark a destination, a point along the way to a destination, or a point of reference. Normally, navigating, a "route" consists of one or more waypoints. To traverse a route, the user navigates to the nearest waypoint, then to the next one in turn until the destination is reached. The system has the ability to compute a great-circle route towards a waypoint, enabling them to find the shortest route even over long distances. The system enables users to locate a destination on a map and define it as a waypoint. The system is intended for navigation; it can generate a suggested route between two waypoints, based on the cartographic database. The system indicates the user's current location and gives advance notice of an upcoming point.

Google Ex. 1028, p. 589

[00350] Because the system knows the waypoint positions, and the distance between them it, it is easy to determine the "user's" exact location.

[00351] Map Matching

[00352] The navigation solution is further enhanced, although it is not essential, when the system knows that the person or object being located is traveling along known routes on a map; for example, the system can assume that people can only follow certain routes in a mall. This is priori information that can be used to "force" the estimated position to be on the nearest point on the possible routes. The constraints of indoor construction similarly can be used to refine estimates of the position of a person or object moving within a building-people and objects do not pass through walls, they pass along corridors and through doorways. It is the best solution for a system in case of an emergency or for a system for homeland security or a system to locate and inform the subway location, a good example is the hotel exit floor map.

[00353] In all, the unique method can be summarized as follows:

[00354] Direct communication between the area (way- points) and the user (navigation/GPS)

[00355] Automatic waypoint generation in real-time according to the user area

[00356] Indoor/outdoor even without GPS

[00357] Business model when the business/store owner will be subscribe to the listing in the navigation/GPS mapping

[00358] Provide overlay floating model to be work even without mapping

[00359] No Internet or cellular communication is needed to detect and determine a user's location for additional location based services (LBS) information and push and or data Internet service needed.

[00360] Can interface to the existing system and link to existing software and hardware system.

Google Ex. 1028, p. 590

[00361] The option of search is done locally on the user device, no central database or Internet search needed.

[00362] Bluetooth interface to cellular phone, will run as application on the Bluetooth enabled device, such as a cellular phone.

[00363] Provides indoor navigation and indoor facility map and or floor images- guide and navigation.

[00364] All global positioning system (GPS) navigation systems lack of real-time displays of the waypoints around the driver/user route, most likely, the information of GPS maps may be old and therefore inaccurate.

[00365] The navigation system provides a system and method for generating and updating in real time a navigation's waypoints automatically along the route according to the user associated with local detection of RF beacons installed in the area and will for the first time trigger an a delivery of real time waypoint information along the user route directly to the user's navigation and/or his cellular phone.

[00366] The navigation system will enable a circular omni-directional display on the map or floor images floating overlay on existing navigation map or floor mapping or indoor floor images .

[00367] The waypoint data trigger generates directly from the way- points beacons ID, no Internet or cellular communication is needed to determine the location.

[00368] The navigation system will bridge the existing navigation system and GPS mapping to new real time information according to the user's location.

[00369] The navigation system will allow for the first time the navigation and GPS industry to tap to the local advertising market estimated to be $134 Billion in the US alone . . ., the mapping is at the "forefront" of local strategy. Due to the lack of availability of the GPS indoors as well as the limitation of its accuracy outdoors and the non-updated mapping that is provided today by the mapping and GPS industry there is no real tapping to this huge market.

Google Ex. 1028, p. 591

[00370] It is believed that the navigation system can bring a new life to the Navigation and mapping industry as well to the cellular providers by providing a unique innovation that combine the GPS and the existing navigation to the real time information directly from the waypoints, which can be referred to as a COOLSPOT.

[00371] This invention is directed generally to the field of navigation and, more particularly, to such a method to be used indoors or outdoors in a mall, store, buildings, department stores, and to provide local based services directly to the user's navigation or cellular phone.

[00372] The proposed applications have identified and resolved a great deficiency in the technology available for local businesses. LBS represent a huge advertising and mapping market-estimated at over $150 billion a year. It represents a big opportunity in the navigation market that has not been explored yet

[00373] Existing System and Industry Trends:

[00374] Local mapping today is mostly paper: Mall maps, store maps, mapping of department stores, commercial buildings, hospitals, schools, campuses, municipalities, shopping centers, downtown districts, indoor facilities, building maps, parking areas, parking garages, amusements parks, subway systems, transit maps, museum maps, area attractions maps, hotel and resort maps and even more importantly the emergency maps and procedures posted in buildings.

[00375] Factors in Local Mapping

[00376] Local maps can be of either indoor or outdoor locations.

[00377] Local maps are available on paper, on the web, and in some cases on a kiosk in the facility.

[00378] A high degree of accuracy is needed in order to provide usable maps for navigation indoors-less than 10 m-to a store or even a parking space.

[00379] GPS cannot provide acceptably accurate mapping as it is only accurate to within 100-200 feet. This is the reason that the GPS industry does not provide this type of mapping. The same is true for cellular network providers, as the accuracy is also 100-300 feet, and then only

Google Ex. 1028, p. 592

when the signal is available. Signal availability is often a problem indoors and also when it is most needed-in an emergency situation when most of the cellular network fails due to high demand. Again, this is the reason that there is no local mapping available for cellular users. (Local mapping equates to accuracy in finding a store, room, or parking level within 5 m.)

[00380] At this time there is no indoor navigation solution. The most recent technology provides access to a user's location through a combination of group "social networking" and a "buddy list".

[00381] Most technology available today attempts to "locate" a moving "user" in an area, the present invention reverses that idea and lets the "user" navigate the local area on the local maps, indoor navigation compared to outdoor navigation, pedestrian navigation is more than locating and navigating, most likely they are at or near their destination already. There are two possibilities, either they are in unknown surroundings and their task will be to explore the surrounding or they are looking for a specific product-their defined goal is like buying a new pair of shoes or getting a book or just going to shop around, exploring a new location, new deals, specials sales, or simply sightseeing.

[00382] The theory is based on the belief that "you are what you do" meaning, the services, specials, sales, coupons, discounts, and the like are one key element.

[00383] The main task of indoor navigation is to show the user where the specials, sales, and coupons are and direct-navigate the user to them and at the same time provides the business owner with a marketing tool that as of now is not exiting . The integration of multimodal journey planning and guidance to dynamic waypoints, sales, specials etc.... and complex public interchange facilities are not adequately addressed by existing systems.

[00384] In some aspects, indoor navigation looks simpler than outdoor navigation. For instance, the geographical area covered is much smaller and the expected speed of travel-walking-is much lower. However, other aspects make indoor navigation much more challenging. First among these is the unsuitability of GPS and related technologies. Second is that in a complex indoor environment the requirements are more stringent. For example, vertical

Google Ex. 1028, p. 593

positioning of the topology and the need for accuracy less than 10m-to the store, the product, and even to the aisle or the parking space-cannot be achieved with today's existing system.

[00385] The indoor market represents much greater potential than outdoor navigation, as on average people spend more than 90% of the time indoors ....

[00386] The Objectives and Goals Behind This Concept: The technology behind the navigation system is quite simple-a direct communication between the user's device/cellular phone, Bluetooth enabled device, and a Bluetooth tags/sensors/beacons installed in a known location in an area/ building/store/facility without relying on GPS, centralized servers, Internet bandwidth or even cellular communication-they can be supportive but are not essential.

[00387] The main concept is to use existing off-the-shelf technology (Bluetooth) with small modification and devices with a minimal cost of deployment and to provide a simple indoor/pedestrian technology which can delivers accuracy with an integrated suite of applications especially designed for the user/shopper indoors, the system is based upon RF beacons Bluetooth or Wi-Fi installed in the local area to be scan by the user device – cellular phone and use the proximity scan beacon ID and signal strength to provides an instant detection a notification of existence to the business owner and trigger delivery of update local based information all without even exchanging a real communication (no paring etc.. needed) with the proximity beacons.

[00388] The System Includes:

[00389] Local mapping or local floor images – the indoor view of the facility as part of the application, the facility can offer a download or participating from a proximity information sign or the store/mall/building information to trigger download the application or ability to pre load the maps as part of navigation or mapping application before reaching the area or download from the web according to location determine by the RF beacons.

[00390] Ability to have special navigation software either as an add-on to existing navigation on the user's cellular phone or existing navigation system (car, mobile) using the Bluetooth beacons to determine the exact location and trigger applications.

Google Ex. 1028, p. 594

[00391] Ability to deploy Bluetooth beacons in the local area where the beacon will broadcast ID to be known the location-waypoints and trigger additional information and or local based applications and to provide the infrastructure needed to guide navigate in the area. A very low cost and fast deployment beacon system.

[00392] The ability to use the log of the "user" Bluetooth ID or the Bluetooth ID as a key (NOT THE CELLULAR NUMBER) for future marketing purposes or for emergency use. This aggregation of data with association to proximity Bluetooth beacons ID will be in valuable to retailers, business etc. Bluetooth enabled cellular phones can be used as beacons.

[00393] The beacons-parts of the navigation system are Bluetooth tags/beacons installed in known locations in the area/facility and represent "waypoints" where is the beacon ID can represent the facility type, store/ special sales, places etc. and the location in the facility location....

[00394] The scanner detection part of the application -whenever a mobile phone or mobile device with a Bluetooth switched the Bluetooth on and loaded with the application, it will periodically scan the area for Bluetooth beacons; proximity to a tag/beacon and the tags/beacons ID as well with signal strength will determine the "user" location on the area/ facility map and will trigger an automatic notification automatic check-in to the business owner to trigger application with possible a link to existing system to provide the user and the business owner additional information just by being there an use the method above.

[00395] The navigation-can be plotted between way- points/store/places on the map.

[00396] In regards to the sale sense-marketing tools, the system works by passively observing the initial part of the scanning of movement. The proposed system does not monitor or listen to conversations or text messages. Nor does the proposed applications transmit or intercept any information or interfere with the mobile network operators in any way. The navigation system is a scanning detector (not a receiver or transmitter) which can observe the unique Bluetooth ID/key set of the device (not a telephone number or name ...) with association to the beacons ID which the device was near and aggregate resultant data to be server for habit and/or preference for triggering content delivery.

Google Ex. 1028, p. 595

[00397] Sales sense represents a method to use dynamic user input profiling with proximity beacon ID installed in the known location indoors and outdoors for empowered presence and trigger content delivery for a real life interaction and all under the user's complete control and without compromising his privacy. The paradigm of proximity-based discovery and communication enabled by Bluetooth technology can be very relevant in Ambient Intelligence as an enabler for a situated interaction.

[00398] The navigation system explores the use of predefine user input (user profile or preference) as a key driver for situated interaction and trigger content delivery according to the user profile/preference. The approach is to use of RF Bluetooth beacons installed in a known location in a local area to trigger action witch associates the user cellular phone ID and or profile / preferences beyond self-exposure and introduces a method that can trigger actions.

[00399] The approach to the use of Bluetooth ID of the beacon beyond self-exposure and introduces as a technique in which the system can recognize the Bluetooth ID as explicit instructions to trigger actions/process.

[00400] Firstly, because it has an extremely Low entry barrier, Bluetooth is a widely available technology. Most of all phones include the Bluetooth, and setting new Bluetooth device ID is normally a relatively simple task that can be accomplished with the base functionality of any mobile phone. This easy availability is of huge importance in enabling social practices around the technology and represents a major difference to other sensing and interaction approaches that, albeit more sophisticated, may require specific hardware or software in personal devices. Secondly, the use of Bluetooth presence for situated interaction combines very well implicit and explicit forms of interaction, in fact blurring the distinction between them. Simply by scanning the proximity Bluetooth device, people are already part of the situation and implicitly engaging with the system.

[00401] This continuous, flow of presence information can be fundamental in the aggregation of situated content and may act as an important catalyst for more explicit forms of interaction. This is what mainly differentiates interactions based on Bluetooth presence from other interactions.

Google Ex. 1028, p. 596

[00402] The chosen methodology combines a user define profile encode into the Bluetooth device by setting up a user like VIN number, with user privacy as a priority, the profile is encoded into the user Bluetooth device with an algorithm sequence protecting the user's privacy.

[00403] It provides important practical implementation of the Technique and on its usability within the complex set of social phenomena that characterize situated interaction in a public places without compromising the user privacy. Its effectiveness and simplicity can make it easily adoptable for applications like local social networking interactions, near field communication like secure transactions, payment methods, secure recognized methods and trigger secure processes and delivery of direct content according to the user profile or preference, all again without compromised user privacy and provides the user with complete control all the time. The method can be integrated and provide privacy and secure transaction to empower application that may otherwise exploit user ID, his profile and privacy as such the method can provides a secure payments transactions.

[00404] Every day millions of people access the Internet and enter their profile, personal information, or answer questions about their preferences in order to access a service / site, to get incentives, coupons, specials, etc... The sites use the information for marketing and in some cases share or sell the information. Recent research has found that most people are willing to give information for incentives.

[00405] Using the profile and records, the surfing habits of the user (IP) is the way that all the search engine companies make money on the Internet. At the same time they try to direct the content to the user according to their profile/habits.

[00406] But what about real life? People spend more and more time indoors (according to recent research, people spend more than 90% of their time indoors).

[00407] A scenario of searching for stores, items, special sales, and coupons according to our desire is repeated again and again... The question is how can the system transfer the success of the Internet marketing tool and the easy search for real life?

[00408] That is the main idea behind the navigation system – what if a system can take a profile / user statistics or even user input with them anywhere and provide one or more

Google Ex. 1028, p. 597

intelligence marketing tools. Moreover, the user is in complete control over their privacy, they can just shut the application off.

[00409] In the disclosed navigation system, the user has their profile sales preference and they are encoded into the user's cellular phone to be associated with the proximity beacon ID installed in the local area . (There is 3 ways: A. set segment - the segment keys are not unique and help to setup the user segment only. In that case the key is not unique. B. To generate a unique key – to be used like the Internet IP. C. Create a dynamic key and multiplies profile according to location/user preferences.

[00410] The profile can include: Gender, age, and sales preference (interest), and does not include any personal profile. It may be the same as seeing the user and recognizing their gender, age, and other preferences just by looking at the user. The user is not revealing any kind of information that most sites ask for in a registration process and no personal information like name, address, or telephone number is exposed.

[00411] As part of the suite of LBS application, the user's phone will scan the area for the tags/beacons. For example – by being proximity close to the directory stand in a mall a decoding of the user key will be processed in order to allow the user preference segments and trigger delivery to the user with ads, specials, and incentives according to their profile as well as providing again the business owner with the best marketing tool- knowing his customers they profile and habit all using a very low cost RF Bluetooth beacons installed in the area and associate them with the user Bluetooth device-the cellular phone.

[00412] "Your customer is telling you what they want, are you listening?"

[00413] The main idea behind this is to provide the user with pin-point content according to their desired preference at the location trigger by the proximity beacons ID and also direct /navigate them to the desired location where they can find the store/sales/special/coupons or the information that they are looking for able to get meaningful data around shopper habits and store layouts statistics, as well as to help them partner up to offer better loyalty incentives to their customers through programs that extend beyond single storefronts, its sensing second-by-second a shoppers interest about specific product, place and can provides the business owner with a

Google Ex. 1028, p. 598

complete marketing tools not available until now and at the same time provides the user with offers directly from the business according to his habit preference profile.

[00414] The sales sense, user preference module is an add-on to the sales sense marketing where it joins the user behaviors module to create a very unique LBS business and marketing model. Imagine a potential customer standing in a crowded store aisle, feeling overwhelmed by all the choices. What if you could just reach out and give him or her something to help with the decision – a coupon, product information, discounts — right at that moment? Content marketers will soon have the ability to do this and a whole lot more just by implementing our method.

[00415] Sales sense-Shopping Behavior: How consumers decide what to buy and when is going to drastically change. Winning marketing need to provides and will require getting exactly the right content in the right place at the right time with even more precision. Shoppers will have the ability to collect real-time information, comparison pricing, discounts and other helpful, highly tailored data as they walk through a store or browse near particular items. It will be imperative to produce well-timed, compelling content that is useful in those crucial moments before a choice is made. Sales sense – next generation marketing tools, from coupons and giveaways in stores to tours of museums to airports that provide real-time flight information, the possibilities are endless.

[00416] Consumers will start engaging with content in a whole host of new ways. Rather than just providing information suitable for a web browser or even a mobile user, marketers will need to think about ways to provide content that will be of value to users as they live their lives. From businesses to city parks to, the system provides a user tools to access helpful, real-time data like never before. As recently published research showed that on average people spend 90% of our time indoors. The proposed invention allows an effective integration of on-line and off-line shopping.

[00417] Moreover, according to research, indoor navigation may be more important than outdoor navigation and may represent a huge new market.

[00418] Our technology allows shopping centers, malls, department stores, buildings, airports, train stations, exhibition centers, museums, and amusement parks to understand the way that

Google Ex. 1028, p. 599

their customers or passengers flow through their premises. At the same time it provides the user/shopper with unique indoor navigation capability without compromising user privacy.

[00419] Our innovation will allow, for the first time, the navigation and GPS industry to tap into the local advertising market, estimated to be $134 Billion in the US alone.

[00420] Our technology provides a reliable method for identifying the path habits and the behavior that people take through an area. There are a number of advantages to our technology including:

- Extremely large sample size as mobile penetration is above 90%,
- Shoppers remain anonymous,
- Accurate to within 2m, and
- Based on a Bluetooth technology.

[00421] For retail areas, malls in particular, the advantages of understanding shopper behavior are significant. Such information can assist the mall to:

- Evaluate and improve their retail tenancy mix by identifying which stores shoppers consider complementary,
- Identify underutilized areas in the mall,
- Understand the impact of anchor stores on the mall,
- Measure the implications of particular promotions or center events,
- Assist with planning day-to-day mall operations,
- Provide add-ons for the shoppers,
- Provide shoppers with a “web” like shopping experience,
- Provide shoppers with incentives /advertising,

Google Ex. 1028, p. 600

- Increase security ,
- And in an emergency provide the shoppers with alarm and notification, and
- Allow shopper engagement with the store, the RF beacons can become the small neighborhood store by recognize the shopper, what is missing from the on-shopping.

[00422] Our technology is the only system on the market today that can gather information on shopper paths continuously and accurately based on locally installed RF beacons without any need to establish any communication relationship between the user cellular phone and the beacon (no paring or any communication needed to determine the location) and all without compromising the shopper ID or their privacy.

[00423] The various methods disclosed can also provide a way of surveying the behavior and preferences of the "user" shopper simply by observing the signals (encoding Bluetooth naming key) given off by their mobile phones and associate it with the proximity beacon ID which they are near and at the same time provide the shopper with a unique special application for indoor navigation triggering a local based services applications.

[00424] The present invention provides a next generation approach to the location based services (LBS) market, especially to indoor applications and to areas where a GPS cannot provide accurate navigation.

[00425] The data collect using the disclosed technology can be used to provide trend reports showing which shops are most visited and at what times, whether there are sufficient public facilities to serve the visiting shoppers or whether more security staff are needed to name only a few of the potential benefits. Ultimately, the collected data can provide assistance to shopping centers to become more in-tune with their customers so that they can create better, more pleasant places to visit.

[00426] The proposed analytics can turn shopping center/department store/store into finely tuned sites, enabling mall/store owners to direct the flow of traffic efficiently around the information coming from the user to the benefit of the user and the business owner to provide services such as VIP personalize services, and the like.

Google Ex. 1028, p. 601

[00427] In contrast to alternative techniques, there is no device that tracks the user cellular phone. In the disclosed methods the user device/ cellular phone is the one that scans and tracks tags/beacons along the route, each scan includes the beacons ID and the user device mobile phone ID, and while these keys help track the movement of the signal and its owner, they don't reveal the identity of the user. This is a more precise method than what Google maps uses to detect a general location on a mobile phone by cell towers which are accurate between 300-1000m compared to our accuracy which is below 10m.its allow the business owner to be notify about the user existence in his vicinity and allow sending the user offers/deals more information and at the same time collect very important information to the business owner such as habits, profile, preference of the user to provide precise contents directly to the user cellular phone.

[00428] Example of Scenarios:

[00429] A user in a mall can use a local guide and navigation application suggest to him to download at the mall/building/facility or have the application already as a cellular phone mapping application.

[00430] As part of the application the Bluetooth on the user's mobile phone will scan signals from known locations-Bluetooth beacons and will determine the "user's" location on the local mall map (the same way as a GPS) with accuracy of less than 5m. (More beacons with LESS signal range=more accuracy)

[00431] For example, the Bluetooth beacon can broadcast an RF signal that includes its position coordinates (e.g., latitude, longitude), which can be detected by a mobile device. The position coordinates can provide a third location accuracy for the current location of the mobile device by virtue of the mobile device adopting the position coordinates of the beacon as its own position coordinates.

[00432] The known locations of a number of beacons in a geographic region (hereafter a "beacon infrastructure") can define a geofence that encompasses the geographic region.

[00433] In some implementations, the beacon can also advertise location based services provided by the beacon infrastructure. Upon determining that the mobile device crossed the geofence defined by the beacon infrastructure. The application can monitor for beacon signals

Google Ex. 1028, p. 602

and continuously update its location to be the location of the beacon currently in proximity with the mobile device.

[00434] When the mobile device loses contact with the beacon for a defined period of time (e.g., 5,10 minutes) or when the mobile device exits the geofence defined by the beacon infrastructure, the application can transfer the monitoring back to the application subsystem, so that the location of the mobile device can be determined using Wi-Fi and or Cellular ID.

[00435] In some implementations, the application can distinguish between beacons in the beacon infrastructure and mobile beacons that may be detected in a scan, such as other Bluetooth enabled mobile phones operating within the beacon infrastructure.

[00436] For example, each beacon in the beacon infrastructure can provide data in its broadcast signal that indicates that the beacon is part of a beacon infrastructure.

[00437] Alternatively, or in addition, when a mobile device makes first contact with a beacon in the beacon infrastructure, that beacon can transmit to the mobile device a list of unique identifiers (e.g. beacons ID) of other beacons in the beacon close infrastructure and other information about the beacon infrastructure, such as a name, geofence data, one or more websites associated with the beacon infrastructure.

[00438] Beacon infrastructure can be located in any geographic region, including businesses (e.g., shopping malls, retail stores, restaurants), landmarks (e.g., museums, airports, parks, entertainment venues) and any other environments where location based services are desired.

[00439] The available local advertising marketing is huge with over $150 billion in revenue in the US alone.

[00440] Indoor LBS Applications

[00441] This is a concept that offers a complete suite of application from finding parking to navigation of indoor malls\stores and with a capacity to navigate to emergency exits with a low cost to implement and with a business model that can be used to attract customers.

Google Ex. 1028, p. 603

[00442] The application represents a big opportunity in the navigation market and will open up new avenues for companies from telephone operators to mall/store/department storeowners to navigation and mapping companies.

[00443] The disclosed technology presents a low cost and easily deployed infrastructure for local based navigation outdoors and indoors without the need for GPS and or cellular networks. Moreover, the concept is especially suitable for local area (indoor and outdoor) services when and where the GPS and the cellular network can't provide the solution and the accuracy needed to provide such navigation (1OM or less).

[00444] The disclosed technology provides a system is based on existing Bluetooth, a technology that is proven to be stable, simple, inexpensive and mature in market use. Moreover, it is a common communication tool and is available on more than 85% of all new mobile phones.

[00445] System Architecture:

[00446] The infrastructure consists of RF Bluetooth beacons installed in known locations in a local area. The beacons will respond to Bluetooth device scanning inquiries made by "user's" Bluetooth enabled cellular phone or other Bluetooth device with a the special application.

[00447] Each of the RF beacon are ID that represent the Location ID as well as represent the facility/product type. A mobile device as well as any Bluetooth device (desktop, laptop, tablet and cars etc.) can become also a beacon providing a new echo system where an infrastructure can include static and dynamic deployments of beacons interact with each other's.

[00448] The local area map (mall map, store, building map, area map etc....) will be available to be downloaded as part of a mapping system that can be triggered to download at the entrance of the building/mall/area or the directory to provide the mapping for the navigation or as part of a mapping and navigation application.

[00449] A "user's" Bluetooth cellular phone will scan the local area for the location beacons. When a "user" is within 5/10 meters, the location beacons respond, providing room- level navigation accuracy. The beacon ID as well with signal strength will provides instant localization determination, with multiple beacons installed and possibly receiving more than one beacon's

Google Ex. 1028, p. 604

signal, a simple triangulation calculation and options for signal strength will determine the exact location of the "user" on the downloaded map of the local area. Note that there is no communication establish between the beacons and the mobile phone (no pairing), and that no connections to the Internet are necessary (even so to be provide with more information you may need Internet).

[00450] Other signals not on the list will be ignored, There is a mixed use of beacons and delivery option depending on the application (for example in a mall application, the stores can have a WAP or use the Internet to automatically deliver more content push to a "user's" mobile device where the beacons serve as navigation "antennae" as well as trigger mechanism to provides application exploit and waypoints contents to help the "user" navigate in the area. Application can be: Sales Sense-Next Generation Marketing Tools: the Behavioral Module, Nav4Parking,Nav4Realty, Nav4Mall, Nav4Sale, Nav4Museurn, Nav4Show, Nav4Train, Nav4Sign, Nav4Emergency, Return2Parking, Nav4Store, Nav4Conference, Nav4Disney, Nav4Events,

[00451] Moreover, according to research, indoor navigation may be more important than outdoor navigation and may represent a huge new market.

[00452] The technology disclosed herein enables shopping centers, malls, department stores, buildings, airports, train stations, exhibition centers, museums, and amusement parks to understand the way that their customers or passengers flow through their premises. At the same time it provides the user/shopper with unique indoor navigation capability without compromising user privacy.

[00453] The innovation disclosed herein enables, for the first time, the navigation and GPS industry to tap into the local advertising market, estimated to be $150 Billion in the US alone.

[00454] The technology disclosed herein provides a reliable method for identifying the path habits and the behavior that people take through an area.

[00455] There are a number of advantages to the technology disclosed herein, including:

Extremely large sample size as mobile penetration is above 90%

Google Ex. 1028, p. 605

Shoppers remain anonymous accurate to within 5 m

Based on a Bluetooth technology

[00456] For retail areas, malls in particular, the advantages of understanding shopper behavior are significant. Such information can assist the mall to:

[00457] Evaluate and improve their retail tenancy mix by identifying which stores shoppers consider complementary. The device/cellular phone is the one that scans and tracks tags/beacons along the route, each scan includes the cell's unique Bluetooth ID, and while these ID'S help track the movement of the signal and its owner, they don't reveal the identity of the user. This is a more precise method than what Google maps uses to detect a general location on a mobile phone by cell towers which are accurate between 300-1000 meters compared to accuracy of the disclosed technology which is below 10 meters.

[00458] Some reports about shoppers show how valuable behavioral information actually is and the profit opportunities that come along with this:

[00459] Where they go, Where they go next, Where they do what, When they do what, who does what?

[00460] Understand behavioral patterns across demographics. Similarities, differences and much more.

[00461] Sales Sense User Preference Module

[00462] Every day millions of people access the Internet and enter their profile, personal information, or answer questions about their preferences in order to access a service/site, to get to a mall, identify underutilized areas in the mall, understand the impact of anchor stores on the incentives, coupons, specials, etc.... The sites use the information for marketing and in some cases, share or sell the information. Recent research has found that most people:

[00463] Measure the implications of particular promotions or center events

[00464] Assist with planning day-to-day mall operations

Google Ex. 1028, p. 606

[00465] Provide add-ons for the shoppers

[00466] Provide shoppers with a "web" like shopping experience

[00467] Provide shoppers with incentive/advertising and automatic check-in method

[00468] Increase security

[00469] And in an emergency provide the shoppers with alarm and notification

[00470] The disclosed technology is the only system known today that can gather information on shopper paths continuously and accurately using a RF Bluetooth or Wi-Fi beacon technology and all without compromising the shopper ID or his privacy.

[00471] The disclosed unique and innovative system and method which can also provide a way of surveying the behavior and preferences of the "user" shopper simply by observing the signals (Bluetooth beacon ID) associate with their mobile phones and at the same time provide the shopper with a unique special application for indoor navigation and local based service for the benefit of the shopper and the business owner.

[00472] The data collected using the technology can be used to provide trend reports showing which shops are most visited and at what times, whether there are sufficient public facilities to serve the visiting shoppers or whether more security staff are needed to name only a few of the potential benefits. Ultimately, the data made available by the disclosed invention helps shopping centers to become more in-tune with their customers so that they can create better, more pleasant places to visit by providing a loyalty and reward program.

[00473] Analytics provided by the disclosed applications can turn shopping center/department store/store into finely tuned sites, enabling mall/store owners to direct the flow of traffic efficiently around.

[00474] In contrast to alternative techniques, there is no device that tracks the user's cellular phone. In the disclosed method the user is willing to give information for incentives.

Google Ex. 1028, p. 607

[00475] Using the profile and records, the surfing habits of the user (IP) is the way that all the search engine companies make money on the Internet. At the same time they try to direct the content to the user according to their profile/habits. But what about real life? People spend more and more time indoors (according to recent research, people spend more than 90% of their time indoors).

[00476] As part of the blue umbrella suite of location based services (LBS) application, the user's cellular phone will scan the area for the tags/beacons. For example-by being proximity close to the directory stand in a mall a decoding of the user key will be processed in order to allow the user ID and/or preference profile and provide the user with ads, specials, and incentives according to their profile "Your customer is telling you what they want, are you listening?"

[00477] The main idea behind this is to provide the user with pin-point content according to their desired preference at the location and also direct/navigate them to the desired location where they can find the store/sales/special/coupons or the information that they are looking for. At the same time there is also a benefit to the mall/store owner by getting the next generation's sales tools, getting costumers' habits and their sales profile, and able to serve better and accordingly the costumers.

[00478] The sales sense, user preference module is an add- on to the sales sense marketing where it joins the user behaviors module to create a very unique LBS business and marketing model the analysis of these spatiotemporal data can supply high level human behavior information valuable to urban planners, local businesses, and the Local Based Services (LBS) marketing.

[00479] Mall/department store/store indoor applications are part of nav4mall/store

[00480] The indoor applications and navigation takes a further step to give the user/shopper next generation shopping tools by providing them with the following indoor applications that are part of nav4mall/store.

[00481] Map and indoor Navigation-brings the local mall/ store map to the digital age, allowing the user to navigate from waypoints to waypoints on the map Directory- It brings the

Google Ex. 1028, p. 608

store/mall directory to the cellular phone. Search and Find-store/place/item products that are on the directory represent waypoints/tags/beacons on the loading maps.

[00482] Sales/specials-discounts, sales, and coupons, that can be added-on or a replacement for the mall/store flyer that provides the shoppers at points in the mall/store, it can even direct the user/ shopper to the aisle with the products and to coupons and directs the shoppers to what they looking for.

[00483] Parking and return2parking- although not directly the same beacons (for the parking the infrastructure employs long range beacons where in a store/mall the beacons can be a shorter range). The disclosed service allows the user to find parking spaces and location of parked cars.

[00484] Info-the information part can provide information about events, restrooms, ATM locations, seating area, kids playground, fountain, public phones etc....

[00485] Emergency-A very important part of the disclosed innovation is the ability to provide the user with a unique alarm and notification to the user without depending on other communication links like cellular phones that are prone to failure in emergencies. The present invention provides the user with the building/mall/store/place emergency procedure and in emergency will help navigate the user to safety.

[00486] Panic-part of nav4emergency allows the user to request being located in an emergency.

[00487] Privacy: The system does not collect personal information such as name or phone number. It does, however, record the phone's Bluetooth identification number to build a profile of the user or the use of the phone in the area. It is like surfing the web where a "user's" IP address is recorded for future marketing statistics and surfing habits (with permission from the user). Also as part of the encoding key into the Bluetooth device (user profile) as described in the sale sense part the privacy and security increases to the level where viewing the key broadcast by the Bluetooth device can't reveal any user identity unless the user requests to be registered to get incentive, specials, sales, etc., even then his name or other personal information is secure and only the Bluetooth device key/ ID are recorded.

Google Ex. 1028, p. 609

[00488] By directly targeting the consumer standing right outside or inside a business, an event, or walking toward a kiosk or restaurant, merchants can maximize their marketing budget while incorporating a new, inexpensive and effective form of advertising.

[00489] The "user" is in complete control. They can disable their Bluetooth application any time or just reject content, there is no "spam" effect and the "user" is attracted by incentives rather than generic promotions. In a mall-like environment a "user's" incentive to use the disclosed technology can be further enhanced with the use of the associated key advantages and packages.

[00490] Isn't this all a bit like "big brother"? Not at all, and it isn't even "little brother"! The system simply logs the movement of a cellular phone around an area and aggregates this to provide trend data for businesses. It's much less intrusive or invasive than existing methods that are already in widespread use-for instance CCTV cameras and number plate monitoring as they do collect personal information such as your image or car number plate. The disclosed technology represents the next generation shopping experience in shopping centers, malls or stores and fits very well with today's business model. Such a service can be offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include the full "suite" of applications especially designed for shopping malls/stores and including the emergency part of it will also ease the fear of "locating" or any other privacy issue.

[00491] Who benefits from the disclosed technology? Everyone benefits from the trend data collected. The process enables a way to collect instant feedback from shoppers without having to bother them for information. In the old days centers would have used researchers to survey consumers but this information takes time to collate and response rates are very low these days as shoppers have increasingly become reluctant to stop and share their feedback. Hence the disclosed innovation provides a very effective method in the same way that TV networks know how many people watched particular programs and use that information to discern what programs to make and how to calculate the costs advertisers must pay to promote their products during different timeslots, the system provides the equivalent for shopping center owners and their resident retailers. It is believed that introducing the proposed system and marketing tools

Google Ex. 1028, p. 610

above can help users and merchants upgrade the real shopping experience of today with the advantage of the web like tools.

[00492] The disclosed innovation represents the next generation shopping experience in shopping centers and malls and fits very well within today's business model. Such a service can be offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include, the emergency part of it will also ease the fear of "locating" or any privacy issue.

[00493] For the first time the shopper will experience Internet type marketing in the traditional sales and advertising venue.

[00494] Here are the benefits consumers could see from shopping center using the disclosed technology:

Better in-mall events-- the system can monitor how successful they were by monitoring the sheer volumes of people attending and for how long.

Provide shoppers with next generation sales tools: navigation in your mall store facility directly to the sales or specials that you want them to go to ....

Add-on to the store/mall directory and the in-store mall flyer.

Take the guessing from the customer's next want ...and then send them directly to the products, coupons, or specials they might want.

Improved public transport links-by monitoring how people traveled to a center. With the government's current emphasis on helping people to use public transport more effectively, having this kind of information can have a very positive, local environmental impact. Busy shopping centers can otherwise create large volumes of extra road traffic, also with the search4parking and return2parking application improves traffic, saving time and gas.

Google Ex. 1028, p. 611

Eliminates congestion within the shopping center-- the disclosed innovation can help center management understand whether opening hours need to be extended or whether the center layout needs to be improved to avoid congestion.

Improves shopping center and public facilities efficiently- the disclosed innovation's data helps managers to understand which parts of their facility are very busy which means they know when to deploy extra employee/cleaners/security to ensure proper service.

Better security--over-crowding also leaves shoppers vulnerable to pickpockets and other security risks. The disclosed system can identify congested areas and ensure security personnel are deployed appropriately. And in an emergency the disclosed system can provide instant alarm and notification even if the cellular communication or other system is not available.

Improved mix of stores and center layout-the system helps identify which stores are popular and which are not- making sure that the best possible layout and mix of shops is provided for visiting shoppers. If some shops are unpopular they can be switched for brands that customers actually want.

[00495] It is believed that shopping should be an enjoyable pastime. Who wants to go to shopping center that are congested, poorly laid out, have dirty toilets, are badly positioned for transport links and which pose a security threat to visitors? Altogether this makes for a much better shopping experience.

[00496] How do shopping center owners and retailers benefit? The benefits for shopping center owners of using the disclosed technology are huge and there are many possible uses for the information gathered. The disclosed applications can help shopping center owners get a better understanding of how people use their center such as the order of stores they visit and the time they spend in different areas of the center.

[00497] These days, visits to shopping malls are falling with increased competition from supermarkets, retail parks, and the Internet. With visit frequency going down it is critical that the shopper experience at the mall is exceptional and that is where the disclosed applications come in. The information can assists malls at all levels, from the very mundane to the more strategic

Google Ex. 1028, p. 612

questions that they face-such as whether or not they have the right mix of retailers across the mall.

[00498] Similarly it could help museums identify their most popular exhibits and help exhibition companies plan their venues more carefully around visitor traffic flows.

[00499] The disclosed technology is able to provide a solution with quantitative feedback on whether the changes they make in the mall are successful. One of the ways to do this is by looking simply at how long shoppers tend to stay within a mall.

[00500] Don't retailers already measure shopper numbers? Yes they have infrared cameras and counting machines, which monitor and count the numbers of visitors to their stores. This measure is known as "footfall" and has been used by retailers for many years. The disclosed system provides another level of data by looking at the aggregate paths that mobile phone carrying visitors take and the length of time they spend-known as "dwell time".

[00501] In the past malls have focused solely on looking at the numbers of shoppers that they are drawing through the doors (footfall) but when combined with dwell time they can get a much more accurate predictor of their performance.

[00502] The system has no idea who the user is an individual. The system only looks at the path the user's phone takes. Essentially, it's like looking at a dot moving around a screen. In isolation this information isn't too interesting until you look at the wider patterns and trends and see lots of dots taking the same route or visiting the same areas of the mall.

[00503] What is the Bluetooth ID number? A Bluetooth ID is like the IP number in a computer network or the Internet which does not contain or reveal your phone number that the network operator uses to identify your phone. The system utilized the ID information as a key to find and detect the user.

[00504] The linkage between this identifier and your personal information is very critical to the business owner as it can provides a user habit preference profile and provides a new breed of tools to the business owner just by getting to know where the user is, and at the same time to provide the user with the best “VIP” like personalize shopping services.

Google Ex. 1028, p. 613

[00505] The disclosed applications do not detect any personal information and have absolutely no idea who you are as an individual. Although the applications include an option for users to register as mall/store customers to provide more details about you (still no real ID), like a membership cards that will be provide the user with incentives, coupons, or special discounts if they participate. Moreover recent emergency events prove the need for emergency and notification to the "right people" at the "right time", by keeping the key/ID of the Bluetooth devices that are in the area/facility the disclosed nav4emergency can provide instant alarming and notification and navigation to the exit route and to safety all without revealing user ID or breaching privacy of the users.

[00506] The business model-Next Generation Marketing: The web advertising and the main focus of search engine success is based on technology that tracks the web user's habits and provides him with related ads according to his interests.

[00507] Using the disclosed infrastructure of a Bluetooth beacons, wherein the beacons are deployed about in a mall, store or shopping center environment. The disclosed invention represents a very unique ability to bring a web like shopping experience by its ability to keep up on the "user's" "surfing" or shopping habits in the shopping center, mall, or store. It will provide a better shopping experience (coupons, specials sales, according to the user's shop- ping habits) and service to the shopper.

[00508] Even though it may look like a privacy issue, the add-on services, the application, and the idea that it may save the user's life (nav4emergency application) combined with the fact that it does not reveal the person's name or telephone number, it is the same as the everyday use of surfing the Internet when the user's IP is recorded by the web sites and provides the basis for the "ad sense" or the web marketing tools, referred to as a "sale-sense".

[00509] It is believed that introducing the disclosed system and the associated marketing tools above can help the users and the sellers to upgrade the real shopping experience of today with the advantage of the web like tools.

[00510] The disclosed innovation represents the next generation shopping experience in shopping centers, malls and fits very well with today's business model. Such a service can be

Google Ex. 1028, p. 614

offered for free to the "users" and backed by advertising and the use of the data by the stores. Such service and application and the ability to include the emergency part of it will also ease the fear of "locating" or any privacy issue.

[00511] For the first time the shopper will experience Internet type marketing in the traditional sales and advertising venue.

[00512] The disclosed innovation provides valuable solutions that enhance the effectiveness of ad campaigns. The ability to optimize performance in real time has a positive effect on advertiser satisfaction. The fact that this service is well integrated into the disclosed system is a tremendous advantage.

[00513] The disclosed innovation is a performance-enhancing technology, providing great data and allowing improved customer service.

[00514] It can be an extremely effective way to optimize the performance of offline/online advertising campaigns in the mall/store environment. For excellence in client services the idea is a clear win-win for everyone.

[00515] Helping to understand where users are going in the mall/store in real life and their buying behavior patterns will allow the merchants to continually adjust offers, placements and creative content to improve buy-through and maximize sales.

[00516] The disclosed technology will evolve mobile content into a bonfire revenue center that will benefit the shopping mall operator and merchants alike.

[00517] The "user" is in complete control. He can disable his Bluetooth application- any time or just reject content, there is no "spam" effect and the "user" is attracted by incentives rather than generic promotions. Probably the best technical analogy would be to compare the disclosed technology with existing web-based systems that measure viewers of web sites, for example Google Analytics.

[00518] For example, the Bluetooth beacon can broadcast an RF signal that includes its position coordinates (e.g., latitude, longitude), which can be detected by a mobile device. The position coordinates can provide a third location accuracy for the current location of the mobile

Google Ex. 1028, p. 615

device by virtue of the mobile device adopting the position coordinates of the beacon as its own position coordinates.

[00519] The known locations of a number of beacons in a geographic region (hereafter a "beacon infrastructure") can define a geofence that encompasses the geographic region. In some implementations, the beacon can also advertise location based services provided by the beacon infrastructure. Upon determining that the mobile device crossed the geofence defined by the beacon infrastructure. The application can monitor for beacon signals and continuously update its location to be the location of the beacon currently in proximity with the mobile device.

[00520] When the mobile device loses contact with the beacon for a defined period of time (e.g., 5,10 minutes) or when the mobile device exits the geofence defined by the beacon infrastructure, the application can transfer the monitoring back to the application subsystem, so that the location of the mobile device can be determined using Wi-Fi and or Cellular ID.

[00521] In some implementations, the application can distinguish between beacons in the beacon infrastructure and mobile beacons that may be detected in a scan, such as other Bluetooth enabled mobile phones operating within the beacon infrastructure.

[00522] For example, each beacon in the beacon infrastructure can provide data in its broadcast signal that indicates that the beacon is part of a beacon infrastructure. Alternatively, or in addition, when a mobile device makes first contact with a beacon in the beacon infrastructure, that beacon can transmit to the mobile device a list of unique identifiers (e.g. beacons ID) of other beacons in the beacon close infrastructure and other information about the beacon infrastructure, such as a name, geofence data, one or more URLs to websites associated with the beacon infrastructure. Beacon infrastructure can be located in any geographic region, including businesses (e.g., shopping malls, retail stores, restaurants), landmarks (e.g., museums, airports, parks, entertainment venues) and any other environments where location based services are desired.

[00523] The system use and costs should scale well with its ability for multi-use in an emergency and in a non-emergency to provide local navigation on malls/store campuses,

Google Ex. 1028, p. 616

buildings, hospitals, hotels, malls etc.... using the Bluetooth beacon for navigation. Some of the key applications are:

[00524] NAV4Mall NAV4Store NAV4Sale or just University or Building Navigator, explore the indoor mall or inside a department store, navigate to the right place or the store or the department that you need. Navigate on the mall map/store mapping to find your way around all using your cellular phone or navigation system without a GPS. A new kind of service and new marketing way for the malls/store business owners, an add-on to local advertising.

[00525] With an indoor navigation based on the local map/ mall that will provide the user a navigation to his desired location in the mall/store and receives content according to his preferences or habits the user can be directed to a store/product even isle inside the store as well a new marketing tool to the store/mall owner to get the customer with a new service. The store will have also an option to deliver more content (advertising, sale, coupons, promo etc....) to the user when he approaches the store or already is inside via Bluetooth or Internet push to the user cellular Bluetooth enable. And in emergency-the nav4emergency will kick in, the nav4store mall module is the one that is described in more details in the patent application.

[00526] NAV4Museum NAV4Conference NAV4Show, explore museums or conference show exhibits in a new unique and easy way, find your way around when navigating on the floor map of the museum conference or the show, indoor navigation, navigate to exhibits restaurants, cafes, lavatories etc.... all to the "user" navigation or cellular phone. Any Museum Conference or show provided to the attended a mapping to the exhibits, some provide also additional audio device (headset) to get more information on the exhibits. The disclosed innovation will provide a unique indoor tools that will allow the attended to navigate the museum, conference or show in an easy way directly to his Bluetooth enabled cellular phone, when he reaches his desired exhibit he will be allowed to download directly to his cellular and or Bluetooth headset information about the exhibits. An indoor navigation to the exhibits as well to the restaurants, cafes, lavatories etc.... All to the "user" navigation or cellular phone and based on the facility map. And in emergency-the nav4emergency will kick in.

[00527] For all the users of mass transportation system the disclosed innovation will allow, locate, and point the "user" to the exact station or location on a route, an easy way to navigate in

Google Ex. 1028, p. 617

the train, subway, underground kind of system, a new way of "subway" or bus mapping in/out door and directly to the user's navigation or his cellular phone. Every day millions of people are using the mass transportation system, trains, sub- ways, buses, each of the passengers depend on the transportation map for the route information as well as schedules and additional services provided by the transportation system. Most of the passengers of today carry with them a cellular phone.

[00528] Such method can be used by the management of the transportation system, train, buses, taxi and road management where the RF beacons can be installed in any transportation facility or entity to provides traffic and even on-demand transportation request as well as on-line real time traffic and transportation "head count" of the mobile device exiting in the local area according to associate with a proximity beacons installed in the transportation entity of transportation infrastructure ether parking, traffic, sign, schedules and time to station and traffic – how many people at the station or bus stop or at area to create a need to taxi or public services as on-demand service.

[00529] Aside from such data gathering and the important of such statistically information to manage the flow of transportation in a local area where the beacon serve as "sensor" to detect the traffic in specific area to be monitored by collecting how many device are in that location and in event of emergency can provide emergency notification and alarming the local devices.

[00530] The method explained can be used to manage the transportation and provides automatic awareness into transportation managements and operators as well as the user on the road where he can automatically get information about traffic in his area generated from associates, his cellular id and/or the car Vin broadcasting method (a method where the car himself become an a long range RF beacon) and an RF beacon installed on the road – automatic traffic information that tracks the existence of the user in the area and proximity to a beacons installed in the road/transportation facility (even the traffic at intersection). infrastructure of wireless beacons to the benefit of transportation industry managements by providing automatic crowd sourcing data from the users along the road By delivering the beacons id they proximity to and have it statistically view as data guttering for events like traffic on the road automatically, adding such technology and infrastructure into the roads may take time so the use of the driver

Google Ex. 1028, p. 618

and passenger or the pedestrian cellular phone as a beacon and as automatic traffic notification can provide instant infrastructure- dynamic immediate deployment for the benefit of the transportation as well as the drivers in view of the driver and or the passenger and even the car can be set as a beacon and part of the automatic transportation system to alert for traffic and road safety and even for a car to car automatic notification of traffic and road information.

[00531] The disclosed innovation provides the passenger with the navigation inside the transportation system directly to the passenger's Bluetooth enabled phone; the passenger will know the exact location/station on the route as well as additional information on options like schedules. A new add-on service to the transportation providers as well to the passengers utilizes the disclosed indoor navigation method, and in an emergency-the nav4emergency will kick in.

[00532] The disclosed idea of implementing RF beacons alone the roads and in transportation facilities is designed to reduce the growing congestion on the roads and by providing a tools to provides intelligent transportation system, the implements of beacons can be part of a car, installed in red lights or in the road or in transportation facility, such system that installed in bus or subway or transportation entity n provides real time on line report if they empty or filled with travelers but just provide the automatic response from the user/car device associate with the RF beacons that will be installed in the bus/train the information will allow transportation control that can be done today only with installed high cost camera or sensors or depend on manually collect information from the users or GPS, and the GPS is not available indoor or provides an accurate information, in a simple way the user mobile phone automatically inform his "proximity" beacon ID, more of the same beacon ID reported meaning traffic or head count of cars/travelers etc.. in the transportation facility/entity area, in a way the method provides an "automatic waze" system, such system can even replace exiting sensors and provides the user as well of the transportation management with ability to know exactly where the bus/train/subway at a time, the data can be serve for schedule or on-demand public transportation, like sending bus/taxi to an area according to demand in the area. Such method can provide the user as add-on traffic and transportation information where he – the user play big part of it and it is not depend on manual transfer of information that some time proven to be not accurate enough. One application creates an echo system where the drivers of cars and the transportation entity are all integrated for an intelligent transportation system of tomorrow and all based on the same concept

Google Ex. 1028, p. 619

of infrastructure on RF beacons statics or dynamic in location where the user mobile phone as well as the car are integrated part of such system. Note that a mobile device as well as any Bluetooth device (desktop, laptop, tablet and cars etc.) can become also a beacon providing a new echo system where an infrastructure can be including static and dynamic deployments of beacons interact with each other's. Again, adding such technology and infrastructure into the roads may take time so the use of the driver and passenger or the pedestrian cellular phone as a beacon and as automatic traffic notification can provide instant infrastructure- dynamic immediate deployment for the benefit of the transportation as well as the drivers.

[00533] NAV4Theme Park -Theme and amusements Park navigation, navigate to your desire attractions as well with a new way for register to a "fast pass" kind off lane all in an easy way to the "user" cellular phone without the need for GPS Provides a new media and-on service. Ever wonder what it will be like to navigate inside the amusements park to the desired attraction, to know the schedules of the shows at the attractions and even to get your "fast pass" from a remote location instead of standing in line. All based on RF beacons that installed in the local attraction points and provides the triggering mechanism for guide navigation and the additional information about the ride/attraction. With the disclosed unique innovation, all can be become reality and directly to your cellular phone without the need for a GPS. It is understood that this technology can provide a new tool and service to the benefit of the amusements parks as well to the user.

[00534] Cellular next "Killer Application": Emerging technology markets are always on the lookout for that elusive "killer app"-the precious, irrefutable application that makes adopters stand up, take notice, and open their wallets. Once it's found, and as soon as adopters realize firsthand the value to be achieved, that killer application eventually expands into other, more advanced areas of adoption and innovation.

[00535] Hotel resort and cruise ship: A good example of use will be Nav4 Hotel Resort Cruise ship. The benefit of the proposed system and infrastructure of installed RF beacons in such places as cruise ships, hotels, resorts, and hospitality facilities to the business and to the guest.

Google Ex. 1028, p. 620

[00536] The subject invention creates infrastructure of RF beacons in the facility, hotel, resort, and cruise ship areas to be integrated with the existing hospitality system and provide a trigger mechanism when the existence of the traveler/guest is detected.

[00537] The association between the guest mobile phone or the hospitality employee mobile phone and the RF beacons ID will allow the example option below, as such there is two parts for the system to work, the infrastructure of the RF beacons installed in the local hotel, resort or cruise ship and the guest or employee mobile phone with the Bluetooth and or Wi-Fi and the application, note that the system can be work even without Internet and/or cellular communication and can utilize existing Wi-Fi system and local servers.

[00538] Example of some of the benefits and functionality to the hospitality system are:

Automatic check-in and interface to the front office system and billing folio

Link to key system or even replace the room key.

Recognize guest in-room, turn on Air condition and light – and turn off when the guest leaves the room to save electricity can be setup to automatic or manual.

Hotel resort cruise ship navigation.

Allow local messaging without Internet and or cellular communication based on local chat (especially fit to the cruise ships).

Allow push messaging to the guest by local services or by remote (when Internet is available).

Replace and ad-on to the guest in –room package of the area guide and deals and coupons.

Option of VIP services where the guest can be recognized automatically around the hotel, resort, and cruise ship for his profile preferences just by being in the area – providing personal treatment and services.

Google Ex. 1028, p. 621

Room can be set to be open or close to clean according to guest or housekeeping existence.

Housekeeping management room status attended worksheet and productivity report.

Increase security to the guest and to the hotel resort.

Allow the creation of profile preference of the guest companies group.

Provide check-in to a restaurant interface to a POS system bar system and menu selections.

Provide automatic ticketing and seat selection.

Guest loyalty, membership program incentive.

Increase security and provide add on to the security plan of the hotel, resort, and cruise ship to be part of the emergency evacuation and emergency procedure.

[00539] It is believed that the disclosed invention will meet the desire of hospitality service providers to increase their average revenue per user.

[00540] The main object of the present invention is to provide the indoor guide navigation and a special application for indoor use without the need for GPS communication.

[00541] It another object of the present invention to provide a method of providing special indoor application using an RF beacons Bluetooth and/or Wi-Fi and Bluetooth-enabled devices especially the cellular phone.

[00542] It is another object of the present invention to provide a method of special application for local business, mall/departments store or regular store, buildings, downtown centers and other facility area especially but not limited to indoors with a use of triggering application that uses the proximity ID of the detected beacons in the area.

[00543] It is another object of the present invention to provide a marketing model method especially but not limited for the LBS market.

Google Ex. 1028, p. 622

[00544] It is another object of the present invention to provide a business model method especially but not limited for the LBS market.

[00545] The foregoing and other objects of the present invention are achieved by providing an infrastructure of a Bluetooth beacons/tags installed in a known location in the area/facility, each tag/beacon has his own unique ID to ID the location in the area, the tags/beacons broadcast the ID to be pickup by the cellular Bluetooth mobile device.

[00546] An indoor mapping or mapping images of the area/facility will be part of the application and can be download before arriving to the area/ facility or trigger download at the area.

[00547] The application on the cellular phone/Bluetooth enabled device will scan the area/facility for the tags/beacons ID/name when a Bluetooth tag that matches the list responds to proximity detection and establishes a signal strength that may be calculated and when more than one beacon signal receives a simple triangulation can be done to find the current location. Other Bluetooth device not on the list will be filtered out.

[00548] The locating is established and will be displayed on the map. And because the location of the other tags/beacons is known navigation between the current location and a desired tag/beacons that represent waypoints are easy to achieve. In reality no communication is established at all between the tags/beacons and the cellular phone.

[00549] The disclosed innovation reverses the current idea of "locating" the user by letting the user navigate utilizing to the beacons of Bluetooth beacons (whose signal is sent by way points) directly to the user's mobile device. This will allow LBS (Local Base System) navigation, even indoors without GPS or Cellular network as well as triggering application and even link to existing system and software.

[00550] The RF beacons can reach from long distance depending on the application and the antenna used by the RF beacon (to get more accuracy less range and more beacons may needed so the 10 m is more than needed in building/room environment) getting more range to the "box" is as simple as attaching a bigger antenna or power buster to increase the signal.

Google Ex. 1028, p. 623

[00551] The user is in a complete control, they have the choice to turn it on or off at any time.

[00552] User can choose to be registered: membership privilege, student in a university, school, and business especially for receiving direct incentive specials coupons etc.... and for a full nav4emergency protection.

[00553] The disclosed applications let the user choose between participating and receiving incentives, specials, sales, coupons and local content tailor to the user preference, all for free, or they can choose not to participate and pay a small fee for the service and the software. In any case the user's privacy is still protected to the highest level compared to any normal daily use of the Internet ...!

[00554] There is also a great benefit to the user participating-they can have full emergency notification directly to their phone and in an emergency they can be directed by the emergency procedure in the area/building/mall/store and navigate to the exit route, even if the cellular network fails due to the high volume of traffic occurring in an emergency situation.

[00555] In the disclosed method, there is no detector or tracking for the user, the user themselves engage the scanning and detecting method to find the beacons in the area the user device with the proximity scan beacon providing the triggering mechanism.

[00556] Other than that, the proposed solutions create a full suite of applications for the benefit of the user, from parking to sales specials to indoor navigation, to be informed and notified in case of an emergency and directed to the exit route to safety.

[00557] The disclosed method can be attractive not only for shopping malls, department stores, or downtown strips but also to high-rise buildings, commercial buildings, universities, schools, museums, amusements parks, trains, subways, and hotels. It can also be attractive to search engines, advertising companies, cellular phone operators, manufactures, GPS companies, mapping, local businesses, local advertising, location based services (LBS), and the like. The disclosed method can give the LBS a new meaning-the business model that's made easy.

Google Ex. 1028, p. 624

[00558] A facet of behavioral targeting has been around for a while but mostly on-line but it's been gaining traction among ad agencies retargeting program is now a key planning consideration for its advertisers.

[00559] Why? The primary reason is because retargeting is a powerful means to bring lift to ad campaign results, generating higher conversion rates and lowering acquisition costs. You can't get much more effective than targeting a person who has shown interest in a product but didn't buy with a related ad that then gets him to buy, right? It generally fails to tap the unique opportunities of local advertising market estimates to be over $150 Billion in US alone . . ., Although people are spending more than 90% of their time indoor, there is no clear technology to provide indoor navigation and not clear business model, the advertisers, the business are disillusioned with the promise of location base services (LBS) but are still longing for a solution that properly addresses the significant audience represented by the explosion of cellular phones use and the availability of content.

[00560] It is understood that the disclosed innovation technology and business model can provide the next generation method for the LBS market to tap into the huge market opportunities.

[00561] The disclosed methods represent a very unique way of locating the exact location, in the method the user scans the area for a known list of beacons/tags, the user controls the scanning of the area for the known tags ID type, in reality there is no communication to be established at all between the user and the beacons (no pairing needed!), the user device scans the area for a known tags and the determination of the location done by beacon ID and signal strength to the proximity to the tag/beacon provides accuracy less than 5m.

[00562] Added to the navigation feature is the special indoor application design especially for indoor/store/mall shoppers from finding where the user parked his car to find/search of directory to an emergency alarming and notification.

[00563] Moreover this innovation is not depended on cell communication or Internet for the detection method as there is no need for central system nor expensive infrastructure, in fact the user device-cellular phone as well with the infrastructure tags/beacons have battery built in and can work even if the electricity is out, very important in emergency situations.

Google Ex. 1028, p. 625

[00564] Moreover the sale sense marketing method comprising a unique way of delivering local content, advertising, coupons, special sales etc. pin point according to user ID and or profile preference that can be a record of behavioral activity and will provide simple and secure method for targeting user for LBS services and other services replacing like near field communication for marketing and even payments transactions.

[00565] The disclosed innovation provides a full line of indoor navigation application especially to places/area

[00566] An indoor navigation system may include a navigation computer, an arrival detection system. The navigation computer may be configured to receive a destination to which a user of the mobile navigation system wishes to travel and to provide guidance to the user about how to navigate to the destination. The arrival detection system may be configured to automatically detect when the mobile navigation system has arrived at the destination by being in a proximity to an RF beacon ID in the local area. The detection system is based on sense or scan of the existence of RF beacons installed in the local and be configured to wirelessly transmit automatically an arrival notice indicating when the user detects the existence of a proximity of a RF beacon and detects that the user has arrived at the destination in response to detection by the detection system of the arrival of the mobile navigation system at the destination.

[00567] The mobile navigation system may be part of a cellular telephone or any navigation device using a Bluetooth, part of the detection is a notification system is configured to wirelessly transmit the RF beacon ID of the proximity beacon and to associate the mobile ID of the user to determine the exact location of the user to provide for example: arrival notice to a representative of an airline. The arrival notice may be configured to cause the user to be checked into a flight of the airline.

[00568] The system may be configured to wirelessly transmit the arrival notice to a representative of a hotel. The arrival notice may be configured to cause the user to be checked into the hotel.

[00569] The system may be configured to wirelessly transmit the arrival notice to a representative of a food service.

Google Ex. 1028, p. 626

[00570] The arrival notice may be configured to trigger payment for merchandise or a service.

[00571] The arrival notice may be configured to trigger the delivery of merchandise or a service to a vehicle in which the user is traveling. The arrival notice may include information about the location of the vehicle.

[00572] The arrival notice may be configured to trigger promotional items to be delivered to the user relating to an establishment at or near the destination.

[00573] The system may be configured to wirelessly transmit the arrival notice to a representative of a conference that has been scheduled to take place at the destination.

[00574] The system may be configured to wirelessly transmit the arrival notice to multiple recipients. The multiple recipients may include attendees of a conference that has been scheduled to take place at the destination.

[00575] The system may be configured to wirelessly transmit the arrival notice to a social networking site in a fashion that causes notice of the arrival of the user to be published by the social networking site.

[00576] The system may be configured to ask the user for permission to transmit the arrival notice.

[00577] The system may be configured to automatically transmit the arrival notice upon detection by the arrival detection system of the arrival of the mobile navigation system at the destination.

[00578] At the time the navigation computer receives the destination to which the user wishes to travel, the system may be configured to ask the user whether the user wants the arrival notice to be transmitted in response to detection by the arrival detection system of the arrival of the mobile navigation system at the destination.

[00579] The system may include a global user setting which a user may set to automatically transmit or not transmit arrival notices in response to detection by the arrival detection system of the arrival of the mobile navigation system at destinations.

Google Ex. 1028, p. 627

[00580] The system may be configured to ask the user to where it should transmit the arrival notice, to receive information indicative of this requested location from the user, and to transmit the arrival notice to this location.

[00581] The system can create and utilize a network, which is referred to as dynamic deployment. The system will use the built-in Bluetooth protocol stack module that is able to simultaneously interconnect with other local devices, such as portable cellular phones in a "piconet", over the local area. The simultaneous connectivity limit of eight (8) devices at a time is overturned by the ability of creating a plurality of piconets which operate in a close proximity. It is understood that the Bluetooth enabled devices, such as portable cell phones, can rapidly move from one piconet to another. In fact, the Bluetooth devices need only remain a member of a piconet for the period of time required to complete one communication transaction. So the Bluetooth enabled devices can join and leave a local piconet frequently, effectively overcoming the eight (8) device limit. It is noted, even without the option to use a long range Bluetooth antenna, the configuration can effectively reach an unlimited distance.

[00582] The proposed invention provides an ability to form a wireless as hoc Bluetooth network or networks based on a collection of Bluetooth mobile devices that dynamically form a temporary network as long as these device are within a sufficient range (inside a room or a building, road store or a mall). The flexibility of the ad hoc network is what makes it a suitable choice for emergency deployment scenarios, where multiple devices would be deploy in a proximity area that is designated as an emergency to provide a new way of distributing emergency and alert information directly to those in the needed area.

[00583] Moreover, based upon normal human behavior, there is no need to inform everyone in a full room, or requiring all of the proximity devices participating in the network to be informed (for example in emergency). If only a few people within the occupied room are informed or receive the emergency information on their portable cell phone, they will convey the information to others located in the area..

[00584] The same method and idea is mimicked by the concept of dynamic deployment. The concept can be paralleled as a new way to deliver critical emergency alarming and notification without infrastructure in the localized area.

Google Ex. 1028, p. 628

[00585] Moreover, the limitation of Bluetooth coverage can be overcome by utilizing the capabilities of the Bluetooth protocol in the methods described above. For example, in a very large conference location, the localized Bluetooth network (piconet) can join each other and form a larger network that covers the entire facility, which is much larger than the limited coverage of a single Bluetooth device. Portable cell phones located at one end of the facility can communicate with a second Bluetooth enabled device located at the opposite end, where the communication traffic is relayed by one or more intermediary, bridge devices. Any Bluetooth device, in our example Bluetooth enabled cellular phones, can become the bridge. The cellular phone owner does not need to know whether his/her device is a bridge, as the process is established and functions automatically as part of the Bluetooth protocol stack routine; in effect not changing any internal behavior of the Bluetooth.

[00586] And again, there is no need to reach all the people with an emergency or other message, as if the message were conveyed to only a few in a room, at least a portion of those would inform the remaining people of the emergency message.

[00587] Moreover, the present innovation will allow the user to use a "local instant emergency messaging system". The dynamic deployment configuration provides the ability for people to communicate with one another in the same local proximity using Bluetooth, where the people can chat and exchange important messaging for free exclusive of a need for a cellular network. Just think what it can be done in emergency or even in army deployment as other communication method.

[00588] From the old days in history, humans used messengers to deliver news and information. The disclosed invention uses applies these older concepts to a device that will make it easy to distribute and broadcast the information around, using the messengers as the mobile (emergency) notification, as referred to as dynamic deployment.

[00589] These, as well as other components, steps, features, objects, benefits, and advantages, will now become clear from a review of the following detailed description of illustrative embodiments, the accompanying drawings, and the claims.

Google Ex. 1028, p. 629

BRIEF DESCRIPTION OF THE DRAWINGS

[00590] The preferred embodiments of the invention will hereinafter be described in conjunction with the appended drawings provided to illustrate and not to limit the invention, in which:

[00591] FIG. 1 presents a schematic diagram representative of an infrastructure deploying a series of radio frequency(RF) wireless beacons;

[00592] FIG. 2 presents a schematic diagram representative of an indoor mapping system utilizing RF wireless beacons, wherein the diagram depicts an exemplary application within a shopping mall environment;

[00593] FIG. 3 presents a schematic diagram illustrating basic exemplary functions of an indoor mapping application as used on a mobile or cellular phone;

[00594] FIG. 4 presents an exemplary flow diagram representative of an indoor detection and navigation process;

[00595] FIG. 5 presents an exemplary series a gradient concentric circles indicative of a location;

[00596] FIG. 6 presents an exemplary flow diagram representative of a business based application utilizing a series of deployed RF beacons;

[00597] FIG. 7 presents an exemplary flow diagram representative of a marketing based application utilizing a series of deployed RF beacons, wherein the marketing based application utilizes a profile, preferences, and other information for sales and marketing purposes;

[00598] FIG. 8 presents an exemplary schematic diagram representative of a series of functions or applications associated with a series of deployed RF beacons, wherein the series of functions or applications are generally directed for use with an RF beacon infrastructure deployed within an indoor environment.

Google Ex. 1028, p. 630

[00599] FIG. 9 presents an exemplary schematic diagram illustrating an infrastructure employing RF beacons deployed in the indoor environment;

[00600] FIG. 10 presents an exemplary schematic diagram representative of a series of functions or applications associated with transportation and/or telematics applications, wherein the series of functions or applications are generally directed for use with a static and/or dynamic RF beacon infrastructure;

[00601] FIG. 11 presents an exemplary schematic diagram representative of a series of functions or applications associated with hospitality based applications, wherein the series of functions or applications are generally directed for use with hospitality related businesses and environments;

[00602] FIG. 12 presents an exemplary flow diagram representative of a next generation marketing tools employing RF beacon technology; and

[00603] FIG. 13 presents a schematic diagram illustrating an exemplary dynamic deployment of an RF based network for use in a variety of applications, including mobile to mobile communications, car to car communications, and emergency or local communications.

[00604] Like reference numerals refer to like parts throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

[00605] In all the figures of the drawings, sub-features and integral parts that correspond to one another bear the same reference symbol.

[00606] Referring now to the drawings in detail and first particularly to FIGS. 1-13 thereof.

[00607] FIG. 1 presents an exemplary flowchart illustrating a use of RF beacons (102). The RF beacons can utilize at least one of Bluetooth and Wi-Fi signal protocols. The exemplary system utilizes a mobile cellular phone (101) to scan and detect a proximity of an installed

Google Ex. 1028, p. 631

beacon (102) in the most part for determining an indoor or outdoor location in a proximity to a known location of the installed beacon(102) and for initiating or triggering a notification of an existence to indoor and/or outdoor navigation and delivery of local content according to the determined location. The same method can be used by fix computers or portable computers (103), portable devices (104), pedestrians carrying a portable device (105)(such as a cellular phone), or a vehicle / car (106) that can be equipped with RF Bluetooth or Wi-Fi technology. It is noted that the static beacons (102) can be assisted by including other portable RF Bluetooth or Wi-Fi enabled devices within the network, thus creating a dynamic network. It is understood that a number of applications can be provided utilizing the infrastructure created by the series of deployed beacons. Additionally, the applications can utilize a precise location of the user, wherein the location is determined by information provided by beacons signals emitted from each of the deployed RF beacons (102).

[00608] FIG. 2 presents an exemplary use of the RF Bluetooth and/or Wi-Fi beacon infrastructure deployed in a mall environment. An indoor map (200) of the mall interior is downloaded and saved or installed on the cellular phone (101). The indoor map (200) includes building structure layout, business locations and descriptions, and known RF beacon (102) locations throughout the associated mall, building, or other facility. The RF beacons (102) can be deployed inside stores or at as any other Points of Interest (POI) located throughout or around the mall. Information associated with an RF beacon (102) located proximate the cellular phone (101) can be forwarded to the cellular phone (101) by the beacon signal. The associated information (109) can be displayed upon the cellular phone (101) as illustrated. A location of the beacon signal receiving device (such as a cellular phone (101)), can be determined based upon a close proximity to one or more of the RF beacons (102) of the series of deployed beacons, which create the infrastructure. The precise location of the receiving device (101) can be determined based upon an identified beacon ID and a signal strength from the detect beacon (102) or beacons (102). The precise location can then be displayed upon an indoor map (200), as shown in FIG. 9.

[00609] FIG. 3 presents an exemplary operational process completed by the cellular phone (101). The mobile device (101) activates an application program for indoor mapping of the facility, building, structure, and the like (200) and scans a local area for RF beacons (102) to

Google Ex. 1028, p. 632

determine the precise location (302) of the mobile phone (101). The location of the mobile phone (101) is determined done by scanning the infrastructure of RF beacons (102), wherein each beacon is installed in a known location within the structure, wherein the structure can be a mall, a building, any facility, or any other enclosed structure. The RF beacons (102) can be installed inside stores or at any specific Point of Information (POI), around the mall. The location of the cellular phone (101) can be determined by using information from any RF beacon (102) located in a close proximity to the cellular phone (101). The application would recognize the beacon ID embedded within a beacon signal emitted by the proximate beacon (102). The application would calculate the location of the cellular phone (101) by utilizing a signal strength of the emitted and received beacon signal. This process provides a solution for a user to determine their location exclusive of a global positioning system (GPS), access to the Internet, or any other bi-directional communication. The location of the cellular phone (101) is then displayed upon an indoor map (200) on a display on the cellular phone (101). Should the cellular phone (101) be located in a suitable area and comprise the ability to establish bi-directional communication, the cellular phone (101) can transmit a notification signal or message indicating that the cellular phone (101) is in a region proximate the RF beacon (102), such as by transmitting an "I am here" message to a predetermined recipient. This can provide an automatic check-in process, where the user "notifies" others of his local existence to the local area business to establish his local location. in turn, the system can forward local contents to the cellular phone (101), wherein the local contents would be information associated with the current position of the cellular device (101). The system can be enhanced to utilize a direction of travel of the cellular phone (101) and anticipate approaching beacons. The system would then determine and transmit information associated with RF beacons located along the current projected path of travel of the cellular phone (101).

[00610] FIG. 4 presents an exemplary flowchart illustrating an indoor detection and navigation procedure. A user of the mobile cellular phone (101) approaches a facility/area where the user can download the facility/area map (200) having a series of RF Bluetooth and/or Wi-Fi beacons (102) installed in known locations throughout the facility/area. The application installed on the cellular phone (101) will scan the area/facility for broadcasted beacon signals. Upon receiving a broadcast beacon signal, the application will determine if the received beacon signal is associated with any beacons included in the list of known beacons (102). If the signal is

Google Ex. 1028, p. 633

determined to be associated with any beacons included in the list of known beacons (102), then the application proceeds with a location determination process (303). The location of the user (cellular phone (101)) is determined to be in a proximity of the identified beacon (102) transmitting the received beacon signal. The location is refined by using a signal strength of the beacon signal of the identified beacon (102) enabling determination of a more precise indoor location of the cellular phone (101). The location is then identified and displayed on an associated indoor map (200). In a condition where the cellular phone (101) fails to receive a beacon signal, the cellular phone (101) continues to scan the area (107). An optional feature includes a step of transmitting a notification of existence upon identification of a location; essentially having the cellular phone (101) transmit a message stating "I am here" (304) to the local area as a way of automatically check-in and/or a method of notifying a system that the user is within a local region. For example, the system can notify a local area business that a user is within the vicinity. In another example, the system can convey local contents to the cellular phone (101) based upon receipt of the notification that the user is within the area. The system can provide the user with a navigation heading (305) to waypoints based upon the current location of the cellular phone (101). In yet another example, the system can transmit Points Of Interest (POI) to the cellular phone (101) as illustrated in FIG. 2.

[00611] FIG. 4 is a flowchart illustrating of the indoor detection and navigation procedure according to an embodiment of the present invention. Referring to FIG. 4, the user with mobile cellular phone (101) approach a facility/area where he can download the facility/ area map (200) with RF wireless Bluetooth and or Wi-Fi beacons (102) installed in the facility area in a known place. The user mobile cellular phone (101) application will scan the area/facility for the known list of the beacons (102), if beacons was found then a location determination process (303) where is location of the user is determine as proximity to the find and match beacon ID, being in a close proximity to a beacon and recognize the beacon ID as well as calculating the Signal strength from the detect beacons (102) allow determination of the precise location indoor and ability to show the location over the indoor mapping (200), scanning is continue if no beacons (407) was found, when found the location is display on the loaded map over the mobile cellular phone(101) or Bluetooth device (103-106), part of the detection is to notify of existence "I am her" (304) to the local area as a way of automatic check-in method where the user "notify" his local existence to the local area business to establish his local location (303) and receive local contents,

Google Ex. 1028, p. 634

according to his location a heading navigation(305) between Points Of Interest (POI) can be establish.

[00612] FIG. 5 presents an exemplary RF beacon accuracy radius circle (501) that is utilized in at least two distinct manners: one manner is used for the application, and a second manner is used to identify when the user's cellular phone (101) enters and/or exits the area around and in a proximity to a beacon (102) of the series of beacons (102). The central circle (502) and inner circle (503) illustrate different radii from the respective beacon presenting an accuracy of the location of the cellular phone (101). The radius circle (501) would be placed as an overlay circle over a portion of the local indoor map (200). This displayed configuration would identify an accurate location of the cellular phone (101) respective to the proximity of the beacon signal received from the Bluetooth and or Wi-Fi RF beacon (102) installed in the vicinity of the cellular phone (101).

[00613] FIG. 6 presents an exemplary flow diagram of a business application utilizing the series of RF beacons (102) deployed throughout a facility, one or more buildings, a mall, a store, and the like. Each RF beacon (102) can be installed by the facility owner, a business owner (601), an advertising company, and the like. In one application, a business owner (601) would install an RF beacon(102) in their business. When the user of the cellular phone (101) approaches the RF beacon, the cellular phone (101) detects the beacon signal transmitted by beacon (102) in the proximity thereof. The cellular phone (101) receives the beacon signal and determines the identification of the beacon (102) associated with the received signal. Once the location and/or identity of beacon is known, the application initiates a procedure to obtain local content delivery (604) from the business and/or business owner. In one option, the system can provide business or local content (605) to the cellular phone (101). In a second option, the cellular phone (101) can transmit a signal that will directly or indirectly notify the business owner that the cellular phone (101) is located proximate a specific beacon (102), wherein the specific beacon (102) is associated with the business owner's store, located either proximate to or within the business owners store, and the like. In turn, the business owner can provide local content (605) to the cellular phone (101).

Google Ex. 1028, p. 635

[00614] FIG. 7 presents a flow diagram illustrating an exemplary target marketing feature. The application uses a profile preference provided by the user's cellular phone (101) wherein the mobile device scans the local area and determines the location of the cellular phone (101) using information obtain from a beacon signal broadcasted by an RF beacon (102) and optionally utilizing a beacon identifier (302). The profile preference is associated with the user of the cellular phone (101). The profile preference is provided to the local business in conjunction with a notification that the cellular phone (101) is located in the proximity to the specific RF beacon (702). The process can filter information to determine local based services contents (704), wherein the local based services content (704) is based upon the profile preferences of the Local Based Services (LBS), and the user's behavior (703). The system can determine local based services content (704) such as deals, offers, coupons and specials, and the like, as well as store or business information, and provide the information accordingly to the user through the user's cellular phone (101).

[00615] FIG. 8 presents a series of Local Based Service (LBS) applications that can be utilized in conjunction with infrastructure provided by the series of deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. One application (Parking and Return to Parking (810)) provides a method for searching for available parking spaces and/or a process for assisting a user to return to the parking location of the user's car. The Parking and Return to Parking (810) application can provide parking information within a parking garage, in a mall parking area, for street parking, and the like, wherein the Parking and Return to Parking (810) provides the user with direct navigation to empty parking spots and/or to provide the user guidance to return to the location where the car was previously parked.

[00616] In another application (Nav realty (802)), information associated with real estate is provided to a user using RF beacons (102) installed at each real estate property. Each RF beacon (102) would provide local information about the associated real estate property and can include navigation information respective to the local area real estate directly to the user's cellular phone (101).

Google Ex. 1028, p. 636

[00617] In yet another application Navmall/store (803), information can be provided to business operators and subsequently, business related information can be provided to the application user.

[00618] In yet another application, Navsale marketing (804), sales, specials, coupons and the like can be transmitted to the cellular phone (101) and/or the system can provide directions / navigation to the user to guide the user to areas displaying items associated with the sales, specials, coupons and the like.

[00619] In yet another application, Navmuseum, Navconference, Navshow 805, the RF beacons (102) would be installed in known locations within a museum, a conference center, and any other related location, whereby the RF beacons (102) directly or indirectly provide information and/or navigation associated with the location to the user of the application.

[00620] In yet another application, Navamusement (819), the RF beacons (102) would be installed in known locations about any amusement park, theme park, or other entertainment venue, whereby the RF beacons (102) directly or indirectly provide information and/or navigation associated with the venue to the user of the application. The application can be enhanced by including an optional feature to assist a user in reducing wait times for access to rides, events, shows, and the like.

[00621] In yet another application, Navemergency (818), the RF beacons (102) provide critical information and/or navigation to the user during an emergency event including instructions pertaining to an emergency procedure, an emergency evacuation map and directions for evacuating the facility to a safe location.

[00622] In yet another application, Transportation (810), the RF beacons (102) would be deployed in a subway, on a train, on a bus, and/or in any mass transit system. This infrastructure would provide the user with information directly to their cellular phone (101) from the deployed RF beacons (102) installed along the route. This gives the user a complete navigation on a map of the train/subway mass transit directly to the user's cellular phone (101). In an alternative mode of the Transportation Application (810), the RF beacons (102) can be deployed along a side of a road, a cellular phone (101) residing within a vehicle, integrated into a vehicle, and the like.

Google Ex. 1028, p. 637

When the cellular phone (101) is mobile, the cellular phone (101) provides wireless vehicle-to-vehicle communication. One optional feature of this application would be an inclusion of automatic traffic notifications, what can be referred to as automatic "waze", whereby the cellular phone (101) can provide automatic traffic and road notifications. In an alternate embodiment, a Bluetooth device can be located within a vehicle (106) (as either a fixed or a portable device), on a driver (105), on a pedestrian, and the like. The cellular phone (101) can be included as an integral element in gathering traffic information.

[00623] In yet another application, Navsign (811), the RF beacons (102) can be installed along a roadway at locations either proximate traffic signs or at locations exclusive of traffic signs, but would be appropriate for conveying traffic related information to a driver. Each RF beacon (102) would be installed at a location enabling passing vehicles to receive beacon signals from the deployed series of RF beacons (102). The related infrastructure would provide a telematics system to the driver's cellular phone (102), a system integrated into a vehicle, and the like.

[00624] In yet another application, Indoor Navigation (808), the RF beacons (102) can be employed to provide an infrastructure enabling the application to determine a precise location of the receiving device. The application would additionally include a capability of providing navigation between various deployed RF beacons (102). This application provides a solution in areas where the global positioning system (GPS) is ineffective, such as indoors. The system also eliminates a need for bidirectional communication.

[00625] In yet another application, Nav Hotel, Resort, Cruise Ship (816), the RF beacons (102) can be deployed within a hospitality environment to provide an infrastructure enabling the application to determine a precise location of the receiving device within the hospitality environment or venue. Since most of the environments of the hospitality venues are located indoors, this application provides a solution in areas where the global positioning system (GPS) is ineffective.

[00626] In yet another application, Notification/Automatic Check-In (815), the cellular phone (101) is directed to automatically transmit an arrival message, which notifies a recipient that the cellular phone (101) has received a beacon signal from an RF beacon (102) within the

Google Ex. 1028, p. 638

infrastructure of beacons and that the cellular phone (101) is in proximity of the RF beacon (102). The application can additionally consider elements of the user's profile when determining whether to send the arrival message and/or what is included in the arrival message.

[00627] In yet another application, Payments (814), a payment transaction method can utilize a location determined by the proximity of the cellular phone (101) to an RF beacon (102) of the series of RF beacons (102). The location, the identification of the RF beacon (102) and/or the user profile can be associated with the payment.

[00628] In yet another application, NAV Dating / Social Networking Link (812), a precise location of the cellular phone (101) is determined using information associated with the beacon signal. The location information is then utilized to assist the user in regards to social networking as well as indoor navigation.

[00629] In yet another application, Dynamic Deployment / Local Communication (813), the application establishes an ad hoc network between a series of mobile Bluetooth based RF beacons, such as Bluetooth transceivers of cellular phones (101) to provide local messaging between a message transmitting user and a message receiving user, wherein the message is conveyed through at least one intermediary Bluetooth RF beacon.

[00630] In yet another application, Nav Emergency (818) the RF beacons (102) provide navigation to the cellular phone (101) from the current location of the cellular phone (101) to an exit location using a predetermined optimal emergency exit route. The location and routing would be based upon the initial location, which is determined by a proximity to an RF beacon (102) of the localized RF beacon infrastructure. The application can additionally provide an emergency procedure and any other necessary notifications to the user through the user's cellular phone (101).

[00631] In yet another application, Scanning For Life (817), the cellular phone (101) converts into a beacon in a condition where two-direction communication networks are unavailable by either lack of installation or an outage. The beacon repetitiously transmits a beacon signal using at least one of cellular transmissions, Bluetooth transmissions, and Wi-Fi Transmissions. Search and rescue parties utilize a portable receiver to scan for and locate the Scanning for Life beacon

Google Ex. 1028, p. 639

signal. The beacon signal can optionally include embedded information associated with the cellular phone (101), which can include specific information associated with the user of the cellular phone (101).

[00632] It is noted that the RF beacon infrastructure enables execution of the above-described application exclusive of cellular communications and/or access to the Internet.

[00633] FIG. 9 presents an exemplary indoor infrastructure of RF beacons (102), wherein the RF beacons (102) are installed in known locations throughout a local area. Each RF beacon (102) broadcasts at least one of a Bluetooth signal and a Wi-Fi signal. The RF beacons (102) enable an application to determine a precise location of the cellular phone(101) on a local map (200). Once the application determines the location of the cellular phone (101) respective to a proximate RF beacon (102), the application can utilize a user profile or profile preferences to obtain marketing information. The user profile or profile preferences can be used to filter information provided to the cellular phone (101). The application can provide information to a remote recipient using Application Information (API (901) triggering or initiating content delivery (604). When triggering content delivery (604), a 3rd party application (903) would respond to the transmission directed by the application by conveying or pushing local content or other associated information to the cellular phone (902). The bi-directional communication can be accomplished using cellular communication, an ad hoc network, an Internet based communication, and the like. In another embodiment, the remote recipient can include a local business owner, thus notifying the business owner that the specific cellular phone (101) is in a vicinity of the business.

[00634] FIG. 10 presents a series of transportation based applications that can be utilized in conjunction with infrastructure provided by the series of fixed or dynamically deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. A portion of the applications introduce telematics therewith.

[00635] One application (Automatic Traffic Alert (1103)) provides beacon signals comprising telematics including traffic alerts.

[00636] In a second application (Dynamic Deployment (1104)), an ad hoc network is created between vehicles providing vehicle to vehicle communication using an intermediary

Google Ex. 1028, p. 640

communication link. The vehicle to vehicle communication is preferably accomplished using a Bluetooth protocol.

[00637] In another application (Find Parking and Return to Parking (1105)), the RF beacon infrastructure is used to inform a user of available parking locations and/or provide navigation guiding the user to the location where the user parked their vehicle.

[00638] In yet another application (Automatic Traffic Alert (1103)), a driver (105) can employ their cellular phone (101) to deliver automatic traffic information (1103).

[00639] In yet another application (Trigger Application (1102)), the system identifies an RF beacon, which subsequently triggers or initiates an application.

[00640] In yet another application (Local Tracking (1106)), the system utilizes a Bluetooth beacon that can recognize the car/driver ID and subsequently track the car/driver.

[00641] In yet another application (Access Control (1107)), recognition of either a proximate RF beacon or an approaching cellular phone (102) causes activation of a device. This can be accomplished using any of many suitable processes. For example, when a vehicle is approaching a gate, the vehicle would receive a beacon signal from a local beacon. The signal would be deciphered to determine the identity of the beacon. Once known, the system would act according a directive that is associated with the proximate beacon identity. In one example, the system would transmit a signal to open a gate when the vehicle approaches the gate.

[00642] In yet another application (Theft Prevention (1109)), the RF beacon (102) would recognize the vehicle and prevent theft.

[00643] In yet another application (Automatic Payment (1114)), the cellular phone (101), an RF beacon device integrated into a vehicle, and the like, broadcasts a beacon signal comprising a beacon identifier, wherein the beacon identifier is used in conjunction with an automatic payment method.

[00644] In yet another application (Transportation Management (1110)), the RF beacons provide assistance for management of transportation systems.

Google Ex. 1028, p. 641

[00645] In yet another application (Accident Prevention (1111)), the RF beacons provide assistance for prevention of accidents, such as by notification to a user when two RF beacons become too close to one another.

[00646] In yet another application (Saving Fuel (1114)), the application or series of applications can reduce fuel consumption by optimize navigation, reducing time finding parking spots, provide telematics associated with traffic, provide management support of transportation systems, and the like.

[00647] In yet another application (GPS Add-On Navigation (1113)), the series of RF beacons (102) can be used to determine a location of a receiving device and can additionally be used to obtain navigation. This is particularly beneficial in areas where the global positioning system (GPS) is ineffective (such as indoors).

[00648] In yet another application (Nav Sign (1112)), the RF beacons can convey information associated with road signs.

[00649] FIG. 11 presents a series of navigation based applications that can be utilized in conjunction with infrastructure provided by the series of deployed RF beacons (102) and the methods describes according to various embodiments of the present invention. Each RF beacon (102) contains and broadcasts a beacon signal comprising a beacon identifier to enable a receiving device to determine a precise location of the device within a facility, a mall, a show, a store, and the like. The RF beacons would broadcast a beacon signal using at least one of Bluetooth and Wi-Fi protocol. At least a portion of the RF beacons (102) can be associated with a Waypoint.

[00650] Each of the series of exemplary applications provides a location determining solution and navigation in an environment that is not conducive for the global positioning system (GPS), such as within a mall, a store, a parking garage, and any other indoor location.

[00651] One application (Parking and Return to Parking (1510)), the RF beacons (102) are deployed in a parking area. Each RF beacon (102) includes at least one sensor to determine a presence of a vehicle in the associated parking spot. The RF beacons (102) identify vacant parking spots and provide navigation to each vacant parking spot to a user. The application can

Google Ex. 1028, p. 642

additionally or alternatively provide navigation directing the user to the parking spot containing their vehicle.

[00652] In a second application (Stores Directory (1520)), a directory of merchants is provided to the cellular phone (101). The directory can include displaying locations of the merchants on a local map (200).

[00653] In another application (Search and Find (1111)), the RF beacon infrastructure is used to provide directions or navigation between known waypoints within an indoor facility, such as a mall. The known waypoints would be displayed upon the indoor map (200).

[00654] In yet another application (Sales, Deals, and Specials (1540)), the network provides information pertaining to sales, deals, specials, and the like to the receiving device. The sales, deals, specials, and the like can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102).

[00655] In yet another application (Entertainment (1530)), the network provides information pertaining to entertainment to the receiving device. The entertainment can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a location associated with the entertainment.

[00656] In yet another application (Information and Events (1590)), the network provides information pertaining to entertainment to the receiving device. The entertainment can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a location associated with the entertainment.

[00657] In yet another application (Dining (1580)), the network provides information pertaining to dining in the local area to the receiving device. The dining information can be associated with a location of the receiving device, wherein the location would be determined by a proximity to an RF beacon (102). The application can additionally provide navigation to a dining location.

Google Ex. 1028, p. 643

[00658] In yet another application (Emergency (1560)), the network provides a notification of an emergency situation, emergency procedural information, and navigation from the current location, through the structure, and to a predetermined exit location. The information would be respective to the proximate RF beacon (102).

[00659] FIG. 12 presents an exemplary flow diagram illustrating a next generation of marketing tools utilizing the RF beacon (102) infrastructure deployed in a local area. The network obtains a user's profile or preferences (701) as well as a user's behavioral pattern (704) associated with the user's cellular phone (101). The information is conveyed to a business owner (702) for marketing purposes. The profile and/or preferences are filtered to determine applicable local based services (LBS) (703). The information can trigger or initiate an application (304), establish a link to an existing system and software, and the like to provide at least one of local content (503) and indoor navigation (108) to the cellular phone (101) or similar receiving device.

[00660] FIG. 13 presents an exemplary schematic diagram illustrating a method of utilizing dynamic deployment to create an ad hoc network. Exemplary applications include vehicle-to-vehicle communication, emergency communication, local communication, and the like. The method establishes communication between a series of Bluetooth devices located proximate one another. One exemplary implementation employs cellular phones (101), utilizing the Bluetooth transceivers integrated therewith. The dynamic network is created by placing proximally located Bluetooth devices into an ad hoc or mesh network. The network is based upon overlapping signal transmission radii. The network can include installed and/or mobile Bluetooth devices, exclusive of cellular or other higher powered and costly communication interfaces. The method can be utilized in transportation creating a road size networking of vehicles and/or drivers for telematics or traffic information, a push alert providing road information, and creating a vehicle-to-vehicle communication capability. In another option, the network can be utilized in an emergency situation, more specifically, when and where the cellular network are unavailable, interrupted, down, or fail. The ad hoc network creates a longer range communication capability utilizing local low power Bluetooth and/or Wi-Fi devices to convey information to local emergency responders or other parties. Another optional feature of the dynamic deployment enables creation of an ad hoc network within a structure, a mall, a store, a building, an office, an entertainment complex, and the like, exclusive of cellular communication. The ad hoc network provides

Google Ex. 1028, p. 644

capability for local messaging between users in a proximity area. The network can be utilized to deliver local content to the cellular phone (101) exclusive of any broader and higher powered communication networks, such as cellular, and the like. The network would be applicable between cellular phones (101) vehicles comprising the appropriate transceiver technology (106), within a facility/building/area, and the like.

Google Ex. 1028, p. 645

What is claimed is:

1. A method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

encoding identifying information into a beacon signal, wherein said identifying information identifies each beacon of said series of beacons;

broadcasting said beacon signal from each beacon of said series of beacons;

scanning for any of said broadcast beacon signals using a mobile device,

detecting at least one of said broadcast beacon signals,

receiving at least one of said broadcast beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

decoding each received said at least one of said broadcast beacon signal;

determining an identify of said beacon from said series of beacons based upon said received, decoded beacon signal;

initiating a hospitality function based upon the determined identity of the beacon associated with the received beacon signal.

2. The method as recited in claim 1, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

Google Ex. 1028, p. 646

3. The method as recited in claim 1, wherein said hospitality venue is at least one of a hotel, motel, a cruise ship, a resort, a theater, a conference center, a restaurant, and a casino

4. The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue.

5. The method as recited in claim 1, further comprising a step of establishing a link between said mobile device and a hospitality system associated with said hospitality venue, wherein said hospitality system includes access to at least one of:

a hospitality front office,

a hospitality back office,

a food and beverage provider,

room service,

in-room service,

an events and ticketing concierge,

a conference concierge,

a show concierge,

an emergency plan and procedure,

an entertainment system,

an in-room guide and information,

engineering services,

Google Ex. 1028, p. 647

employee control,

security,

room key and access control system, and

a payment process.

6. A method of guide mapping and navigating of an interior of a hospitality venue, the method comprising steps of:

initiating a local based services (LBS) application to provide local based services information to the mobile device, wherein said provide local based services information is associated with said beacon identifying information.

7. The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication notifying a hospitality representative of arrival of the mobile device at a specific location associated with said received beacon signal.

8. The method as recited in claim 1, further comprising steps of:

directing said mobile device to transmit a communication to notifying a receiving entity of arrival of the mobile device at a specific location associated with said received beacon signal; and

forwarding information associated with at least one of the hospitality venue, an event, food and beverage services, and billing to said mobile device.

Google Ex. 1028, p. 648

9. The method as recited in claim 1, further comprising a step of directing said mobile device to transmit a communication comprising sufficient information to automatically check in to the associated hospitality venue.

10. The method as recited in claim 1, further comprising steps of:

initiating a process for obtaining marketing information associated with said beacon identifying information from a remote information provider;

transmitting a request for marketing information associated with said beacon identifying information from said remote information provider;

obtaining said marketing information associated with said beacon identifying information from said remote information provider; and

displaying said obtained marketing information associated with said beacon identifying information on said mobile device.

11. The method as recited in claim 1, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

12. A method of guide mapping and navigation of an interior of an enclosed structure and implementation of location based services (LBS) associated with the enclosed structure, the method comprising steps of:

deploying a series of beacons about said interior of said hospitality venue;

broadcasting a beacon signal from each beacon of said series of beacons;

determining a location of a mobile device in accordance with following steps:

scanning for any of said broadcast beacon signals using a mobile device,

Google Ex. 1028, p. 649

detecting at least one of said broadcast beacon signals,

receiving at least one of said beacon signal by said mobile device, wherein said beacon signal is broadcast from a beacon of said series of beacons located proximate said mobile device, and

determining a current location of said mobile device within said interior of said hospitality venue, wherein said current location of said mobile device is determined based upon information collected from said received beacon signal;

determining an indoor map associated with said hospitality venue;

displaying said hospitality venue indoor map; and

displaying said current location of said mobile device on said hospitality venue indoor map.

13. The method as recited in claim 12, where the beacon signal is a short range radio frequency being at least one of a Bluetooth signal and a Wi-Fi signal, the method further comprising a step of:

transmitting said beacon signal as at least one of said Bluetooth signal and said Wi-Fi signal.

14. The method as recited in claim 12, further comprising a step of utilizing said beacon signal to determine a location of said mobile device.

15. The method as recited in claim 12, further comprising a step of:

displaying Points Of Interest (POI) associated with each beacon location on said hospitality venue indoor map.

Google Ex. 1028, p. 650

16. The method as recited in claim 12, further comprising steps of:

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map;

selecting a beacon location from each displayed beacon location on said hospitality venue indoor map; and

obtaining information associated with said selected beacon.

17. The method as recited in claim 12, further comprising a step of:

utilizing said deployed series of beacons to provide guidance on said mobile device to guide a user to an exit of said hospitality venue during an emergency evacuation procedure.

18. The method as recited in claim 12, wherein at least a portion of said beacons of said series of beacons employ existing Wi-Fi devices deployed throughout said hospitality venue.

19. The method as recited in claim 12, further comprising a step of:

overlaying a series a gradient concentric circles onto said hospitality venue indoor map, wherein said series a gradient concentric circles provide a distance relationship between said mobile device and a secondary object, wherein said secondary object is associated with said beacon.

20. The method as recited in claim 12, further comprising a step of:

Google Ex. 1028, p. 651

displaying Points Of Interest (POI) associated with said beacons, wherein each of said Points Of Interest (POI) would be presented at a respective location on said hospitality venue indoor map.

Google Ex. 1028, p. 652

HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS

Abstract

A series of RF beacons deployed about a localized area associated with a hospitality venue creating an infrastructure for use with mapping, navigation, marketing of merchants, and local based services (LBS) in the vicinity thereof. An application would utilize the RF beacons to determine a user's location respective to a local area and inform the user of their location on an associated map. The application can employ the RF beacons for navigation through the local area. The application can utilize a beacon identifier that would be embedded within the beacon signal. The beacon identifier can be utilized to determine a user's location, provide navigation, obtain marketing information for merchants associated with the specific beacon, etc. Receipt of the beacon signal could initiate a feature on the receiving device to activate a process for obtaining information associated with the area located proximate the respective beacon.

Google Ex. 1028, p. 653

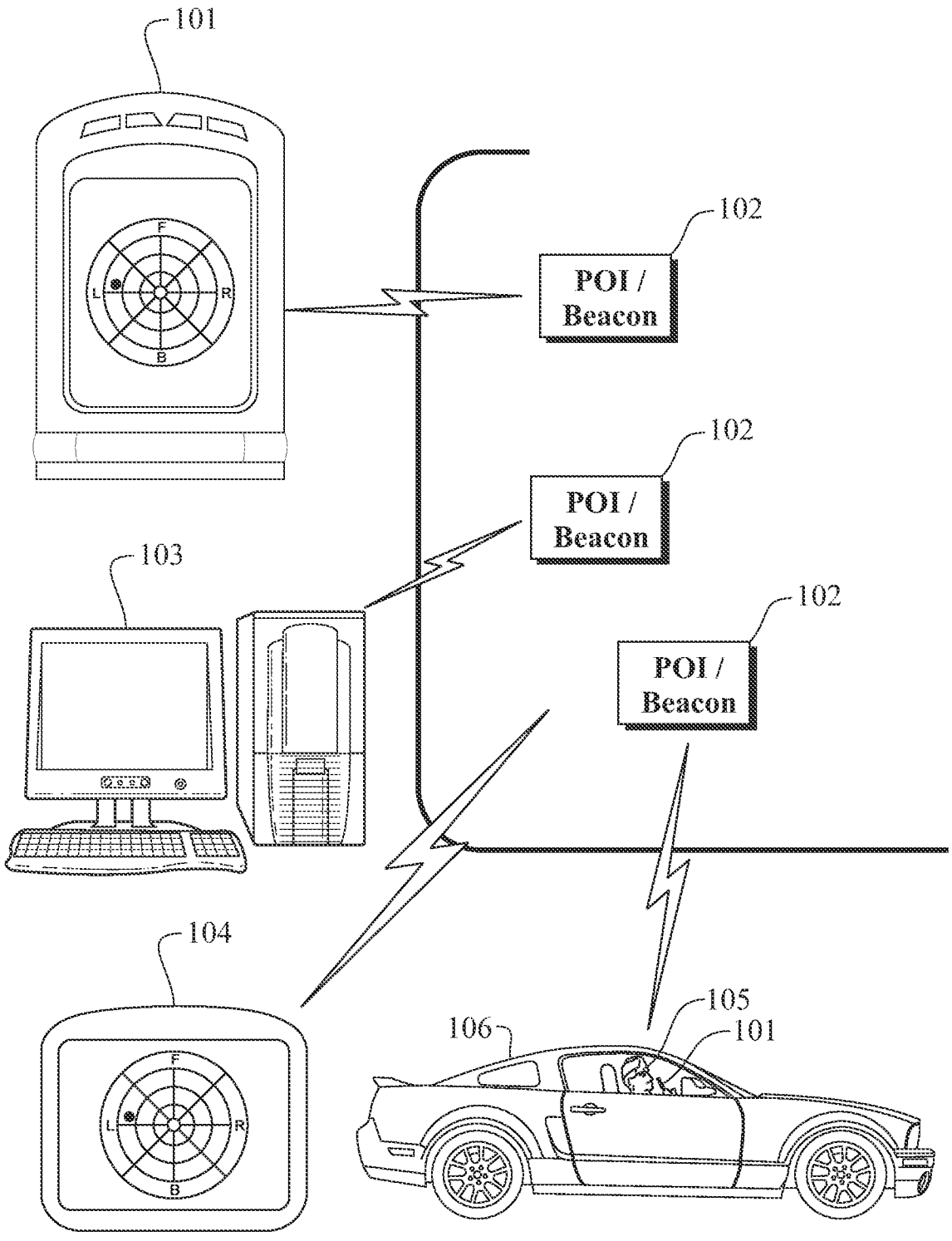

101
F
L
R
B
102
POI / Beacon
102
POI / Beacon
103
102
POI / Beacon
104
F
L
R
B
105
106
101

FIG. 1

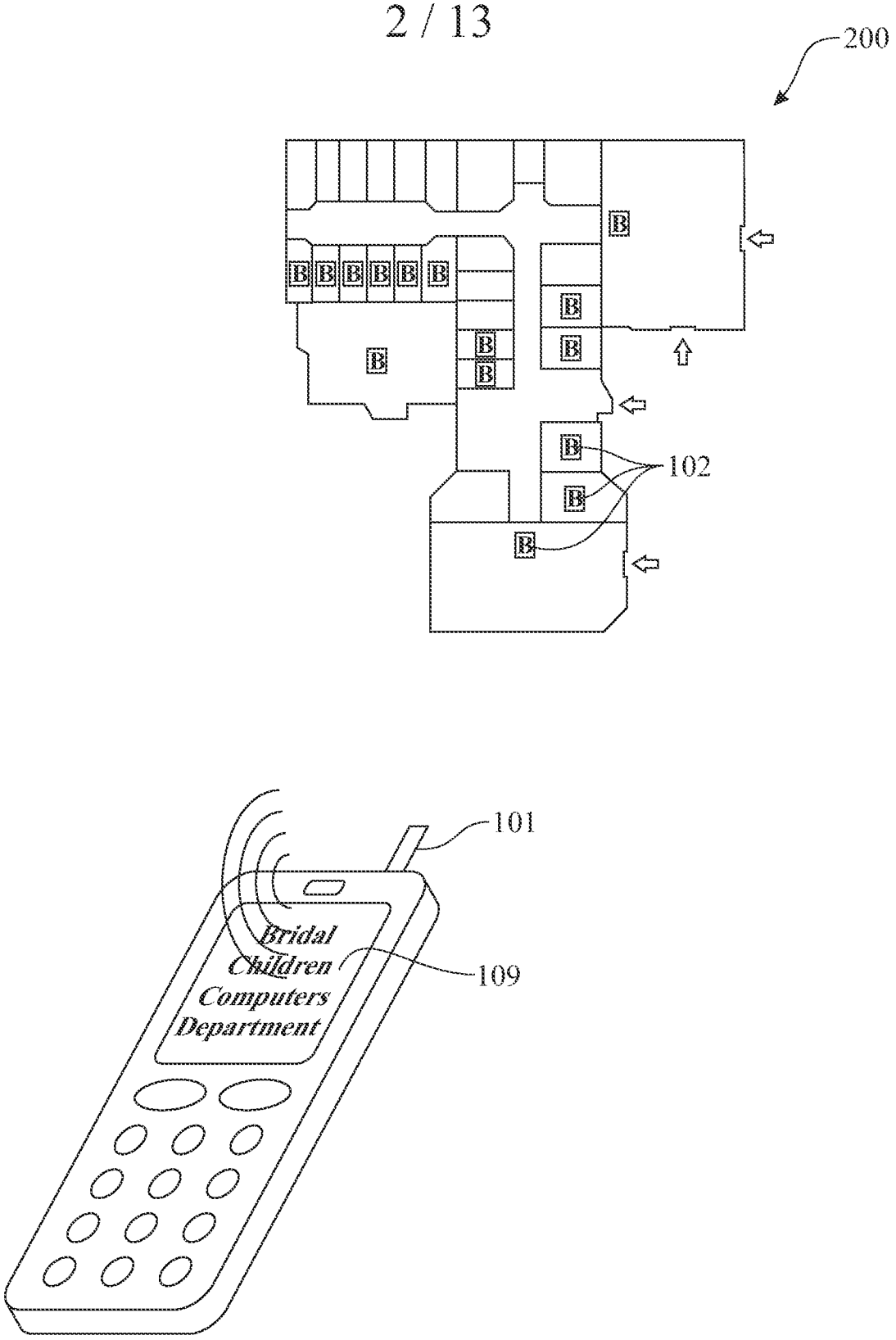


FIG. 2

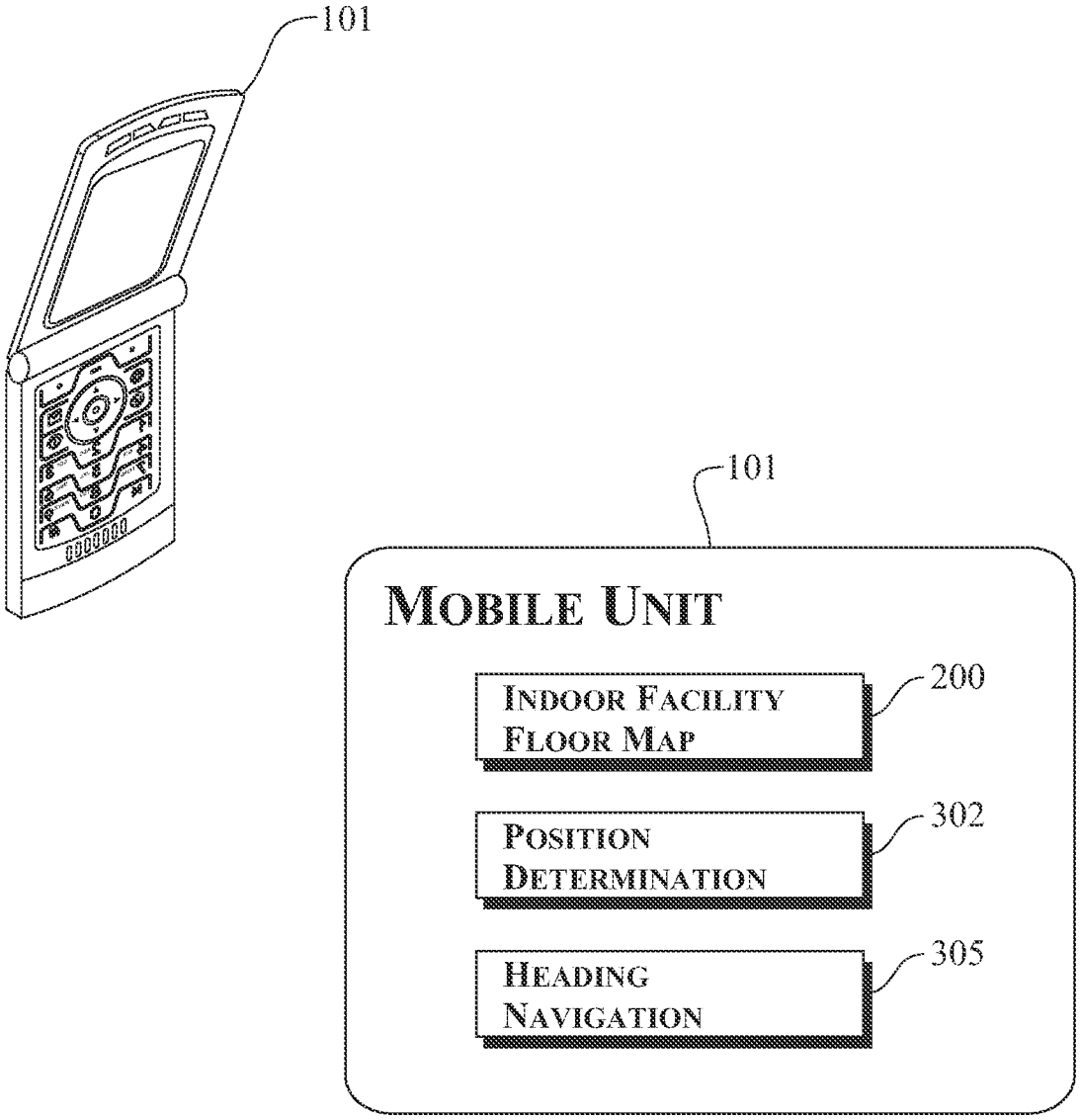

101
101
MOBILE UNIT
INDOOR FACILITY FLOOR MAP
200
POSITION DETERMINATION
302
HEADING NAVIGATION
305

FIG. 3

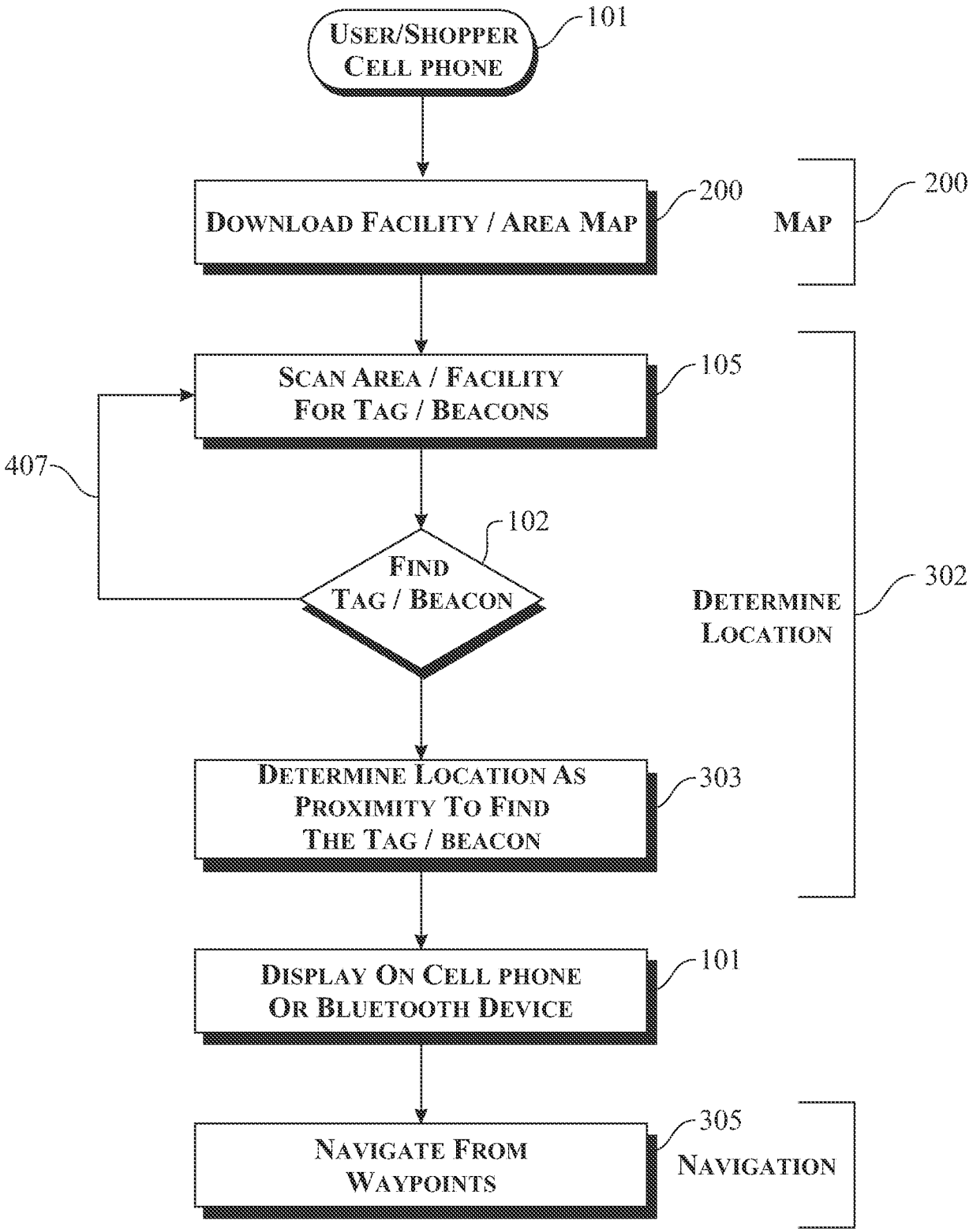

USER/SHOPPER CELL PHONE
101
DOWNLOAD FACILITY / AREA MAP
200
MAP
200
SCAN AREA / FACILITY FOR TAG / BEACONS
105
407
FIND TAG / BEACON
102
DETERMINE LOCATION
302
DETERMINE LOCATION AS PROXIMITY TO FIND THE TAG / BEACON
303
DISPLAY ON CELL PHONE OR BLUETOOTH DEVICE
101
NAVIGATE FROM WAYPOINTS
305
NAVIGATION

FIG. 4

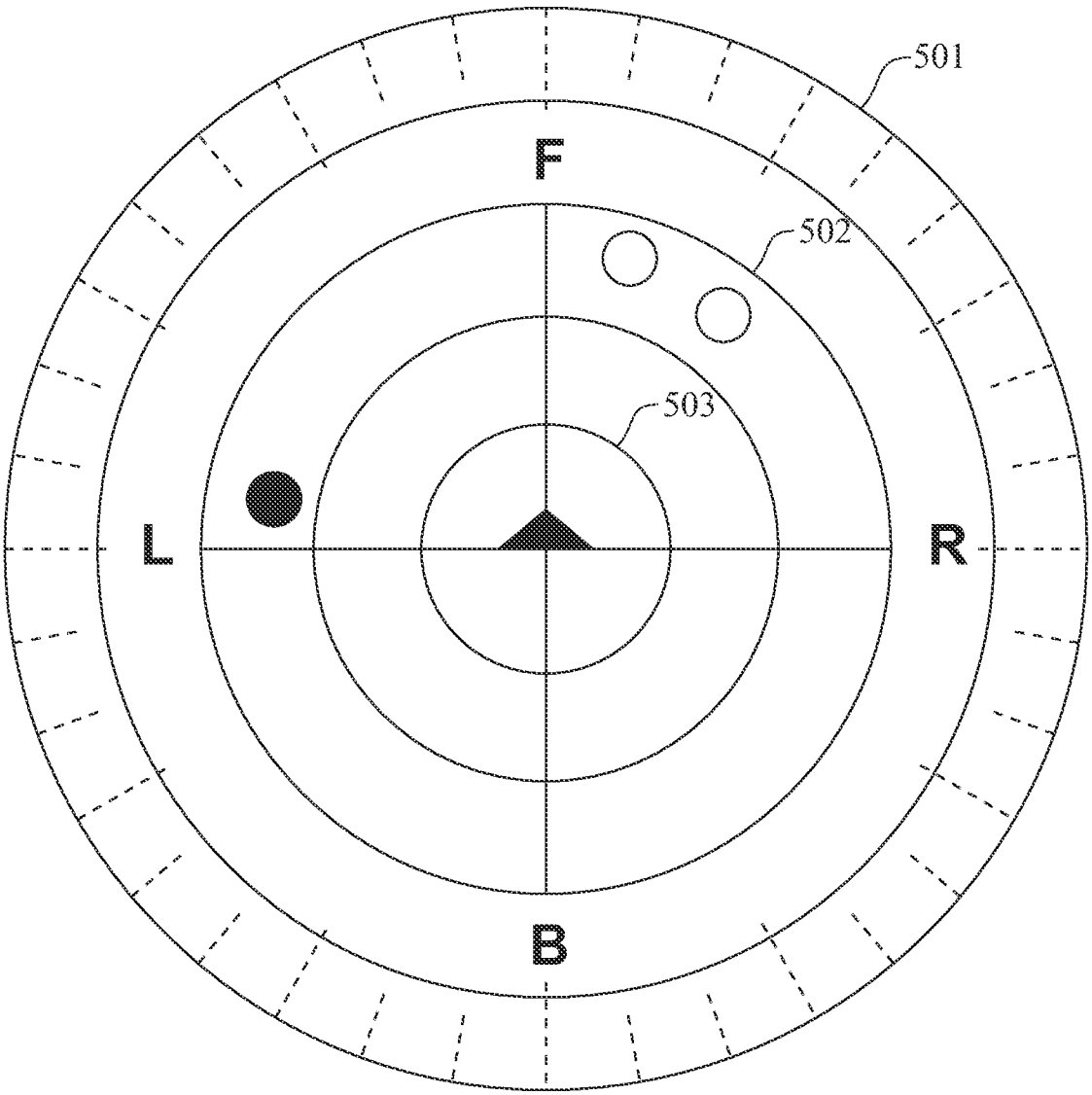


FIG. 5

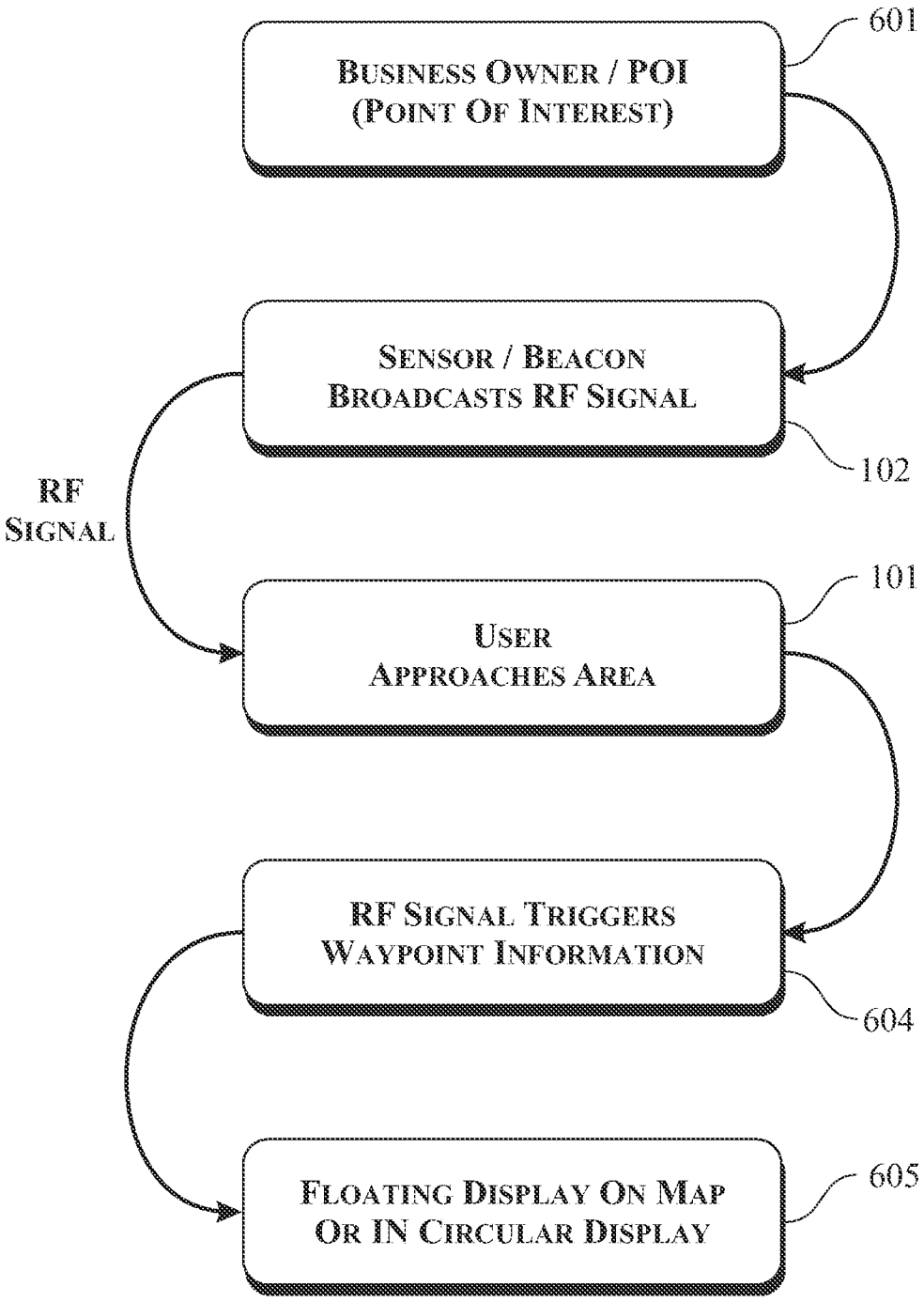

BUSINESS OWNER / POI
(POINT OF INTEREST)
601
SENSOR / BEACON
BROADCASTS RF SIGNAL
102
RF
SIGNAL
USER
APPROACHES AREA
101
RF SIGNAL TRIGGERS
WAYPOINT INFORMATION
604
FLOATING DISPLAY ON MAP
OR IN CIRCULAR DISPLAY
605

FIG. 6

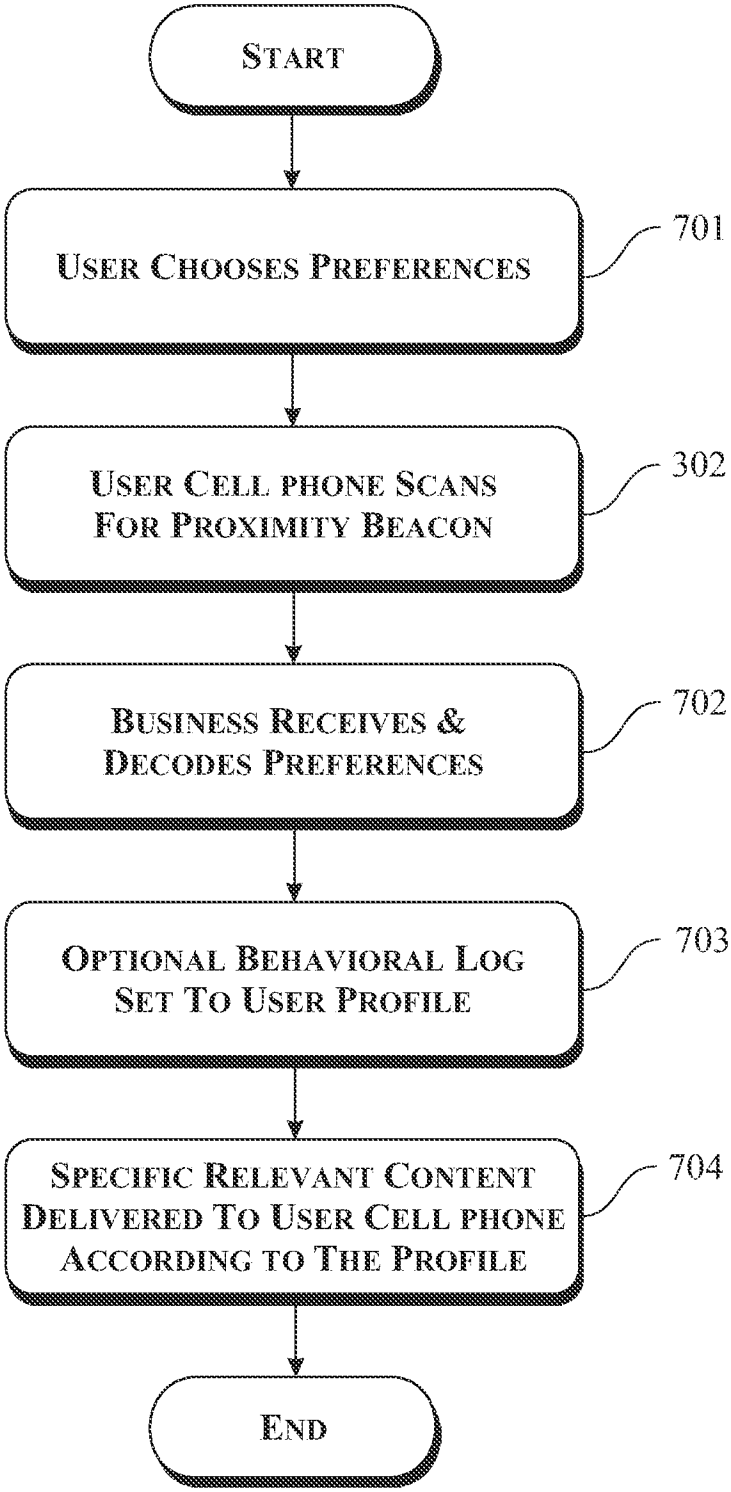

START
USER CHOOSES PREFERENCES
701
USER CELL PHONE SCANS FOR PROXIMITY BEACON
302
BUSINESS RECEIVES & DECODES PREFERENCES
702
OPTIONAL BEHAVIORAL LOG SET TO USER PROFILE
703
SPECIFIC RELEVANT CONTENT DELIVERED TO USER CELL PHONE ACCORDING TO THE PROFILE
704
END

FIG. 7

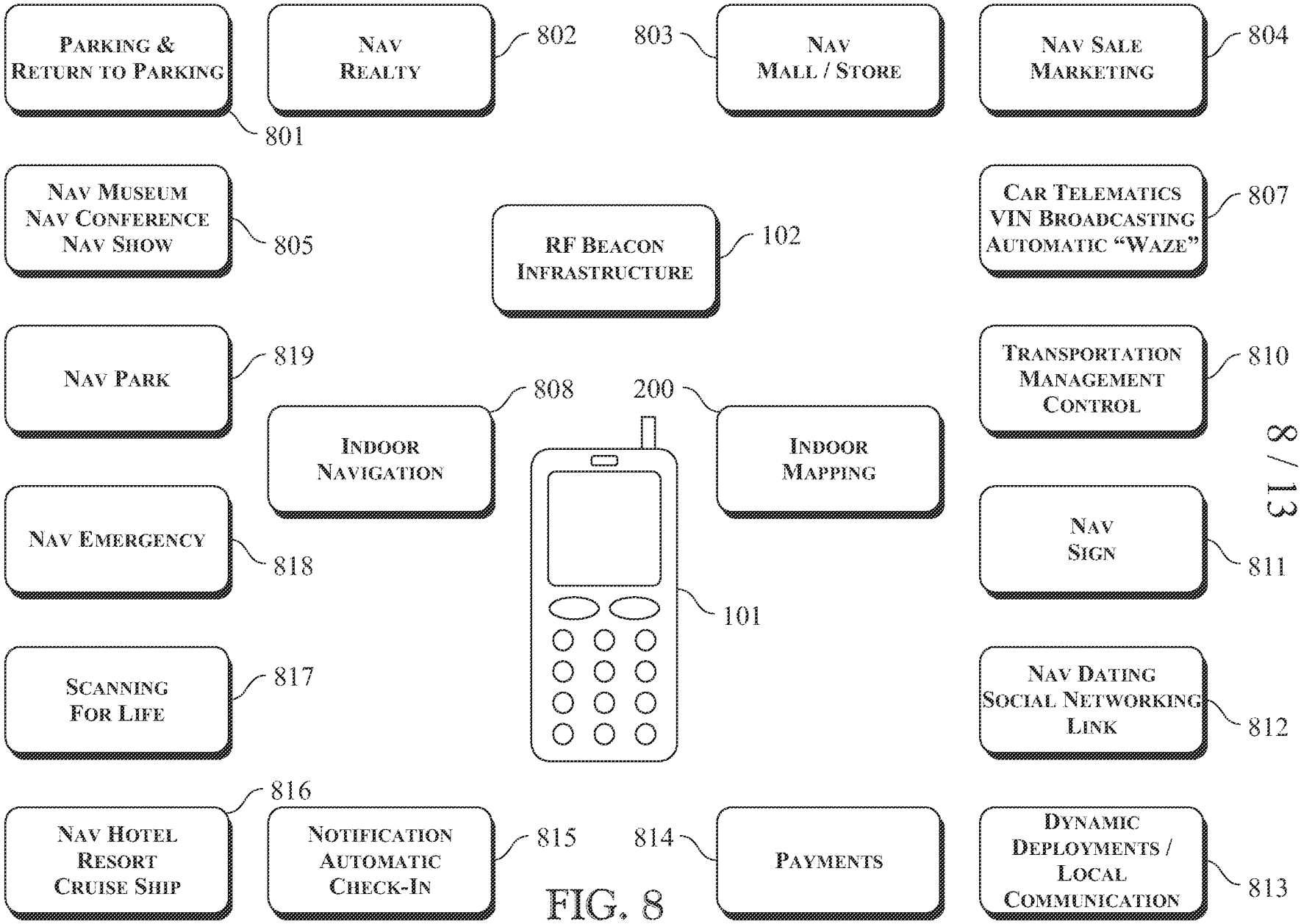


FIG. 8

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Atty. Docket No.: MEN-14-003

Google Ex. 1028, p. 661

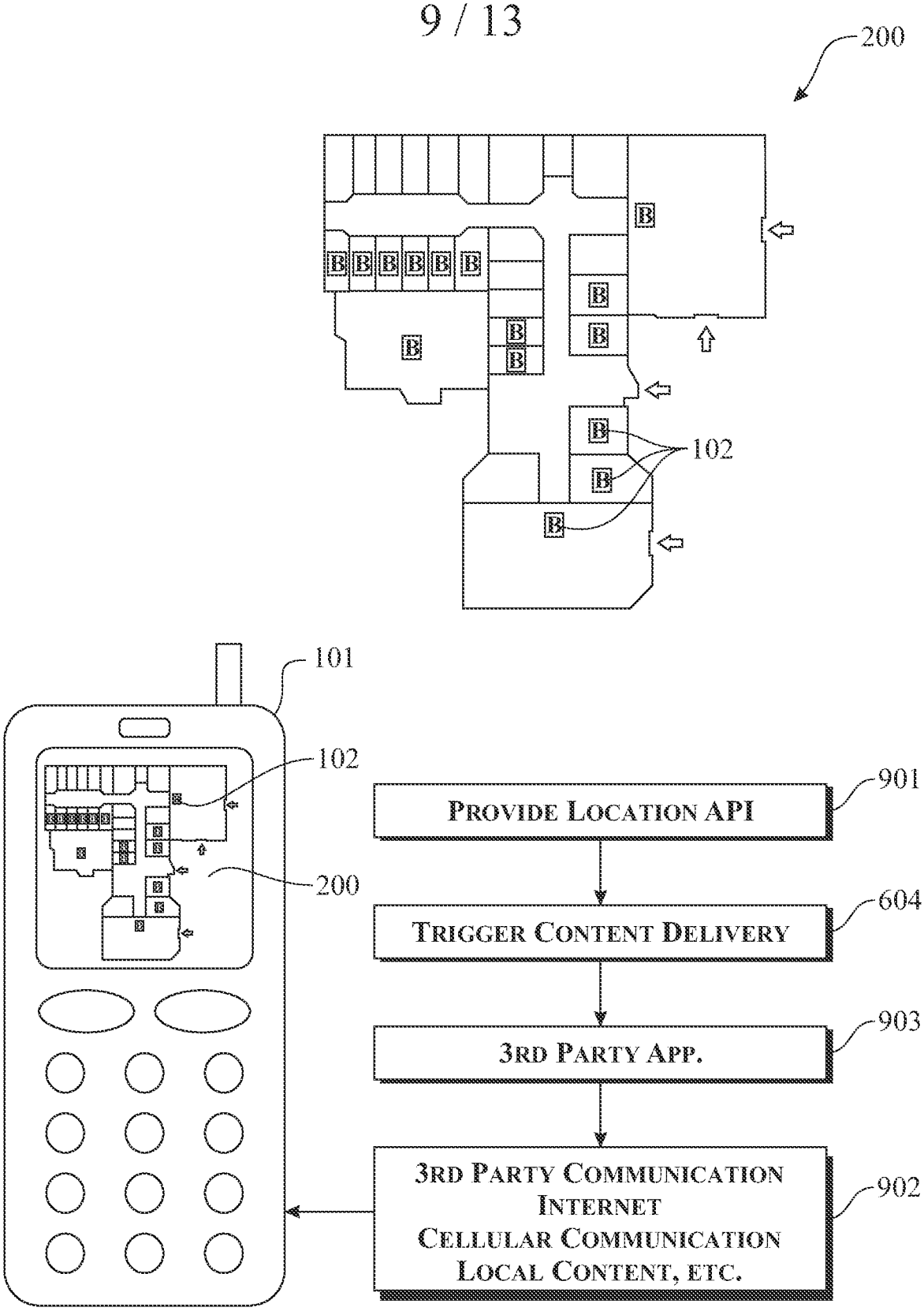

200
102
101
102
200
PROVIDE LOCATION API
901
TRIGGER CONTENT DELIVERY
604
3RD PARTY APP.
903
3RD PARTY COMMUNICATION
INTERNET
CELLULAR COMMUNICATION
LOCAL CONTENT, ETC.
902

FIG. 9

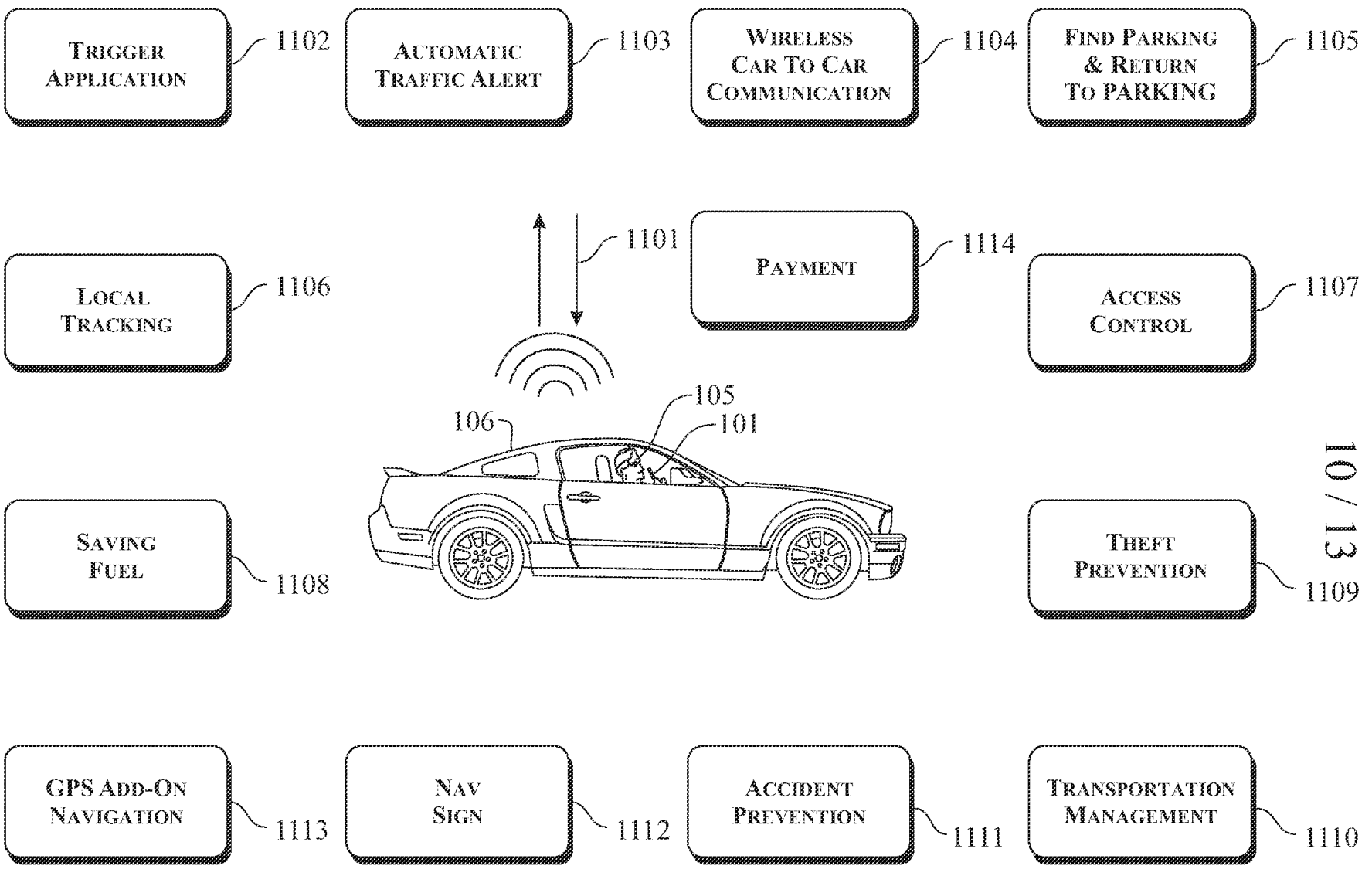


FIG. 10

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Atty. Docket No.: MEN-14-003

Google Ex. 1028, p. 663

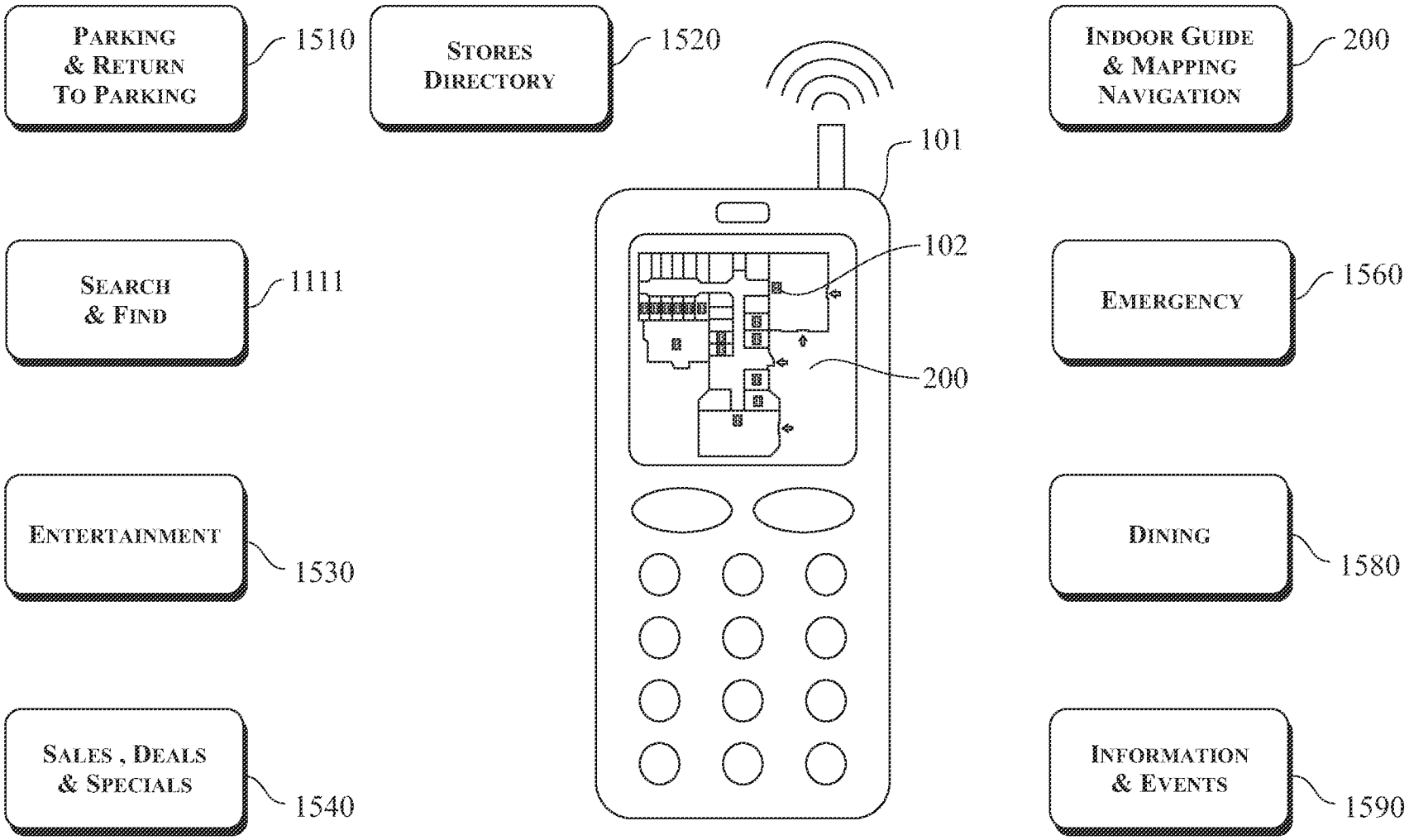

PARKING & RETURN TO PARKING
1510
STORES DIRECTORY
1520
INDOOR GUIDE & MAPPING NAVIGATION
200
101
SEARCH & FIND
1111
102
200
EMERGENCY
1560
ENTERTAINMENT
1530
DINING
1580
SALES , DEALS & SPECIALS
1540
INFORMATION & EVENTS
1590

FIG. 11

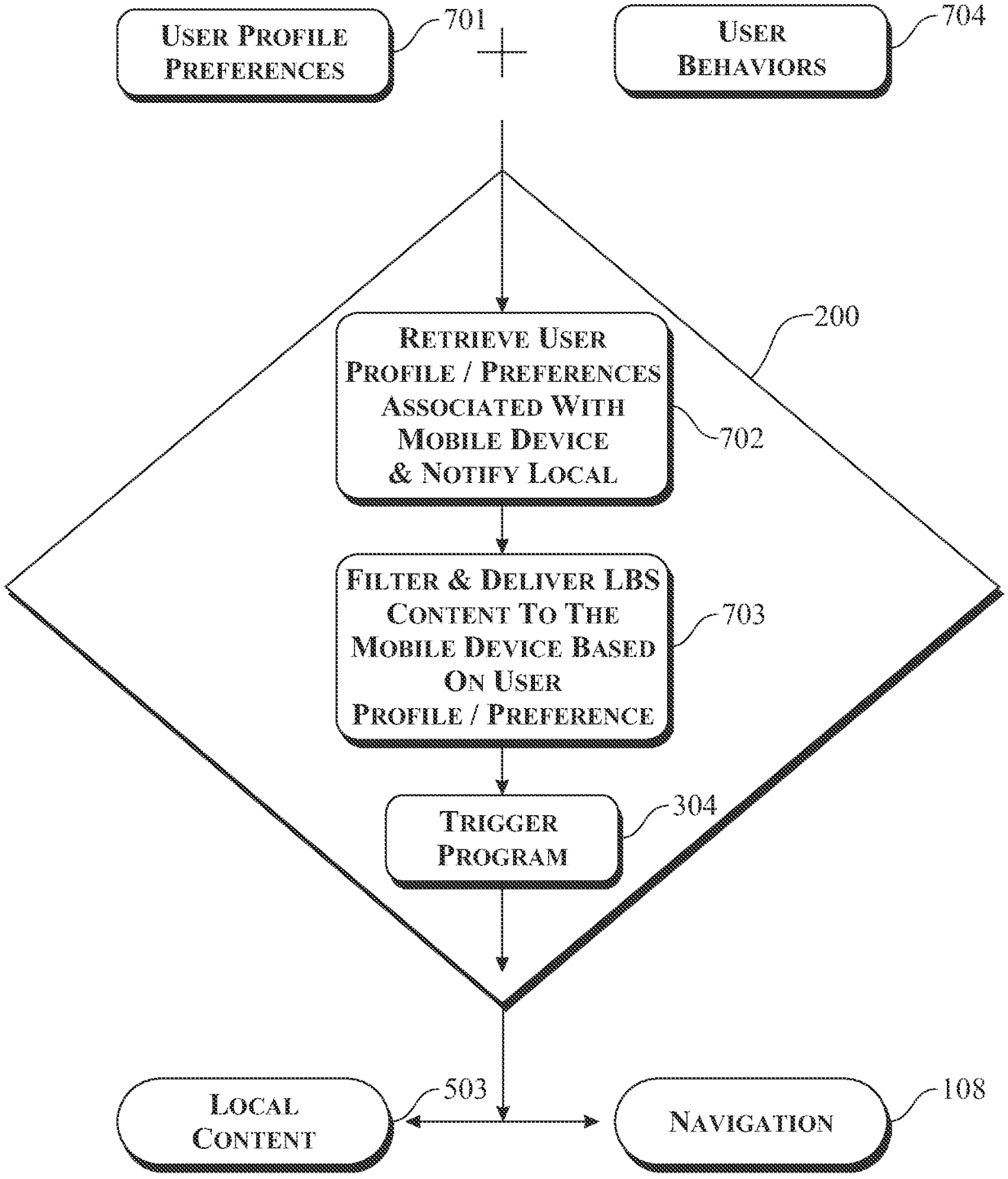

USER PROFILE PREFERENCES
701
USER BEHAVIORS
704
200
RETRIEVE USER PROFILE / PREFERENCES ASSOCIATED WITH MOBILE DEVICE & NOTIFY LOCAL
702
FILTER & DELIVER LBS CONTENT TO THE MOBILE DEVICE BASED ON USER PROFILE / PREFERENCE
703
TRIGGER PROGRAM
304
LOCAL CONTENT
503
NAVIGATION
108

FIG. 12

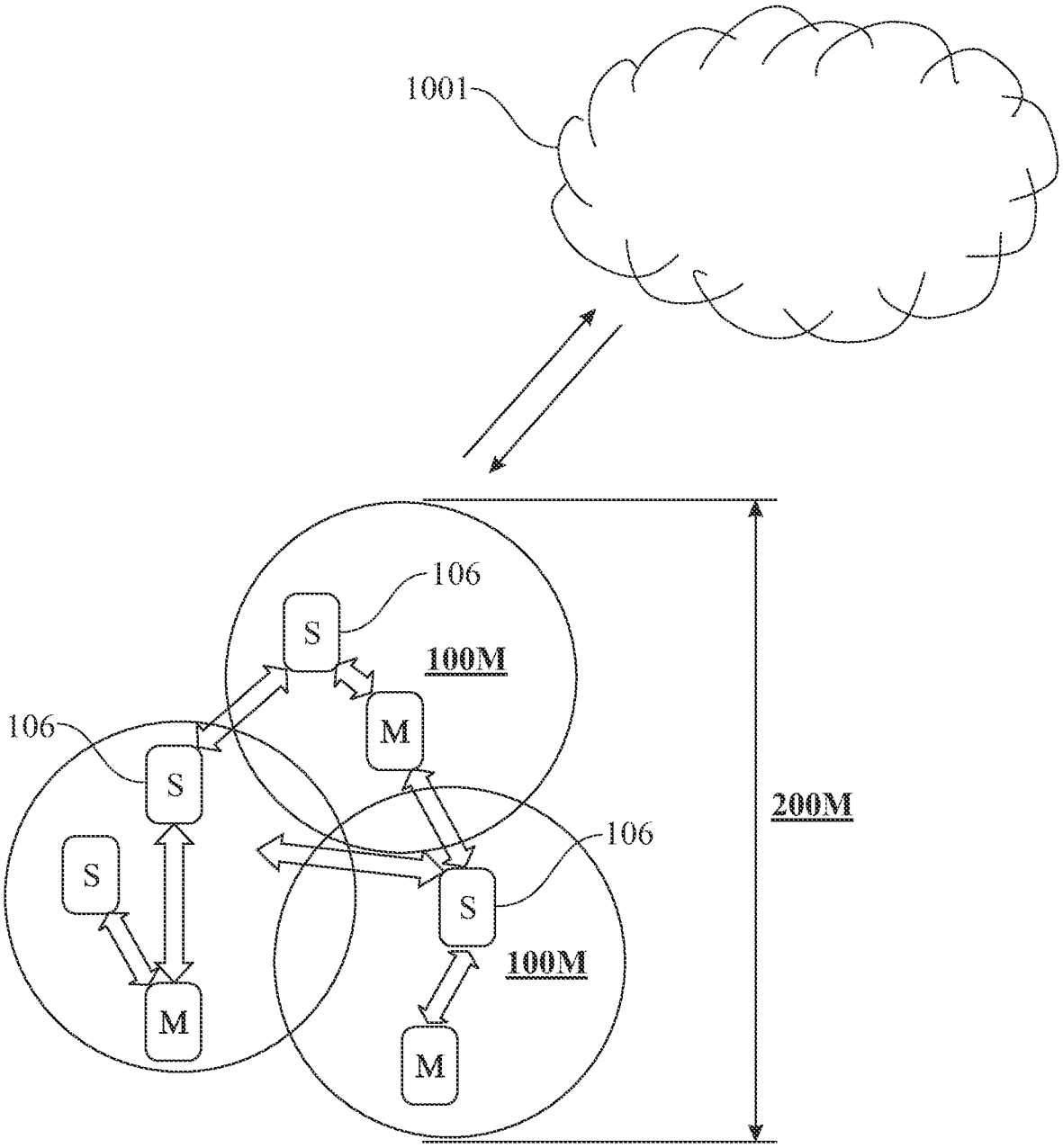


FIG. 13

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Filer:	Allen D. Hertz
Attorney Docket Number:	MEN-14-003

Filed as Small Entity

Utility 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	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**730**

Electronic Acknowledgement Receipt

EFS ID:	19108720
Application Number:	14285332
International Application Number:	
Confirmation Number:	9630
Title of Invention:	HOSPITALITY VENUE NAVIGATION, GUIDE, AND LOCAL BASED SERVICES APPLICATIONS UTILIZING RF BEACONS
First Named Inventor/Applicant Name:	Ehud Mendelson
Customer Number:	31877
Filer:	Allen D. Hertz
Filer Authorized By:	
Attorney Docket Number:	MEN-14-003
Receipt Date:	22-MAY-2014
Filing Date:	
Time Stamp:	17:54:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$730
RAM confirmation Number	4414
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

Google Ex. 1028, p. 669

1		MEN-14-003_Mendelson_Hospitality_DIV_Comp_052214.pdf	6309569 23ef4745f50487d60f3879ecdec004a50b373475	yes	138

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal of New Application	1	1
Oath or Declaration filed	2	2
Application Data Sheet	3	9
Power of Attorney	10	11
Nonpublication request from applicant.	12	12
Specification	13	117
Claims	118	124
Abstract	125	125
Drawings-only black and white line drawings	126	138

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	33007 1e0a4711eccae07d581cdcd7eac2a33693ed9dcc	no	2

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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

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.