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Jongkook Park
5105 Claybank Ln
Centreville, VA 20120

Courtesy Reminder for
Application Serial No: 17/322,839

Attorney Docket No: BSV-012
Customer Number: 133855
Date of Electronic Notification: 09/22/2022

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

jwyoo@giplaw-korea.com
jpark@hyunusa.com
jpark@bluestoneip.com

To view your correspondence online or update your email addresses, please visit us anytime at **https://ppair-my.uspto.gov/pair/PrivatePair.**
If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	10/18/2022	11473925	BSV-012	8783

133855 7590 09/28/2022

Jongkook Park
5105 Claybank Ln
Centreville, VA 20120

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 Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

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

Michael Sheha, Laguna Niguel, CA;
Angie Sheha, Laguna Niguel, CA;
Stephen Petilli, Laguna Niguel, CA;
Arun Yarlagadda, Irvine, CA;

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

Bluestone Ventures, Inc., Fairfax, VA;

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.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/322,839	05/17/2021	Michael Sheha	BSV-012

CONFIRMATION NO. 8783

133855
Jongkook Park
5105 Claybank Ln
Centreville, VA 20120

PUB REQUEST ACCEPTANCE LETTER

OC000000136359978

Date Mailed: 09/22/2022

NOTICE OF ACCEPTANCE OF PUBLICATION REQUEST

The request for voluntary publication, amended publication, early publication, redacted publication, republication, corrected publication or revised publication has been received for this application. The request, including payment of any necessary fee(s), is in compliance with 37 CFR 1.215, 1.217, 1.219 or 1.221.

The projected publication date is 12/29/2022.

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**.

/npfarmer/

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

133855 7590 09/21/2022

Jongkook Park
5105 Claybank Ln
Centreville, VA 20120

EXAMINER
BUTLER, RODNEY ALLEN

ART UNIT	PAPER NUMBER
3666	

NOTIFICATION DATE	DELIVERY MODE
09/21/2022	ELECTRONIC

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

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

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

jpark@bluestoneip.com
jpark@hyunusa.com
jwyoo@giplaw-korea.com

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Commissioner for Patents
United States Patent and Trademark Office
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Jongkook Park
5105 Claybank Ln
Centreville, VA 20120

In re Application of Bluestone Ventures, Inc.
Application No.: 17/322,839
Filing Date: 17 May 2021
Attorney Docket No.: BSV-012
For: Method and System for Dynamic Estimation and Predictive Route Generation

DECISION ON PETITION UNDER 37 CFR 1.78(c)

This is a decision on the petition under 37 CFR 1.78(c), filed 09 June 2022, to accept an unintentionally delayed claim under 35 U.S.C. 119(e) for the benefit of priority to one or more prior-filed provisional applications.

Under 37 CFR 1.78(c), a petition to accept an unintentionally delayed claim under 35 U.S.C. 119(e) for the benefit of a prior-filed application must be accompanied by:

(i) the reference required by 35 U.S.C. 119(e) and 37 CFR 1.78(a)(3) to the prior-filed application, unless previously submitted;

(ii) the petition fee set forth in 37 CFR 1.17(m); and

(iii) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(4) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional.

With regard to item (i), a proper reference to the prior-filed application(s) has been included in an application data sheet or in an amendment to the first sentence of the specification as required by 37 CFR 1.78(a)(3). See also 37 CFR 1.78(h).

With regard to item (ii), the petition fee set forth in 37 CFR 1.17(m) has been submitted.

With regard to item (iii), the petition contains a proper statement of unintentional delay.

For the reasons above, the petition under 37 CFR 1.78(c) is **GRANTED.**

Applicant is advised that the inclusion of a prior-filed application on any filing receipt should not be construed as meaning that the application is necessarily entitled to the benefit of the prior-filed application. In order for an application to be entitled to the benefit of the prior-filed application, all other requirements under 35 U.S.C. 119(e) and 37 CFR 1.78 must be met. The examiner will, in due course, determine whether this application is entitled to the benefit of an earlier filing date.

This matter is being referred to Technology Center Art Unit 3666 for appropriate action, including consideration by the examiner of applicant's entitlement to the benefit of priority under 35 U.S.C. 119 (e) to any prior-filed applications.

/ERIN P THOMSON/
ERIN P THOMSON
Attorney Advisor
International Patent Legal Administration
(571)272-3292

ATTACHMENT: corrected filing receipt

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/322,839	05/17/2021	3666	2140	BSV-012	18	2

CONFIRMATION NO. 8783

CORRECTED FILING RECEIPT

133855
Jongkook Park
5105 Claybank Ln
Centreville, VA 20120

OC000000136344203

Date Mailed: 09/20/2022

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

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

Inventor(s)

Michael Sheha, Laguna Niguel, CA;
Angie Sheha, Laguna Niguel, CA;
Stephen Petilli, Laguna Niguel, CA;
Arun Yarlagadda, Irvine, CA;

Applicant(s)

Bluestone Ventures, Inc., Fairfax, VA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 17/246,628 05/01/2021 PAT 11346684
which is a CON of 16/862,168 04/29/2020 PAT 10996071
which is a CON of 16/747,460 01/20/2020 PAT 10677608
which is a CON of 16/517,566 07/20/2019 PAT 10551208
which is a CON of 16/377,228 04/07/2019 PAT 10502583
which is a CON of 15/887,989 02/03/2018 PAT 10274337
which is a CON of 15/657,141 07/22/2017 PAT 9921077
which is a CON of 15/435,283 02/16/2017 PAT 9746341
which is a CON of 14/997,521 01/16/2016 PAT 9607346
which is a CON of 14/067,415 10/30/2013 PAT 9354069
which is a CON of 13/346,265 01/09/2012 PAT 8577390
which is a CON of 12/929,458 01/26/2011 PAT 8095152
which is a CON of 12/484,091 06/12/2009 PAT 7881730

which is a DIV of 10/410,740 04/10/2003 PAT 7565155
which claims benefit of 60/371,941 04/10/2002

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

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

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

If Required, Foreign Filing License Granted: 06/03/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/322,839**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
Title

Method and System for Dynamic Estimation and Predictive Route Generation

Preliminary Class

701

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application

serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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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

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/322,839	05/17/2021	3666	2140	BSV-012	18	2

CONFIRMATION NO. 8783

CORRECTED FILING RECEIPT

133855
Jongkook Park
5105 Claybank Ln
Centreville, VA 20120

OC000000136344203

Date Mailed: 09/20/2022

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Angie Sheha, Laguna Niguel, CA;
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Bluestone Ventures, Inc., Fairfax, VA;

Power of Attorney: None

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Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

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Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
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Preliminary Class

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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

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PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

133855 7590 05/25/2022

Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

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

Certificate of Mailing or Transmission

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

Jongkook Park	(Typed or printed name)
/Jongkook Park/	(Signature)
07/08/2022	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

TITLE OF INVENTION: Method and System for Dynamic Estimation and Predictive Route Generation

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	08/25/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
BUTLER, RODNEY ALLEN	3666	701-412000

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

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

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

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

1 Jongkook Park
2
3

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

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

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

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

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

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

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

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 506825

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 /Jongkook Park/ Date 07/08/2022

Typed or printed name Jongkook Park Registration No. 58840

Electronic Patent Application Fee Transmittal					
Application Number:	17322839				
Filing Date:	17-May-2021				
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation				
First Named Inventor/Applicant Name:	Michael Sheha				
Filer:	Jongkook Park				
Attorney Docket Number:	BSV-012				
Filed as Large Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
UTILITY APPL ISSUE FEE		1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1200**

Electronic Acknowledgement Receipt	
EFS ID:	46149486
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	08-JUL-2022
Filing Date:	17-MAY-2021
Time Stamp:	17:21:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	E202278H22161545
Deposit Account	506825
Authorized User	Jongkook Park
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	BSV-012-Issue-Fee.pdf	494086 95804ed370d215baa8f968ee7593288fecc9b3cc	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	37770 231d1487285d2ebfeede682c8f9f6b2c9747d742	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	531856		

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

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

Patent
Atty. Dkt. No. BSV-012
Filed Via EFS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	Sheha et al.	Examiner	Antonucci, Anne Marie
Serial No.	17/322,839	Group Art No.	3667
Filed	May 17, 2021	Confirmation No.	8783
For	Method and System for Dynamic Estimation and Predictive Route Generation		

July 8, 2022

Attention: Office of Petitions
Mail Stop Petitions
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

COVER LETTER FOR PETITION TO ACCEPT AN UNINTENTIONALLY DELAYED CLAIM UNDER 35 U.S.C. 119(e) FOR THE BENEFIT OF A PRIOR-FILED PROVISONAL APPLICATION (37 CFR 1.78(c))

This is a cover letter for the reference required by 35 U.S.C. 119(e) and 37 CFR 1.78(a)(3) to the prior-filed provisional application for the petition to accept an unintentionally delayed claim under 35 USC 119(e) for the benefit of a prior-filed provisional application (37 CFR 1.78(c)), which was filed on June 9, 2022 along with the petition fee set forth in 37 CFR 1.17(m) via EFS-Web using the form PTO/SB/445.

The reference is attached as Exhibit A which is a corrected application data sheet (ADS) indicating the prior-filed provisional application, the serial number 60/371,941, in the string of the continuity. This provisional application was indeed indicated in the original ADS filed on May 1, 2021, however it was not recorded. The corrected ADS was filed after the time period provided by 37 CFR 1.78 (a)(4), thus the above indicated petition was filed. Applicant hereby certifies that entire delay between the date the benefit claim was due under 37 CFR 1.78(a)(4) and the date the benefit claim was filed was unintentional.

The Commissioner is hereby authorized to charge any fee deficiency or credit any fee payment to Deposit Account No. 506825.

By: /Jongkook Park/
Jongkook Park, Reg. No.: 58,840
Bluestone Ventures, Inc.
5105 Claybank Ln
Centreville, VA 20120
Tel: (703) 981-0035
Email: jpark@bluestoneip.com
Attorney for Applicant

Exhibit A: Correct ADS Form

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

CORRECTED ADS FORM

Application Number	17322839
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number		
Name		
Residence Information		
Residency		
City		
State		
Country of Residence		
Mailing Address of Inventor		
Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

Application Information

	Data of Record	Updated Data
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	
Attorney Docket Number	BSV-012	
Entity Type	Regular Undiscounted	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing 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(a).

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	17322839	
	Continuity Type	CON	
	Prior Application Number	17246628	
	Filing Date (YYYY-MM-DD)	2021-05-01	
	Patent Number	11346684	
	Issue Date (YYYY-MM-DD)	2022-05-31	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	17246628	
	Continuity Type	CON	
	Prior Application Number	16862168	
	Filing Date (YYYY-MM-DD)	2020-04-29	
	Patent Number	10996071	
	Issue Date (YYYY-MM-DD)	2021-05-04	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	14067415	
	Continuity Type	CON	
	Prior Application Number	13346265	
	Filing Date (YYYY-MM-DD)	2012-01-09	
	Patent Number	8577390	
	Issue Date (YYYY-MM-DD)	2013-11-05	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	13346265	
	Continuity Type	CON	
	Prior Application Number	12929458	
	Filing Date (YYYY-MM-DD)	2011-01-26	
	Patent Number	8095152	
	Issue Date (YYYY-MM-DD)	2012-01-10	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	12929458	
	Continuity Type	CON	
	Prior Application Number	12484091	
	Filing Date (YYYY-MM-DD)	2009-06-12	
	Patent Number	7881730	
	Issue Date (YYYY-MM-DD)	2011-02-01	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	12484091	
	Continuity Type	DIV	
	Prior Application Number	10410740	
	Filing Date (YYYY-MM-DD)	2003-04-10	
	Patent Number	7565155	
	Issue Date (YYYY-MM-DD)	2009-07-21	

		Data of Record	Updated Data
	Prior Application Status		expired
	Application Number		10410740
	Continuity Type		PRO
	Prior Application Number		60371941
	Filing Date (YYYY-MM-DD)		2002-04-10
	Patent Number		
	Issue Date (YYYY-MM-DD)		

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16862168	
	Continuity Type	CON	
	Prior Application Number	16747460	
	Filing Date (YYYY-MM-DD)	2020-01-20	
	Patent Number	10677608	
	Issue Date (YYYY-MM-DD)	2020-06-09	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16747460	
	Continuity Type	CON	
	Prior Application Number	16517566	
	Filing Date (YYYY-MM-DD)	2019-07-20	
	Patent Number	10551208	
	Issue Date (YYYY-MM-DD)	2020-02-04	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16517566	
	Continuity Type	CON	
	Prior Application Number	16377228	
	Filing Date (YYYY-MM-DD)	2019-04-07	
	Patent Number	10502583	
	Issue Date (YYYY-MM-DD)	2019-12-10	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16377228	
	Continuity Type	CON	
	Prior Application Number	15887989	
	Filing Date (YYYY-MM-DD)	2018-02-03	
	Patent Number	10274337	
	Issue Date (YYYY-MM-DD)	2019-04-30	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	15887989	
	Continuity Type	CON	
	Prior Application Number	15657141	
	Filing Date (YYYY-MM-DD)	2017-07-22	
	Patent Number	9921077	
	Issue Date (YYYY-MM-DD)	2018-03-20	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	15657141	
	Continuity Type	CON	
	Prior Application Number	15435283	
	Filing Date (YYYY-MM-DD)	2017-02-16	
	Patent Number	9746341	
	Issue Date (YYYY-MM-DD)	2017-08-29	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	15435283	
	Continuity Type	CON	
	Prior Application Number	14997521	
	Filing Date (YYYY-MM-DD)	2016-01-16	
	Patent Number	9607346	
	Issue Date (YYYY-MM-DD)	2017-03-28	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	14997521	
	Continuity Type	CON	
	Prior Application Number	14067415	
	Filing Date (YYYY-MM-DD)	2013-10-30	
	Patent Number	9354069	
	Issue Date (YYYY-MM-DD)	2016-05-31	

Foreign Priority Information

****If no data is shown, no data has been corrected****

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

		Data of Record	Updated Data
	Application Number		
	Country		
	Filing Date		
	Access Code		

Applicant Information

****If no data is shown, no data has been corrected****

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.

	Data of Record	Updated Data
Applicant Type	ASG	
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		
Applicant is an Organization	Yes	
Name		
Organization Name	Bluestone Ventures, Inc.	
Address 1		5105 Claybank Ln
Address 2		
City,State/Province,Postal Code	~~Fairfax VA~~	Centreville 20120
Country		US
Phone Number		2023180172
Fax Number		2023180172

Email Address		jpark@bluestoneip.com

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****
Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		
Organization Name		
Mailing Address		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

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

See 37 CFR 1.4(d) for the manner of making signatures and certifications.
Corrected ADS 1.0

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

Signature	/Jongkook Park/	Registration Number	58840
First Name	Jongkook	Last Name	Park

Electronic Acknowledgement Receipt	
EFS ID:	46149438
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	08-JUL-2022
Filing Date:	17-MAY-2021
Time Stamp:	17:16:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition for review by the Office of Petitions	Petition-Cover-Letter.pdf	268801 7b57036159fafff73dbde451032c83472dc71ae1	no	13

Warnings:

Information:	
Total Files Size (in bytes):	268801

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

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

Doc Code: PET.OP
Document Description: Petition for Review by the Office of Petitions

PTO/SB/445 (05-18)
Approved for use through 11/30/2020. 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.

PETITION TO ACCEPT AN UNINTENTIONALLY DELAYED CLAIM UNDER 35 U.S.C. 119(e) FOR THE BENEFIT OF A PRIOR-FILED PROVISIONAL APPLICATION (37 CFR 1.78(c))

First named inventor: SHEHA, Michael

Application No.: 17/322,839 Art Unit: 3666

Filed: 05/17/2021 Examiner: BUTLER, Rodney Allen

Title: Method and System for Dynamic Estimation and Predictive Route Generation

Attention: Office of Petitions
Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
FAX (571) 273-8300

NOTE: If information or assistance is needed in completing this form, please contact the Office of Petitions at (571) 272-3282.

APPLICANT HEREBY PETITIONS FOR ACCEPTANCE OF AN UNINTENTIONALLY DELAYED BENEFIT CLAIM UNDER 37 CFR 1.78(c).

NOTE: A grantable petition requires the following items:

(1) the reference required by 35 U.S.C. 119(e) and 37 CFR 1.78(a)(3) to the prior-filed provisional application, unless previously submitted;
(2) the petition fee set forth in 37 CFR 1.17(m); and
(3) a statement that the entire delay between the date the benefit claim was due under 37 CFR 1.78(a)(4) and the date the benefit claim was filed was unintentional. The Director may require additional information where there is a question as to whether the delay was unintentional.

1. The reference required by 35 U.S.C. 119(e) and 37 CFR 1.78(a)(3) to the prior-filed provisional application

☒ The application was filed on or after September 16, 2012, and the reference is either set forth in the attached corrected ADS, or in a corrected ADS that was previously submitted.

☐ The application was filed prior to September 16, 2012, and the reference is either (1) set forth in a supplemental ADS, or (2) set forth in the attached amendment to the first sentence(s) of the specification, or (3) a supplemental ADS or amendment to the first sentence(s) of the specification was previously submitted. See 37 CFR 1.78(h).

Reminders:

- **Any ADS which corrects or updates the information of record must comply with 37 CFR 1.76(c)(2) (or for applications filed prior to September 16, 2012, pre-AIA 37 CFR 1.76(c))**
- **The nonprovisional application must have been filed within 1 year of the filing date of the prior-filed provisional application except as provided in 37 CFR 1.78(b). See 37 CFR 1.78(a).**

2. Petition fee

☐ Small entity fee $ _____ (37 CFR 1.17(m)). Applicant asserts small entity status. See 37 CFR 1.27.

☐ Micro entity fee $ _____ (37 CFR 1.17(m)). Applicant has established or is establishing 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.

☒ Undiscounted fee $ 2100 (37 CFR 1.17(m)).

This collection of information is required by 37 CFR 1.78(c). 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, 1.14 and 41.6. This collection is estimated to take 1 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Petition, 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: PET.OP
Document Description: Petition for Review by the Office of Petitions

PTO/SB/445 (12-17)
Approved for use through 11/30/2020. 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.

PETITION TO ACCEPT AN UNINTENTIONALLY DELAYED CLAIM UNDER 35 U.S.C. 119(e) FOR THE BENEFIT OF A PRIOR-FILED PROVISIONAL APPLICATION (37 CFR 1.78(c))

3. STATEMENT: The entire delay between the date the benefit claim was due under 37 CFR 1.78(a)(4) and the date the benefit claim was filed was unintentional.

NOTE: The Director may require additional information where there is a question whether the delay was unintentional.

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.

/Jongkook Park/	06/09/2022
Signature*	Date
Jongkook Park	58840
Typed or Printed Name	Registration Number, if applicable
5105 Claybank Ln.	202-318-0172
Address	Telephone Number
Centreville, VA 20210	
Address	

* This petition must be signed in accordance with 37 CFR 1.33. Please see 37 CFR 1.4(d) for the signature requirements. Submit multiple forms if more than one signature is required.

Enclosures:

- ☐ Application Data Sheet (see Instructions starting on page 3)
- ☒ Fee
- ☐ Other: _____

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

- ☐ Deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.
- ☒ Transmitted by EFS-Web or by fax on the date shown below to the United States Patent and Trademark Office at (571) 273-8300.

06/09/2022	/Jongkook Park/
Date	Signature
	Jongkook Park
	Typed or printed name of person signing certificate

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.

Electronic Patent Application Fee Transmittal

Application Number:	17322839
Filing Date:	17-May-2021
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Filer:	Jongkook Park
Attorney Docket Number:	BSV-012

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
PET. DELAY SUB OR RESTORE PRIORITY-CLAIM	1454	1	2100	2100
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**2100**

Electronic Acknowledgement Receipt	
EFS ID:	45921119
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	09-JUN-2022
Filing Date:	17-MAY-2021
Time Stamp:	18:16:50
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2100
RAM confirmation Number	E202269I17410070
Deposit Account	506825
Authorized User	Jongkook Park
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition for review by the Office of Petitions	BSV-012-sb0445.pdf	246557 cda8260a166ffe47437afc5c4d5f668205873487	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38030 05fa7917213d441e0eb95c386d63bcadb87cdfd7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	284587		

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/322,839	05/17/2021	Michael Sheha	BSV-012

CONFIRMATION NO. 8783

133855
Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

IMPROPER CFR REQUEST

OC000000134383858

Date Mailed: 06/09/2022

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Continuity, Priority Claims, Petitions, and Non-Publication Requests

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- The priority or continuity claim has not been entered because it was not filed during the required time period. Applicant may wish to consider filing a petition to accept an unintentionally delayed claim for priority. See 37 CFR 1.55 or 1.78.

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**.

/ggasgedom/

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

CORRECTED ADS FORM

Application Number	17322839
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number		
Name		
Residence Information		
Residency		
City		
State		
Country of Residence		
Mailing Address of Inventor		
Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

Application Information

	Data of Record	Updated Data
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	
Attorney Docket Number	BSV-012	
Entity Type	Regular Undiscounted	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing 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(a).

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	17322839	
	Continuity Type	CON	
	Prior Application Number	17246628	
	Filing Date (YYYY-MM-DD)	2021-05-01	
	Patent Number	11346684	
	Issue Date (YYYY-MM-DD)	2022-05-31	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	17246628	
	Continuity Type	CON	
	Prior Application Number	16862168	
	Filing Date (YYYY-MM-DD)	2020-04-29	
	Patent Number	10996071	
	Issue Date (YYYY-MM-DD)	2021-05-04	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	14067415	
	Continuity Type	CON	
	Prior Application Number	13346265	
	Filing Date (YYYY-MM-DD)	2012-01-09	
	Patent Number	8577390	
	Issue Date (YYYY-MM-DD)	2013-11-05	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	13346265	
	Continuity Type	CON	
	Prior Application Number	12929458	
	Filing Date (YYYY-MM-DD)	2011-01-26	
	Patent Number	8095152	
	Issue Date (YYYY-MM-DD)	2012-01-10	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	12929458	
	Continuity Type	CON	
	Prior Application Number	12484091	
	Filing Date (YYYY-MM-DD)	2009-06-12	
	Patent Number	7881730	
	Issue Date (YYYY-MM-DD)	2011-02-01	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	12484091	
	Continuity Type	DIV	
	Prior Application Number	10410740	
	Filing Date (YYYY-MM-DD)	2003-04-10	
	Patent Number	7565155	
	Issue Date (YYYY-MM-DD)	2009-07-21	

		Data of Record	Updated Data
	Prior Application Status		expired
	Application Number		10410740
	Continuity Type		PRO
	Prior Application Number		60371941
	Filing Date (YYYY-MM-DD)		2002-04-10
	Patent Number		
	Issue Date (YYYY-MM-DD)		

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16862168	
	Continuity Type	CON	
	Prior Application Number	16747460	
	Filing Date (YYYY-MM-DD)	2020-01-20	
	Patent Number	10677608	
	Issue Date (YYYY-MM-DD)	2020-06-09	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16747460	
	Continuity Type	CON	
	Prior Application Number	16517566	
	Filing Date (YYYY-MM-DD)	2019-07-20	
	Patent Number	10551208	
	Issue Date (YYYY-MM-DD)	2020-02-04	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16517566	
	Continuity Type	CON	
	Prior Application Number	16377228	
	Filing Date (YYYY-MM-DD)	2019-04-07	
	Patent Number	10502583	
	Issue Date (YYYY-MM-DD)	2019-12-10	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	16377228	
	Continuity Type	CON	
	Prior Application Number	15887989	
	Filing Date (YYYY-MM-DD)	2018-02-03	
	Patent Number	10274337	
	Issue Date (YYYY-MM-DD)	2019-04-30	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	15887989	
	Continuity Type	CON	
	Prior Application Number	15657141	
	Filing Date (YYYY-MM-DD)	2017-07-22	
	Patent Number	9921077	
	Issue Date (YYYY-MM-DD)	2018-03-20	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	15657141	
	Continuity Type	CON	
	Prior Application Number	15435283	
	Filing Date (YYYY-MM-DD)	2017-02-16	
	Patent Number	9746341	
	Issue Date (YYYY-MM-DD)	2017-08-29	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	15435283	
	Continuity Type	CON	
	Prior Application Number	14997521	
	Filing Date (YYYY-MM-DD)	2016-01-16	
	Patent Number	9607346	
	Issue Date (YYYY-MM-DD)	2017-03-28	

		Data of Record	Updated Data
	Prior Application Status	patented	
	Application Number	14997521	
	Continuity Type	CON	
	Prior Application Number	14067415	
	Filing Date (YYYY-MM-DD)	2013-10-30	
	Patent Number	9354069	
	Issue Date (YYYY-MM-DD)	2016-05-31	

Foreign Priority Information

****If no data is shown, no data has been corrected****

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

		Data of Record	Updated Data
	Application Number		
	Country		
	Filing Date		
	Access Code		

Applicant Information

****If no data is shown, no data has been corrected****

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.

	Data of Record	Updated Data
Applicant Type	ASG	
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		
Applicant is an Organization	Yes	
Name		
Organization Name	Bluestone Ventures, Inc.	
Address 1		5105 Claybank Ln
Address 2		
City,State/Province,Postal Code	~~Fairfax VA~~	Centreville 20120
Country		US
Phone Number		2023180172
Fax Number		2023180172

Email Address		jpark@bluestoneip.com

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****
Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		
Organization Name		
Mailing Address		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

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

See 37 CFR 1.4(d) for the manner of making signatures and certifications.
Corrected ADS 1.0

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

Signature	/Jongkook Park/	Registration Number	58840
First Name	Jongkook	Last Name	Park

Electronic Patent Application Fee Transmittal

Application Number:	17322839
Filing Date:	17-May-2021
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Filer:	Jongkook Park
Attorney Docket Number:	BSV-012

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
PROCESSING FEE, EXCEPT PROV. APPLS.	1830	1	140	140
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**140**

Electronic Acknowledgement Receipt	
EFS ID:	45895701
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	07-JUN-2022
Filing Date:	17-MAY-2021
Time Stamp:	15:06:29
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$140
RAM confirmation Number	E202267F06250262
Deposit Account	506825
Authorized User	Jongkook Park
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet to update/ correct info	CorrectedADS.pdf	244025 6e3b0e90ea2379f12f87394da4cf29d5cd37f363	no	10
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38028 2666a50c11bf8eb83c24aff11e6dc4004e057e33	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	282053		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

Doc code: Oath
Document Description: Oath or declaration filed

PTO/AIA/02 (07-13)
Approved for use through 04/30/2017. 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.

SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)

Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number 17/322,839 filed on 05-17-2021.

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Angie Sheha

Residence (except for a deceased or legally incapacitated inventor):

City	State	Country
Laguna Niguel	CA	USA

Mailing Address (except for a deceased or legally incapacitated inventor):

8 Larkfield Lane

City	State	Zip	Country
Laguna Niguel	CA	92677	USA

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

- ☐ Legal Representative (for deceased or legally incapacitated inventor only),
- ☒ Assignee,
- ☐ Person to whom the inventor is under an obligation to assign,
- ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or
- ☐ Joint 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.

PTO/SB/AIA02 (07-13)
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.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☐ Inventor cannot be found or reached after diligent effort, or
- ■ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ■ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: Jongkook Park	Date (Optional):

Signature: /Jongkook Park/

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: Bluestone Ventures, Inc.

Title of Person Executing This Substitute Statement: Chief Executive Officer

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City	State	Country

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

City	State	Zip	Country

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

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.
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Doc code: Oath
Document Description: Oath or declaration filed

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SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)

Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number 17/322,839 filed on 05-17-2021.

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Arun Yarlagadda

Residence (except for a deceased or legally incapacitated inventor):

City	State	Country
Irvine	CA	USA

Mailing Address (except for a deceased or legally incapacitated inventor):

6 Berrywood Lane

City	State	Zip	Country
Irvine	CA	92620	USA

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

- ☐ Legal Representative (for deceased or legally incapacitated inventor only),
- ☒ Assignee,
- ☐ Person to whom the inventor is under an obligation to assign,
- ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or
- ☐ Joint 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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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☐ Inventor cannot be found or reached after diligent effort, or
- ■ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ■ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: Jongkook Park	Date (Optional):

Signature: /Jongkook Park/

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: Bluestone Ventures, Inc.

Title of Person Executing This Substitute Statement: Chief Executive Officer

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City	State	Country

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

City	State	Zip	Country

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

Privacy Act Statement

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether 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.
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Doc code: Oath
Document Description: Oath or declaration filed

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Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number 17/322,839 filed on 05-17-2021.

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Michael Sheha

Residence (except for a deceased or legally incapacitated inventor):

City	State	Country
Laguna Niguel	CA	USA

Mailing Address (except for a deceased or legally incapacitated inventor):

8 Larkfield Lane

City	State	Zip	Country
Laguna Niguel	CA	92677	USA

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

☐ Legal Representative (for deceased or legally incapacitated inventor only),

☒ Assignee,

☐ Person to whom the inventor is under an obligation to assign,

☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or

☐ Joint Inventor.

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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased,
- ☐ Inventor is under legal incapacity,
- ☐ Inventor cannot be found or reached after diligent effort, or
- ■ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ■ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: Jongkook Park	Date (Optional):

Signature: /Jongkook Park/

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: Bluestone Ventures, Inc.

Title of Person Executing This Substitute Statement: Chief Executive Officer

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

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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	Method and System for Dynamic Estimation and Predictive Route Generation

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 17/322,839 filed on 05/17/2021.

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.

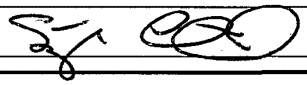
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LEGAL NAME OF INVENTOR

Inventor: Stephen Petilli Date (Optional): 7/16/21

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.

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Electronic Patent Application Fee Transmittal

Application Number:	17322839
Filing Date:	17-May-2021
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Filer:	Jongkook Park
Attorney Docket Number:	BSV-012

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
LATE FILING FEE FOR OATH OR DECLARATION	1051	1	160	160
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Electronic Acknowledgement Receipt	
EFS ID:	45876502
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	03-JUN-2022
Filing Date:	17-MAY-2021
Time Stamp:	21:34:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	E202263L34560510
Deposit Account	506825
Authorized User	Jongkook Park
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	BSV-012-Declaration-AS.pdf	188458 57728e4c6d5dde2eb625de0ccb570dbe042434e1	no	3
Warnings:					
Information:					
2	Oath or Declaration filed	BSV-012-Declaration-AY.pdf	188369 2456dba3e20904aeccbc2af42d897c0146ac92e3	no	3
Warnings:					
Information:					
3	Oath or Declaration filed	BSV-012-Declaration-MS.pdf	188708 ba47dfcc4deb427c6c0d3c1f061017ba61839a9d	no	3
Warnings:					
Information:					
4	Oath or Declaration filed	BSV-012-Declaration-SP.pdf	275645 898ec634044286ddae8e3bb099fdb994967c5fa7	no	2
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	38080 d142c61ceb647a7527c54fd5a0567bfd2370c1c3	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	879260		

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
COMMISSIONER FOR PATENTS
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FIRST-CLASS MAIL
U.S. POSTAGE PAID
POSTEDIGITAL
NNNNN

Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

Courtesy Reminder for
Application Serial No: 17/322,839

Attorney Docket No: BSV-012
Customer Number: 133855
Date of Electronic Notification: 05/25/2022

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

jwyoo@giplaw-korea.com
jpark@hyunusa.com
jpark@bluestoneip.com

To view your correspondence online or update your email addresses, please visit us anytime at **https://ppair-my.uspto.gov/pair/PrivatePair.**
If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

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

133855 7590 05/25/2022

Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

EXAMINER
BUTLER, RODNEY ALLEN

ART UNIT	PAPER NUMBER
3666	

DATE MAILED: 05/25/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

TITLE OF INVENTION: Method and System for Dynamic Estimation and Predictive Route Generation

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	08/25/2022

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. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

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

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

133855 7590 05/25/2022

Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

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

Certificate of Mailing or Transmission

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

TITLE OF INVENTION: Method and System for Dynamic Estimation and Predictive Route Generation

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	08/25/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
BUTLER, RODNEY ALLEN	3666	701-412000

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

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

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

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

1_____
2_____
3_____

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

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

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

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

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

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

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

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

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

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

133855 7590 05/25/2022

Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

EXAMINER	
BUTLER, RODNEY ALLEN	
ART UNIT	**PAPER NUMBER**
3666	

DATE MAILED: 05/25/2022

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.

Notice Requiring Inventor's Oath or Declaration	Application No. 17/322,839	Applicant(s) Michael Sheha	
	Examiner BUTLER, RODNEY ALLEN	Art Unit 3666	

This notice is an attachment to the Notice of Allowability (PTOL-37), or the Notice of Allowability For A Design Application (PTOL-37D).

An inventor's oath or declaration in compliance with 37 CFR 1.63 or 1.64 executed by or with respect to each inventor has not yet been submitted.

An oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each inventor (for any inventor for which a compliant oath, declaration, or substitute statement has not yet been submitted) MUST be filed no later than the date on which the issue fee is paid. See 35 U.S.C. 115(f). Failure to timely comply will result in ABANDONMENT of this application.

A properly executed inventor's oath to declaration has not been received for the following inventor(s):

If applicant previously filed one or more oaths, declarations, or substitute statements, applicant may have received an informational notice regarding deficiencies therein.

The following deficiencies are noted:

INFORMAL ACTION PROBLEMS

- A properly executed inventor's oath or declaration has not been received for the following inventor(s): **Michael Sheha**, **Angie Sheha**, **Stephen Petilli**, and **Arun Yarlagadda**.
  Applicant may submit the inventor's oath or declaration at any time before the Notice of Allowance and Fee(s) Due, PTOL-85, is mailed.

Questions relating to this Notice should be directed to the Application Assistance Unit at 571-272-4200.

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 17/322,839	Applicant(s) Sheha et al.	
	Examiner RODNEY A BUTLER	Art Unit 3666	AIA (FITF) Status No

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

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

1. ☑ This communication is responsive to the claim amendments filed on May 14, 2022.
   ☐ 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 40-55 . 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 _____.

/RODNEY A BUTLER/
Primary Examiner, Art Unit 3666

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	Art Unit
	RODNEY A BUTLER	3666

CPC - Searched*		
Symbol	**Date**	**Examiner**
G01C 21/367; 21/26, 21/30; 21/34; 21/3676; 19/42; 21/3617; 21/3415; 21/3626; 21/3469	07/23/2021	AA
G06Q 50/30	07/23/2021	AA
G01S 19/42	07/23/2021	AA
G08G 1/202	07/23/2021	AA

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

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

/RODNEY A BUTLER/ Primary Examiner, Art Unit 3666	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	Art Unit
	RODNEY A BUTLER	3666

Search Notes		
Search Notes	**Date**	**Examiner**
G01C 21/367; 21/26, 21/30; 21/34; 21/3676; 19/42; 21/3617; 21/3415 ; 21/3626; 21/3469 (text limited)	07/23/2021	AA
G06Q 50/30 (text limited)	07/23/2021	AA
G01S 19/42 (text limited)	07/23/2021	AA
G08G 1/202 (text limited)	07/23/2021	AA
Inventor Name and Assignee search	07/23/2021	AA
IP.com Search	07/23/2021	AA
PE2E Search (keywords going to determining locations of a vehicle taxi fleet and determining best vehicle to provide transportation service)	07/23/2021	AA
review Parent Applications	07/23/2021	AA
Global Dossier search	07/23/2021	AA
Updated keyword search via PE2E Search, Espacenet.com, Google Patent, WIPO.com and/or IP.com	11/10/2021	/RAB/
Updated keyword search via PE2E Search, Espacenet.com, Google Patent, WIPO.com and/or IP.com	05/19/2022	/RAB/

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	See searched CPC symbols herein above	05/19/2022	/RAB/

/RODNEY A BUTLER/ Primary Examiner, Art Unit 3666	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	**Art Unit**
	RODNEY A BUTLER	3666

CPC						
Symbol					**Type**	**Version**
G01C	/	21	/	367	F	2013-01-01
G01C	/	21	/	26	I	2013-01-01
G01C	/	21	/	30	I	2013-01-01
G01C	/	21	/	34	I	2013-01-01
G01C	/	21	/	3415	I	2013-01-01
G01C	/	21	/	3626	I	2013-01-01
G01S	/	19	/	42	I	2013-01-01
G01C	/	21	/	3676	I	2013-01-01
G06Q	/	50	/	30	I	2013-01-01
G08G	/	1	/	202	I	2013-01-01
G01C	/	21	/	3469	I	2013-01-01
G01C	/	21	/	3617	I	2013-01-01
G01C	/	19	/	42	I	2013-01-01

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

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	16	
/RODNEY A BUTLER/ Primary Examiner, Art Unit 3666	19 May 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20220519

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	Art Unit
	RODNEY A BUTLER	3666

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G01C	/	21	/	36
G01C	/	21	/	26
G01C	/	21	/	30
G01C	/	21	/	34
G01S	/	19	/	42
G06Q	/	50	/	30
G01C	/	19	/	42

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

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

NONE (Assistant Examiner)	(Date)	Total Claims Allowed: 16	
/RODNEY A BUTLER/ Primary Examiner, Art Unit 3666 (Primary Examiner)	19 May 2022 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office — Part of Paper No.: 20220519

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	Art Unit
	RODNEY A BUTLER	3666

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
-	1	-	10	-	19	-	28	-	37	7	46	16	55		
-	2	-	11	-	20	-	29	-	38	8	47				
-	3	-	12	-	21	-	30	-	39	9	48				
-	4	-	13	-	22	-	31	1	40	10	49				
-	5	-	14	-	23	-	32	2	41	11	50				
-	6	-	15	-	24	-	33	3	42	12	51				
-	7	-	16	-	25	-	34	4	43	13	52				
-	8	-	17	-	26	-	35	5	44	14	53				
-	9	-	18	-	27	-	36	6	45	15	54				

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	16	
/RODNEY A BUTLER/ Primary Examiner, Art Unit 3666	19 May 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office Part of Paper No.: 20220519

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	64132	(G01C21/367 OR G01C19/42 OR G01C21/26 OR G01C21/30 OR G01C21/34 OR G01C21/3415 OR G01C21/3469 OR G01C21/3617 OR G01C21/3626 OR G01C21/3676 OR G01S19/42 OR G06Q50/30 OR G08G1/202).cpc.	(US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/11/08 02:33 PM
L2	224830	(G01C21/367 OR G01C19/42 OR G01C21/26 OR G01C21/30 OR G01C21/34 OR G01C21/3415 OR G01C21/3469 OR G01C21/3617 OR G01C21/3626 OR G01C21/3676 OR G01S19/42 OR G06Q50/30 OR G08G1/202).cpc.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/19 12:39 PM
L3	0	(navigation near2 system) AND (display$3 SAME ((multiple plural$3 several) near3 route)) AND (track$3 near4 (mobile vehicle car truck machine)) AND ((graphic$2 adj2 user adj2 interface) GUI) AND ((first AND second AND third AND fourth) near4 (location AND route)) AND @ad<="20030410"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/19 12:44 PM
L4	0	(navigation near2 system) AND (display$3 SAME ((multiple plural$3 several) near3 route)) AND (track$3 near4 (mobile vehicle car truck machine)) AND ((graphic$2 adj2 user adj2 interface) GUI) AND ((first AND second AND third) near4 (location AND	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/19 12:44 PM

		route)) AND @ad<="20030410"					
L5	0	(navigation near2 system) AND (display$3 SAME ((multiple plural$3 several) near3 route)) AND (track$3 near4 (mobile vehicle car truck machine)) AND ((graphic$2 adj2 user adj2 interface) GUI) AND ((first AND second AND third) near4 (location AND route AND update)) AND @ad<="20030410"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/19 12:46 PM
L6	0	(navigation near2 system) AND (display$3 SAME ((multiple plural$3 several) near3 route)) AND (track$3 near4 (mobile vehicle car truck machine)) AND ((graphic$2 adj2 user adj2 interface) GUI) AND ((first AND second AND third) near4 (location AND route AND update AND intersection)) AND @ad<="20030410"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/19 12:47 PM
L7	1	(navigation near2 system) AND (display$3 SAME ((multiple plural$3 several) near3 route)) AND (track$3 near4 (mobile vehicle car truck machine)) AND ((graphic$2 adj2 user adj2 interface) GUI) AND ((first AND second AND third) near4 (location route update intersection)) AND @ad<="20030410"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, CA, CH, CN, DD, DE, EA, EP, ES, FR, GB, JP, KR, OA, RU, SU, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2022/05/19 12:47 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	30846	(G01C21/367 OR G01C19/42 OR G01C21/26 OR G01C21/30 OR	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/19 12:48 PM

		G01C21/34 OR G01C21/3415 OR G01C21/3469 OR G01C21/3617 OR G01C21/3626 OR G01C21/3676 OR G01S19/42 OR G06Q50/30 OR G08G1/202).cpc.					
N2	0	((navigation near2 system) AND (display$3 SAME ((multiple plural$3 several) near3 route)) AND (track$3 near4 (mobile vehicle car truck machine)) AND ((graphic$2 adj2 user adj2 interface) GUI) AND ((first AND second AND third) near4 (location route update intersection))).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/19 12:49 PM
N3	0	((navigation near2 system) AND (display$3 SAME ((multiple plural$3 several) near3 route)) AND (track$3 near4 (mobile vehicle car truck machine)) AND ((graphic$2 adj2 user adj2 interface) GUI) AND ((first AND second AND third) near4 (location AND route AND update AND intersection))).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/19 12:49 PM
N4	0	N1 AND N2	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/19 12:50 PM
N5	0	N1 AND N3	(US-PGPUB; USPAT)	OR	ON	ON	2022/05/19 12:50 PM

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. 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
(Submitted Only via EFS-Web)

Application Number	17322839	Filing Date	2021-05-17	Docket Number (if applicable)	BSV-012	Art Unit	3666
First Named Inventor	Michael Sheha			Examiner Name	Butler, Rodney Allen		

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

SUBMISSION REQUIRED UNDER 37 CFR 1.114

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

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

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

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

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

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 506825

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Patent Practitioner Signature

X Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. 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.

Applicant Signature			
Applicant 1		Remove	
Signature	/Jongkook Park/	Date (YYYY-MM-DD)	2022-05-14
Name	Jongkook Park		
Click ADD for additional Applicant Signature		Add	

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

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

Privacy Act Statement

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

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

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

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

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

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

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

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

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

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

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

PTO/AIA/22 (10-20)
Approved for use through 11/30/2020. 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) BSV-012
Application Number 17/322,839	Filed 05/17/2021
For Method and System for Dynamic Estimation and Predictive Route Generation	
Art Unit 3666	Examiner Butler, Rodney Allen

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))	$220	$110	$55	$
☐	Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$
☑	Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$ 1480
☐	Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐	Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

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

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

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

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

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

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 50-6825.

☑ 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 58840.

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

/Jongkook Park/ — Signature

05/14/2022 — Date

Jongkook Park — Typed or printed name

202-318-0172 — 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 _____ 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.

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.

Electronic Patent Application Fee Transmittal					
Application Number:	17322839				
Filing Date:	17-May-2021				
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation				
First Named Inventor/Applicant Name:	Michael Sheha				
Filer:	Jongkook Park				
Attorney Docket Number:	BSV-012				
Filed as Large Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1480	1480
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1360	1360
		Total in USD ($)		**2840**

Electronic Acknowledgement Receipt	
EFS ID:	45714490
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	14-MAY-2022
Filing Date:	17-MAY-2021
Time Stamp:	12:11:40
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2840
RAM confirmation Number	E20225DC12330700
Deposit Account	506825
Authorized User	Jongkook Park
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment Submitted/Entered with Filing of Continued Prosecution Application (CPA)/Request for Continued Examination(RCE)	BSV-012-Response-FR.pdf	149859 76b03e112ad7ea1bb0cba359abf7909a79200f2e	no	12
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	RCE-BSV-012.pdf	1349929 35468a96bd4dacb233ebc7a03361f4fc5457f342	no	3
Warnings:					
Information:					
3	Extension of Time	BSV-012-Petition-Extension.pdf	165812 6890a7a10c83f4fbe2578ea3215c4315e363323f	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	40775 d14fe9d4364f2ed1f40f44283b3ab74e47761748	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1706375		

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

Applicant(s)	Sheha et al.	Examiner	Butler, Rodney Allen
Serial No.	17/322,839	Group Art No.	3666
Filed	May 17, 2021	Confirmation No.	8783
For	Method and System for Dynamic Estimation and Predictive Route Generation		

May 14, 2022

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

AMENDMENT AND REPLY FILED WITH REQUEST FOR CONTINUED EXAMINATION (RCE)

An RCE is filed herewith. In response to the Final Office action dated November 16, 2021, and the Examiner Interview of December 14, 2021, Applicants make the following amendments to the claims and remarks. The amendments to the claims are reflected in the listing of claims that begins on page 2 of this paper. The remarks begin on page 11 of this paper.

In the Claims:

Claims 1-39. Cancelled

40. (New) A computer program product of a navigation system for dynamically calculating and displaying multiple travel routes for a mobile device and for tracking the mobile device along the multiple travel routes, the navigation system including the mobile device and one or more servers, the computer program product comprising a non-transitory computer readable medium including computer instructions that when executed by at least one processor of the navigation system cause the navigation system to:

provide a graphical user interface (GUI) on a display of the mobile device;

enable a user of the mobile device to, using the GUI, specify a destination location; and

as the mobile device travels to the destination location,

(i) receive a first location update signal generated by a positioning device of the mobile device, the positioning device including a GPS receiver, and the first location update signal representing a first location of the mobile device at a first time,

(ii) automatically calculate, using map data, the destination location and at least the first location update, a first possible route of travel of the mobile device from the first location towards the destination location and a second possible route of travel of the mobile device from the first location towards the destination location, the first possible route of travel including a first roadway intersection and the second route of travel including the first roadway intersection,

(iii) cause the GUI to display a graphical representation of a map together with a graphical representation of the first possible route of travel and a graphical representation of the second possible route of travel on segments of roadways of the graphical representation of the map,

(iv) receive a second location update generated by the positioning device of the mobile device, the second location update representing a second location of the mobile device at a second time after the first time,

(v) automatically calculate, using the map data and at least the first location update and the second location update, a first estimated route of travel of the mobile device from the first location to the second location,

(vi) determine whether the first estimated route of travel includes the first roadway intersection, whether the first possible route of travel includes the second location, and whether the second possible route of travel includes the second location,

(vii) if the first estimated route of travel is determined to include the first roadway intersection, the first possible route of travel is determined to include the second location, and the second possible route of travel is determined to not include the second location, automatically cause the GUI to continue to display the graphical representation of the map together with the graphical representation of the first possible route of travel and automatically cause the GUI to no longer display the graphical representation of the second possible route of travel,

(viii) if the first estimated route of travel is determined to include the first roadway intersection, the first possible route of travel is determined to not include the second location, and the second possible route of travel is determined to include the second location, automatically cause the GUI to continue to display the graphical representation of the map together with the graphical representation of the second possible route of travel and automatically cause the GUI to no longer display the graphical representation of the first possible route of travel,

(ix) automatically calculate, using map data, the destination location and at least the second location update, a third possible route of travel of the mobile device from the second location towards the destination location and a fourth possible route of travel of the mobile device from the second location towards the destination location, the second possible route of travel including a second roadway intersection and the third route of travel including the first roadway intersection,

(x) cause the GUI to display the graphical representation of the map together with a graphical representation of the third possible route of travel and a graphical representation of the fourth possible route of travel on segments of roadways of the graphical representation of the map,

(xi) receive a third location update generated by the positioning device of the mobile device, the third location update representing a third location of the mobile device at a third time after the second time,

(xii) automatically calculate, using the map data and at least the second location update and the third location update, a second estimated route of travel of the mobile device from the second location to the third location,

(xiii) determine whether the second estimated route of travel includes the second roadway intersection, whether the third possible route of travel includes the third location, and whether the fourth possible route of travel includes the third location,

(xiv) if the second estimated route of travel is determined to include the second roadway intersection, the third possible route of travel is determined to include the third location, and the fourth possible route of travel is determined to not include the third location, automatically cause the GUI to continue to display the graphical representation of the map together with the graphical representation of the third possible route of travel and

automatically cause the GUI to no longer display the graphical representation of the fourth possible route of travel,

(xv) if the second estimated route of travel is determined to include the second roadway intersection, the third possible route of travel is determined to not include the third location, and the fourth possible route of travel is determined to include the third location, automatically cause the GUI to continue to display the graphical representation of the map together with the graphical representation of the fourth possible route of travel and automatically cause the GUI to no longer display the graphical representation of the third possible route of travel.

41. (New) The computer program product of claim 40, wherein first possible route of travel, the second possible route of travel, the third possible route of travel, and the fourth possible route of travel are calculated by the mobile device.

42. (New) The computer program product of claim 40, wherein first possible route of travel, the second possible route of travel, the third possible route of travel, and the fourth possible route of travel are calculated by the one or more servers.

43. (New) The computer program product of claim 40, wherein first estimated route of travel and the second estimated route of travel are calculated by the mobile device.

44. (New) The computer program product of claim 40, wherein first estimated route of travel and the second estimated route of travel are calculated by the one or more servers.

45. (New) The computer program product of claim 40, wherein the first estimated route of travel is an actual route traveled by the mobile device from the first location to the second location along a known network of road paths and the second estimated route of travel is an actual route traveled by the mobile device from the second location to the third location along the known network of road paths.

46. (New) The computer program product of claim 40, wherein the mobile device corresponds to a preferred service provider and wherein the non-transitory computer readable medium further includes computer instructions that when executed by the at least one processor of the computing system cause the computing system to:

designate, based on a determined distance between the preferred service provider and the destination location, a determined estimated time of arrival at the destination location of the preferred service provider, and a vehicle type of the preferred service provider, one of a plurality of available service providers as the preferred service provider to provide a service for a customer.

47. (New) The computer program product of claim 40, wherein the third location is the destination location.

48. (New) A method for dynamically calculating and displaying multiple travel routes for a mobile device and for tracking the mobile device along the multiple travel routes, the method performed by a navigation system including the mobile device and one or more servers, the computer program product comprising a non-transitory computer readable medium including computer instructions that when executed by at least one processor of the navigation system cause the navigation system to:

providing a graphical user interface (GUI) on a display of a mobile device, the GUI enabling a user of the mobile device to specify a destination location; and

as the mobile device travels to the destination location,

(i) receiving a first location update signal generated by a positioning device of the mobile device, the positioning device including a GPS receiver, and the first location update signal representing a first location of the mobile device at a first time,

(ii) automatically calculating, using map data, the destination location and at least the first location update, a first possible route of travel of the mobile device from the first location towards the destination location and a second possible route of travel of the mobile device from the first location towards the destination location, the first possible route of travel including a first roadway intersection and the second route of travel including the first roadway intersection,

(iii) causing the GUI to display a graphical representation of a map together with a graphical representation of the first possible route of travel and a graphical representation of the second possible

route of travel on segments of roadways of the graphical representation of the map,

(iv) receiving a second location update generated by the positioning device of the mobile device, the second location update representing a second location of the mobile device at a second time after the first time,

(v) automatically calculating, using the map data and at least the first location update and the second location update, a first estimated route of travel of the mobile device from the first location to the second location,

(vi) determining whether the first estimated route of travel includes the first roadway intersection, whether the first possible route of travel includes the second location, and whether the second possible route of travel includes the second location,

(vii) if the first estimated route of travel is determined to include the first roadway intersection, the first possible route of travel is determined to include the second location, and the second possible route of travel is determined to not include the second location, automatically causing the GUI to continue to display the graphical representation of the map together with the graphical representation of the first possible route of travel and automatically causing the GUI to no longer display the graphical representation of the second possible route of travel,

(viii) if the first estimated route of travel is determined to include the first roadway intersection, the first possible route of travel is determined to not include the second location, and the second possible route of travel is determined to include the second location, automatically causing the GUI to continue to display the graphical representation of the map together with the graphical representation of the second possible route of travel and

automatically causing the GUI to no longer display the graphical representation of the first possible route of travel,

(ix) automatically calculating, using map data, the destination location and at least the second location update, a third possible route of travel of the mobile device from the second location towards the destination location and a fourth possible route of travel of the mobile device from the second location towards the destination location, the second possible route of travel including a second roadway intersection and the third route of travel including the first roadway intersection,

(x) causing the GUI to display the graphical representation of the map together with a graphical representation of the third possible route of travel and a graphical representation of the fourth possible route of travel on segments of roadways of the graphical representation of the map,

(xi) receiving a third location update generated by the positioning device of the mobile device, the third location update representing a third location of the mobile device at a third time after the second time,

(xii) automatically calculating, using the map data and at least the second location update and the third location update, a second estimated route of travel of the mobile device from the second location to the third location,

(xiii) determining whether the second estimated route of travel includes the second roadway intersection, whether the third possible route of travel includes the third location, and whether the fourth possible route of travel includes the third location,

(xiv) if the second estimated route of travel is determined to include the second roadway intersection, the third possible route of travel is determined to include the third location, and the fourth possible route of travel is determined to not include the third location,

automatically causing the GUI to continue to display the graphical representation of the map together with the graphical representation of the third possible route of travel and automatically causing the GUI to no longer display the graphical representation of the fourth possible route of travel,

(xv) if the second estimated route of travel is determined to include the second roadway intersection, the third possible route of travel is determined to not include the third location, and the fourth possible route of travel is determined to include the third location, automatically causing the GUI to continue to display the graphical representation of the map together with the graphical representation of the fourth possible route of travel and automatically causing the GUI to no longer display the graphical representation of the third possible route of travel.

49. (New) The method of claim 48, wherein first possible route of travel, the second possible route of travel, the third possible route of travel, and the fourth possible route of travel are calculated by the mobile device.

50. (New) The method of claim 48, wherein first possible route of travel, the second possible route of travel, the third possible route of travel, and the fourth possible route of travel are calculated by one or more servers remote from the mobile device.

51. (New) The method of claim 48, wherein first estimated route of travel and the second estimated route of travel are calculated by the mobile device.

52. (New) The method of claim 48, wherein first estimated route of travel and the second estimated route of travel are calculated by one or more servers remote from the mobile device.

53. (New) The method of claim 48, wherein the first estimated route of travel is an actual route traveled by the mobile device from the first location to the second location along a known network of road paths and the second estimated route of travel is an actual route traveled by the mobile device from the second location to the third location along the known network of road paths.

54. (New) The method of claim 48, wherein the mobile device corresponds to a preferred service provider and wherein the method further comprises:

designating, based on a determined distance between the preferred service provider and the destination location, a determined estimated time of arrival at the destination location of the preferred service provider, and a vehicle type of the preferred service provider, one of a plurality of available service providers as the preferred service provider to provide a service for a customer.

55. (New) The method of claim 48, wherein the third location is the destination location.

Remarks

Upon the filing of this response, claim 1-39 are cancelled and new claims 40-55 are pending. Applicants submit that no new matter has been added and that the claims as currently presented have support in the application as originally filed, including, for example, at page 31, line 3 through page 33, line 18, and Figures 8-14.

In the Office action dated November 16, 2021, the Examiner rejected claims 1-9 and 19-39 under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The Examiner also rejected claims 1-9 and 19-39 under 35 U.S.C. 101 as being "directed to a judicial exception without significantly more." Also, during the Examiner Interview of December 14, 2021, Applicants' representative inquired about ways to amend claims 1-9 and 19-39 to overcome the rejection under 35 U.S.C. 101, and in response, the Examiner suggested amending the claims to recite a practical application and/or the inventive/novel concept. The Examiner also indicated that amending the claims would require further search and consideration by the Examiner.

Although Applicants disagree with the Examiner's positions, all of the rejections in the Office action are rendered moot by the instant amendment. And, concerning 35 U.S.C. 101, Applicants submit that pending claims 40-55 clearly set forth a "practical application and inventive/novel concept." For example, claim 40 is directed to a computer program product of a navigation system for dynamically calculating and displaying multiple travel routes for a mobile device and for tracking the mobile device along the multiple travel routes, and recites inventive/novel details associated with that practical application.

Conclusion

In view of the foregoing, Applicants submit that new claims 40-55 are in condition for allowance. The Examiner is invited to contact the Applicants' undersigned attorney if any unresolved matters remain with respect to the present application. The Commissioner is hereby authorized to charge any fee deficiency or credit any fee payment to Deposit Account No. 506825.

By: /Jongkook Park/
Jongkook Park, Reg. No.: 58,840

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/322,839	Filing Date 05/17/2021	☐ 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 $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	05/14/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 16	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

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

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

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

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

133855 7590 12/17/2021

Jongkook Park
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Fairfax, VA 22030

EXAMINER	
BUTLER, RODNEY ALLEN	

ART UNIT	PAPER NUMBER
3666	

NOTIFICATION DATE	DELIVERY MODE
12/17/2021	ELECTRONIC

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

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

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

jpark@bluestoneip.com
jpark@hyunusa.com
jwyoo@giplaw-korea.com

Applicant-Initiated Interview Summary	**Application No.** 17/322,839	**Applicant(s)** Sheha et al.		
	Examiner RODNEY A BUTLER	**Art Unit** 3666	**AIA (First Inventor to File) Status** No	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
RODNEY A BUTLER	Primary Examiner	Telephonic
Bruce Bernstein	Attorney of Record	

Date of Interview: 14 December 2021

Issues Discussed:

35 U.S.C. 101

An applicant inquired about ways to amend the claims to overcome the 101 rejection. The examiner suggested amending the claim(s) to recite a practical application and/or the inventive/novel concept.

The applicant was informed that amending the claim(s) would require further search and consideration by the examiner.

/RODNEY A BUTLER/ Primary Examiner, Art Unit 3666	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

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

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

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Jongkook Park
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Courtesy Reminder for
Application Serial No: 17/322,839

Attorney Docket No: BSV-012
Customer Number: 133855
Date of Electronic Notification: 11/16/2021

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

jwyoo@giplaw-korea.com
jpark@hyunusa.com
jpark@bluestoneip.com

To view your correspondence online or update your email addresses, please visit us anytime at **https://ppair-my.uspto.gov/pair/PrivatePair.**
If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

133855 7590 11/16/2021

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EXAMINER	
BUTLER, RODNEY ALLEN	

ART UNIT	PAPER NUMBER
3666	

NOTIFICATION DATE	DELIVERY MODE
11/16/2021	ELECTRONIC

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

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

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

jpark@bluestoneip.com
jpark@hyunusa.com
jwyoo@giplaw-korea.com

Office Action Summary	Application No. 17/322,839	Applicant(s) Sheha et al.	
	Examiner RODNEY A BUTLER	Art Unit 3666	AIA (FITF) Status No

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 10/23/2021.

☐ 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) 1-9 and 19-39 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) 1-9 and 19-39 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: _____.

DETAILED ACTION

Status of the Application

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

Status of the Claims

2. This action is in response to the applicant's filing on October 23, 2021. Claims 1 – 3, 6 and 7 have been amended, claims 10 – 18 have been canceled, and claims 19 - 39 have been added. Thus, claims 1 – 9 and 19 – 39 are pending and examined below.

Response to Arguments

3. Applicant's arguments filed October 23, 2021 have been fully considered but they are not persuasive. The examiner maintains that the 35 U.S.C. 101 rejection is proper as reiterated herein below, based on the new and amended claims.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

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

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make

and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1 – 9 and 19 – 39 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention.

For instance, in claim 1, applicant recites "each of the plurality of service providers having at least a first characteristic and a second characteristic". (Emphasis added.) These features, i.e. the first and second characteristics, are not disclosed in the specification, so it is unclear what applicant means by "each of the plurality of service providers having at least a first characteristic and a second characteristic". In addition, applicant's response arguments filed on October 23rd 2021, do not cite to a location where this *new* limitation is found or supported in the drawings or specification. Clarification is required.

Likewise, in claims 23 and 32, applicant recites "maintaining at the computing system one or more characteristics of the service provider". This feature is also not disclosed in the specification, so it is unclear what applicant means by "maintaining at the computing system one or more characteristics of the service provider". In addition, applicant's response arguments filed on October 23rd 2021, do not cite to a location where this *new* limitation is found or supported in the drawings or specification. Clarification is required.

Any claims not specifically mentioned herein above, but nonetheless rejected as failing to comply with the written description requirement, are rejected for incorporating the errors of their respective base claims by dependency.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

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

7. Claims 1 – 9 and 19 – 39 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception without significantly more. The following rejection is based on the 2019 Revised Patent Subject Matter Eligibility Guidance. (See 84 Fed. Reg. 50 (Jan. 7, 2019).

Statutory Category

Do claims 1, 23 and 32 fall into one of four of the statutory categories? **Yes.** The preamble of claims 1, 23 and 32 recite a method, and the body of the claims 1, 23 and 32 positively recite a series of method steps. Therefore, claims 1, 23 and 32 are directed to a process.

Step 2A – Prong 1

Does claim 1 recite a judicial exception? **Yes**. The claim recite the limitations of determining, for each of the plurality of service providers and using at least the first data and the second data, at least one of a distance between the service provider and the destination location and an estimated time of arrival of the service provider at the destination location, designating a subset of the plurality of service providers based on

at least the first characteristics of the plurality of service providers, and selecting, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer using at least one of (i) the determined distances between the service providers in the subset of the plurality of service providers and the destination location, (ii) the determined estimated times of arrival at the destination location of the service providers in the subset of the plurality of service providers, and (iii) the second characteristics of the service providers in the subset of the plurality of service providers. The determining, designating and selecting limitations, as drafted, are processes that, under their broadest reasonable interpretation, cover performances of the limitations in the mind but for the recitation of a generic computer system. That is, other than reciting "a method performed by a computing system" nothing in the claim precludes the determining, designating and selecting steps from practically being performed in the human mind or visually. For example, but for the "a method performed by a computing system" language, the claim encompasses the user manually or visually performing the determining, designating and selecting steps. As a result, these limitations are mental processes.

Do claims 7 and 28 recite a judicial exception? **Yes**. Claims 7 and 28 recite the limitation of calculating, in real-time by the computing system, estimated routes between the subset of the plurality of service providers and the destination location. The calculating limitation, as drafted, is a process that, under its broadest reasonable interpretation, covers a performance of the limitation in the mind but for the recitation of a generic computer system. That is, other than reciting "in real-time by the computing

system" nothing in the claim precludes the calculating step from practically being performed in/using the human mind. For example, but for the "in real-time by the computing system" language, the claim encompasses the user manually performing the calculating step. As a result, this limitation is mental process.

Do claims 21 and 24 recite a judicial exception? **Yes**. Claims 21 and 24 recite the limitation of calculating, using map data, a route from the service provider to the destination location, wherein, for each of the service providers in the subset of the plurality of service providers, the determined distance between the service provider and the destination location and the determined estimated time of arrival of the service provider at the destination location are determined by the computing system using the second data, at least a portion of the first data, and the route for the service provider. The calculating and determining limitations, as drafted, are processes that, under their broadest reasonable interpretation, cover performances of the limitations in the mind but for the recitation of a generic computer system. That is, other than reciting "by the computing system" nothing in the claim precludes the calculating and determining steps from practically being performed in the human mind or visually. For example, but for the "by the computing system" language, the claim encompasses the user manually performing the calculating and determining steps. As a result, these limitations are mental processes.

Do claims 22 and 25 recite a judicial exception? **Yes**. Claims 22 and 25 recite the limitation of calculating, using map data and one or more route preferences for the

service provider, a route from the service provider to the destination location, wherein, for each of the service providers in the subset of the plurality of service providers, the determined distance between the service provider and the destination location and the determined estimated time of arrival of the service provider at the destination location are determined by the computing system using the second data, at least a portion of the first data, and the route for the service provider. The calculating and determining limitations, as drafted, are processes that, under their broadest reasonable interpretation, cover performances of the limitations in the mind but for the recitation of a generic computer system. That is, other than reciting "by the computing system" nothing in the claim precludes the calculating and determining steps from practically being performed in the human mind or visually. For example, but for the "by the computing system" language, the claim encompasses the user manually performing the calculating and determining steps. As a result, these limitations are mental processes.

Does claim 23 recite a judicial exception? **Yes**. The claim recite the limitation of designating, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer based on at least the one or more characteristics of the preferred service provider and at least one of the determined distance between the preferred service provider and the destination location and the determined estimated time of arrival of the preferred service provider at the destination location. The designating limitation, as drafted, is a process that, under its broadest reasonable interpretation, covers a performance of the limitation in the mind but for the recitation of a generic computer system. That is, other than reciting "a method

performed by a computing system" nothing in the claim precludes the designating step from practically being performed in the human mind or visually. For example, but for the "a method performed by a computing system" language, the claim encompasses the user manually or visually performing the designating step. As a result, this limitation is mental process.

Does claim 32 recite a judicial exception? **Yes**. The claim recite the limitation of designating, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer based on at least the one or more characteristics of the preferred service provider, map data, and the one or more route preferences for the preferred service provider. The designating limitation, as drafted, is a process that, under its broadest reasonable interpretation, covers a performance of the limitation in the mind but for the recitation of a generic computer system. That is, other than reciting "a method performed by a computing system" nothing in the claim precludes the designating step from practically being performed in the human mind or visually. For example, but for the "a method performed by a computing system" language, the claim encompasses the user manually or visually performing the designating step. As a result, this limitation is mental process.

Do claim 33 – 35 recite a judicial exception? **Yes**. Claim 33 recite the limitation of calculating, using the map data and the one or more route preferences for the service provider, an estimated route from the service provider to the destination location, wherein, the preferred service provider is designated from the subset of the plurality of

service providers based on the one or more characteristics of the preferred service provider and the estimated route from the preferred service provider to the destination location. Claim 34 recite the limitation of calculating, in real-time using the map data and the one or more route preferences for the service provider, a route from the service provider to the destination location, wherein, the preferred service provider is designated from the subset of the plurality of service providers based on the one or more characteristics of the preferred service provider and the route from the preferred service provider to the destination location. Claim 35 recite the limitation of calculating, using the map data, current position information for the mobile device corresponding to the service provider, and the one or more route preferences for the service provider, a route from the service provider to the destination location, wherein, the preferred service provider is designated from the subset of the plurality of service providers based on the one or more characteristics of the preferred service provider and the route from the service provider to the destination location. The calculating and designating limitations, as drafted, are processes that, under their broadest reasonable interpretation, cover performances of the limitations in the mind but for the recitation of a generic computer system. That is, other than reciting “by a computing system” in base claim 32 nothing in the claims preclude the calculating and designating steps from practically being performed in the human mind or visually. For example, but for the “by a computing system” language in base claim 32, claims 33 – 35 encompass the user manually performing the calculating and designating steps. As a result, these limitations are mental processes.

Step 2A – Prong 2

Does claim 1 integrate the judicial exception into a practical application? **No**. Claim 1 recites two additional elements: receiving first data comprising a plurality of location updates from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers, each of the plurality of service providers having at least a first characteristic and a second characteristic, and each of the plurality of location updates representing a location of a respective one of the plurality of service providers at a particular time, and receiving second data representing a destination location. The computing system in both steps is recited at a high level of generality, i.e., as a generic computing system performing a generic computer function of receiving data. This generic computing functions of receiving first and second data have been identified by the Court as a form of insignificant extra-solution activity and amounts to no more than mere instructions to apply the exception using a generic computing system. Accordingly, these additional elements do not integrate the abstract idea into a practical application because they do not impose any meaningful limits on practicing the abstract idea. Thus, claim 1 is directed to the abstract idea.

Do claims 7, 21, 22, 24, 25, 28 and 33 – 35 integrate the judicial exception into a practical application? **No**. Claims 7, 21, 22, 24, 25, 28 and 33 – 35 do not recite any additional elements.

Does claim 23 integrate the judicial exception into a practical application? **No**. Claim 23 recites three additional elements: receiving first data from a plurality of mobile devices, each of the plurality of mobile devices being remote from the computing system, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers, and the first data representing locations of the plurality of mobile devices; receiving second data representing a destination location; and for each service provider in a subset of the plurality of service providers, maintaining at the computing system one or more characteristics of the service provider and at least one of a determined distance between the service provider and the destination location and a determined estimated time of arrival of the service provider at the destination location, wherein the determined distance and the determined estimated time of arrival are determined by the computing system using the second data and at least a portion of the first data. The computing system in each step is recited at a high level of generality, i.e., as a generic computing system performing a generic computer function of receiving data and maintaining at the computing system one or more characteristics of the service provider. The generic computing functions of receiving first and second data have been identified by the Court as a form of insignificant extra-solution activity and amounts to no more than mere instructions to apply the exception using a generic computing system. The claimed maintaining step is considered to be recited at a high level of generality because it fails to specifically recite what or how the claimed one or more characteristics of the service provider are being maintained at the computing system. Accordingly, these additional elements do not integrate the abstract idea into a practical application

because they do not impose any meaningful limits on practicing the abstract idea. Thus, claim 23 is directed to the abstract idea.

Does claim 32 integrate the judicial exception into a practical application? **No**. Claim 32 recites two additional elements: receiving first data from a plurality of mobile devices, each of the plurality of mobile devices being remote from the computing system, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers, and the first data representing locations of the plurality of mobile devices; receiving second data representing a destination location; and for each service provider in a subset of the plurality of service providers, maintaining at the computing system one or more characteristics of the service provider and one or more route preferences for the service provider. The computing system in each step is recited at a high level of generality, i.e., as a generic computing system performing a generic computer function of receiving data and maintaining at the computing system one or more characteristics of the service provider. The generic computing functions of receiving first and second data have been identified by the Court as a form of insignificant extra-solution activity and amounts to no more than mere instructions to apply the exception using a generic computing system. The claimed maintaining step is considered to be recited at a high level of generality because it fails to specifically recite what or how the claimed one or more characteristics of the service provider are being maintained at the computing system. Accordingly, these additional elements do not integrate the abstract idea into a practical application because they do not impose any

meaningful limits on practicing the abstract idea. Thus, claim 32 is directed to the abstract idea.

Step 2B

Do claims 1, 23 and 32 provide an inventive concept? **No.** As discussed with respect to Step 2A Prong Two, the additional elements in these claims amount to no more than mere instructions to apply the exception using a generic computer system. The same analysis applies here in 2B, i.e., mere instructions to apply an exception using a generic computer system cannot integrate a judicial exception into a practical application at Step 2A or provide an inventive concept in Step 2B. Therefore, claims 1, 23 and 32 are ineligible.

Dependent claims 2 – 6, 8, 9, 19, 20, 26, 27, 29 – 31 and 36 – 39 are also ineligible because they do not include additional elements that are sufficient to amount to significantly more than the judicial exception. The additional elements provided in claims 2 – 6, 8, 9, 19, 20, 26, 27, 29 – 31 and 36 – 39 are either recited at a high level of generality or amount to mere data gathering/distributing, which is a form of insignificant extra-solution activity. Therefore, claims 1 – 9 and 19 – 39 are rejected under 35 U.S.C. § 101 as being directed to non- statutory subject matter.

Conclusion

8. 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.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RODNEY A. BUTLER whose telephone number is (313)446-6513. The examiner can normally be reached on weekdays, Monday through Friday, between 9 a.m. and 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Antonucci can be reached on weekdays, Monday through Friday, between 9 a.m. and 5 p.m. at (313) 446-6519. 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.

Electronic Communications

10. Prior to initiating the first e-mail correspondence with any examiner, Applicant is responsible for filing a written statement with the USPTO in accordance with MPEP §502.03 II. AJJ received e-mail messages including e-mail attachments shall be placed into this application's record.

/RODNEY A BUTLER/
Primary Examiner, Art Unit 3666

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	Art Unit
	RODNEY A BUTLER	3666

CPC - Searched*		
Symbol	**Date**	**Examiner**
G01C 21/367; 21/26, 21/30; 21/34; 21/3676; 19/42; 21/3617; 21/3415; 21/3626; 21/3469	07/23/2021	AA
G06Q 50/30	07/23/2021	AA
G01S 19/42	07/23/2021	AA
G08G 1/202	07/23/2021	AA

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

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

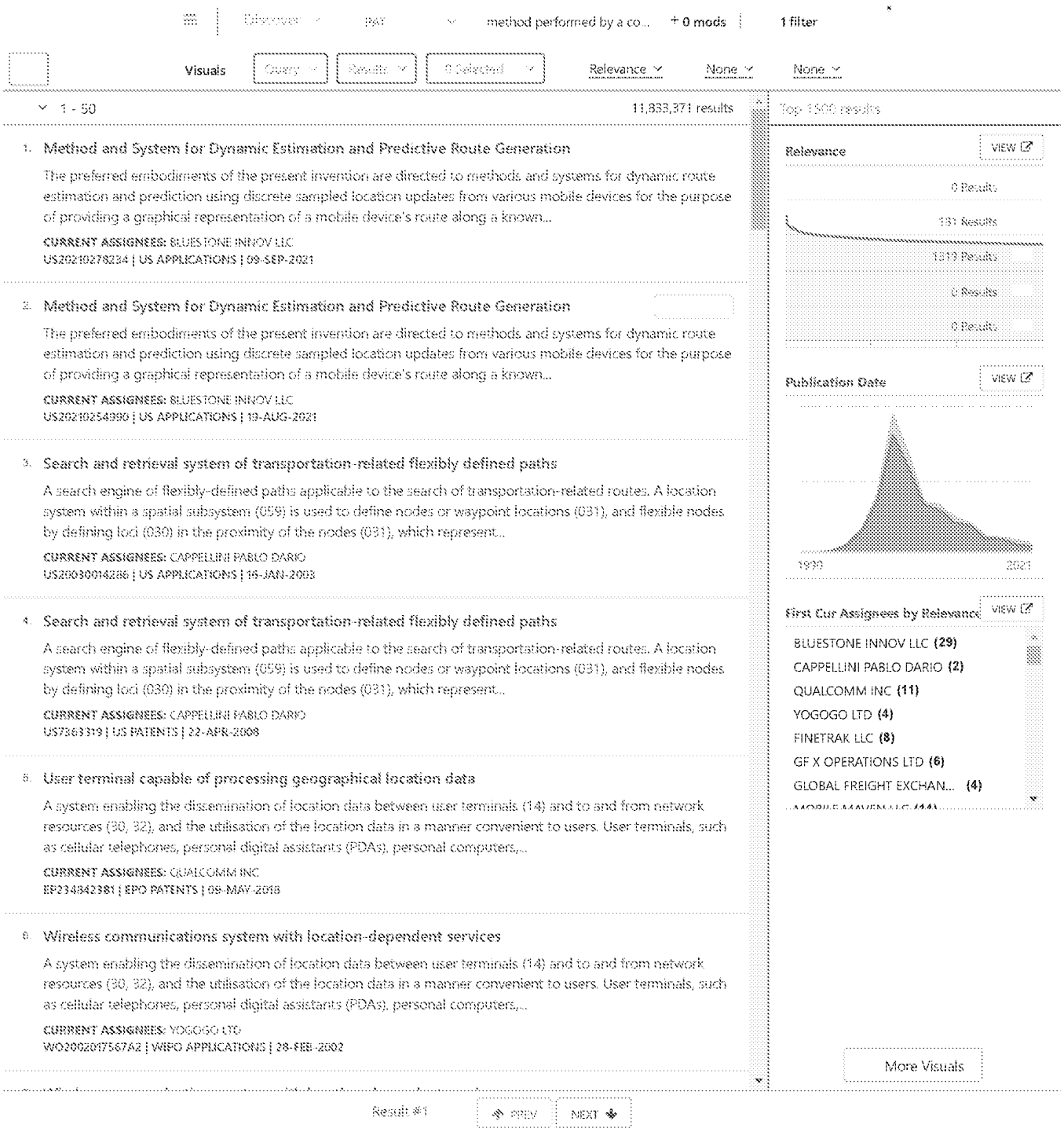
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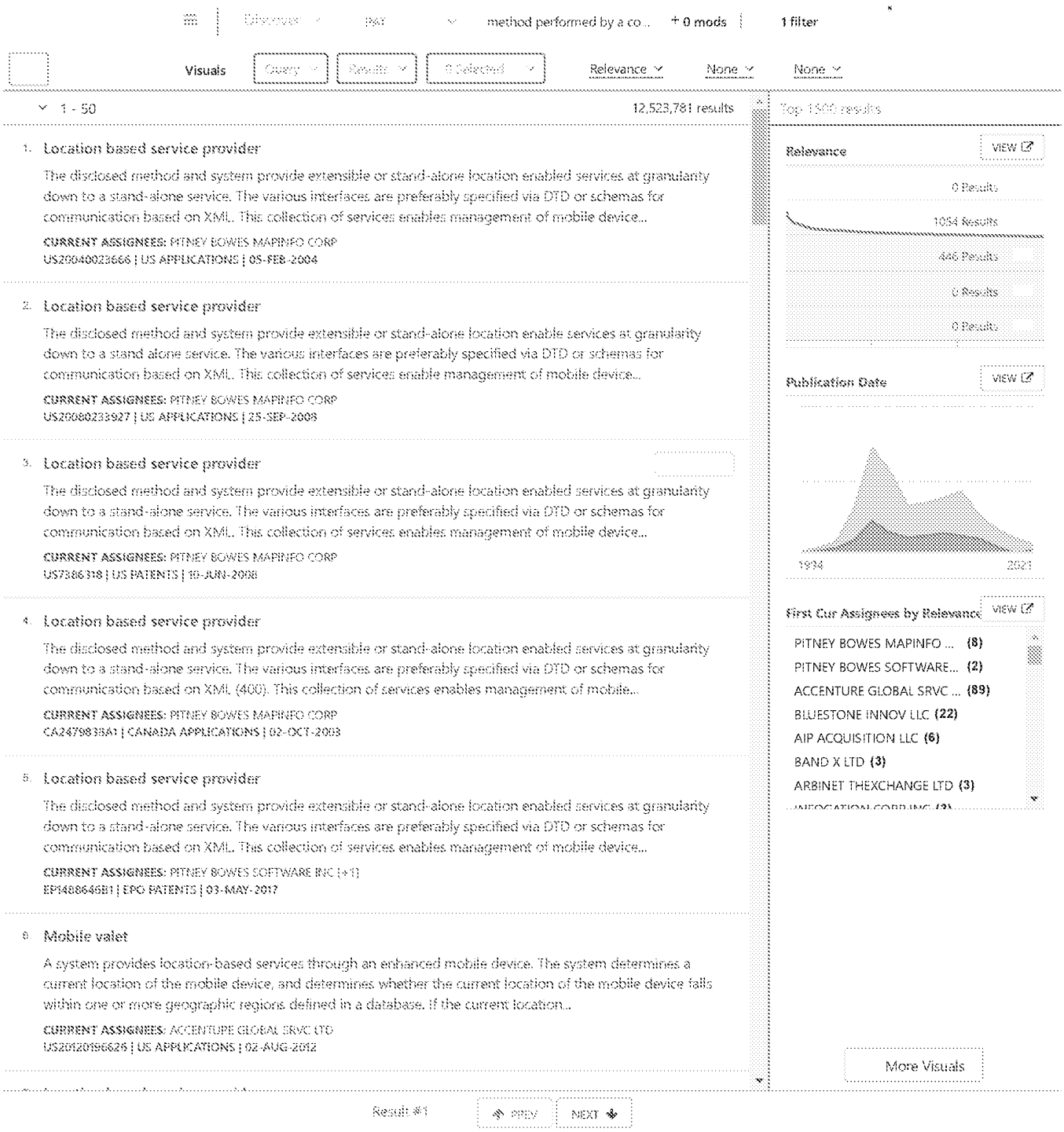
Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	Art Unit
	RODNEY A BUTLER	3666

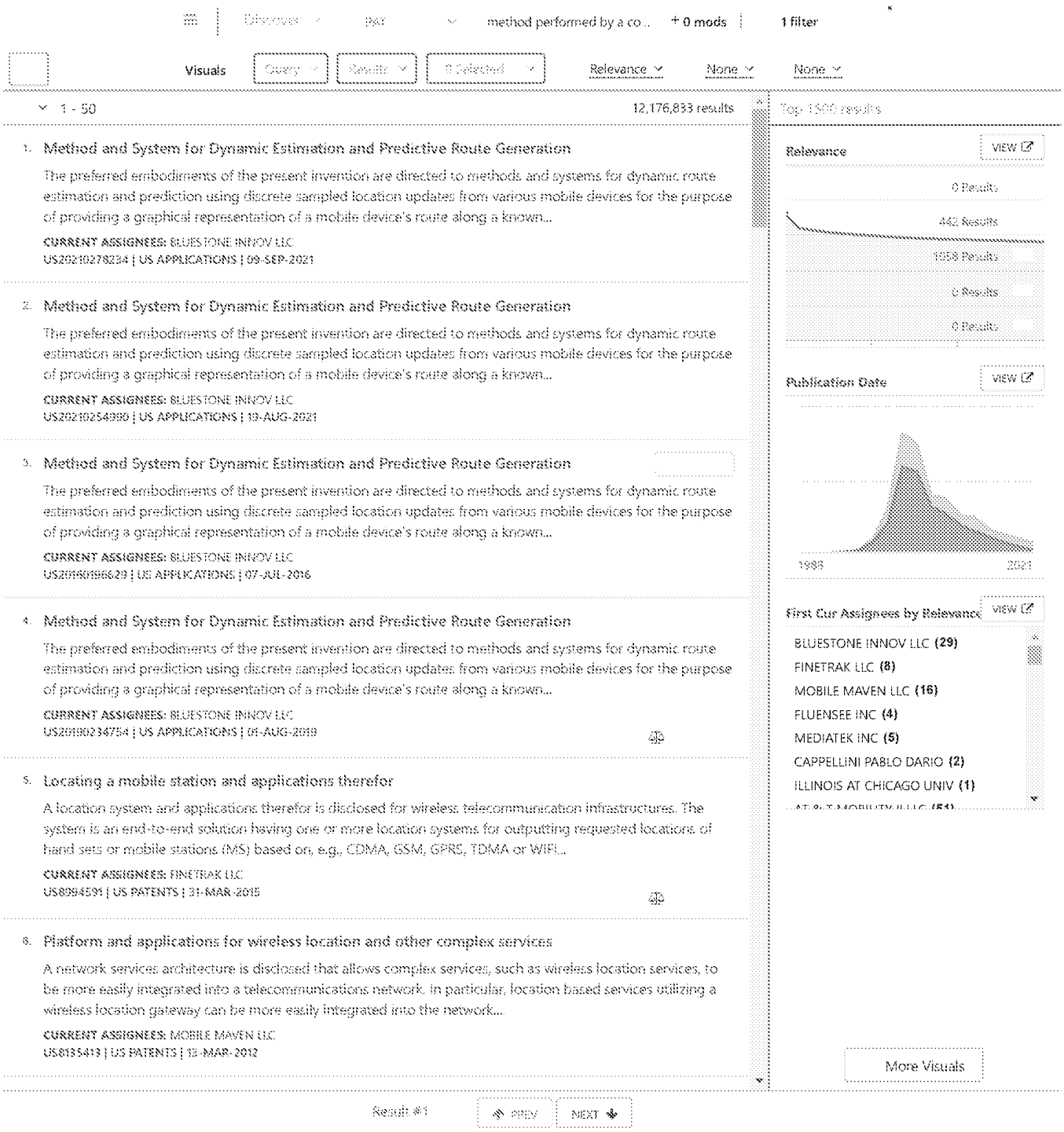
Search Notes		
Search Notes	**Date**	**Examiner**
G01C 21/367; 21/26, 21/30; 21/34; 21/3676; 19/42; 21/3617; 21/3415 ; 21/3626; 21/3469 (text limited)	07/23/2021	AA
G06Q 50/30 (text limited)	07/23/2021	AA
G01S 19/42 (text limited)	07/23/2021	AA
G08G 1/202 (text limited)	07/23/2021	AA
Inventor Name and Assignee search	07/23/2021	AA
IP.com Search	07/23/2021	AA
PE2E Search (keywords going to determining locations of a vehicle taxi fleet and determining best vehicle to provide transportation service)	07/23/2021	AA
review Parent Applications	07/23/2021	AA
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US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

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The preferred embodiments of the present invention are directed to methods and systems for dynamic route estimation and prediction using discrete sampled location updates from various mobile devices for the purpose of providing a graphical representation of a mobile device's route along a known...
CURRENT ASSIGNEES: BLUESTONE INNOV LLC
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2. Method and System for Dynamic Estimation and Predictive Route Generation
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CURRENT ASSIGNEES: BLUESTONE INNOV LLC
US20210254990 | US APPLICATIONS | 19-AUG-2021
3. Search and retrieval system of transportation-related flexibly defined paths
A search engine of flexibly-defined paths applicable to the search of transportation-related routes. A location system within a spatial subsystem (059) is used to define nodes or waypoint locations (031), and flexible nodes by defining loci (030) in the proximity of the nodes (031), which represent...
CURRENT ASSIGNEES: CAPPELLINI PABLO DARIO
US20030014286 | US APPLICATIONS | 16-JAN-2003
4. Search and retrieval system of transportation-related flexibly defined paths
A search engine of flexibly-defined paths applicable to the search of transportation-related routes. A location system within a spatial subsystem (059) is used to define nodes or waypoint locations (031), and flexible nodes by defining loci (030) in the proximity of the nodes (031), which represent...
CURRENT ASSIGNEES: CAPPELLINI PABLO DARIO
US7363319 | US PATENTS | 22-APR-2008
5. User terminal capable of processing geographical location data
A system enabling the dissemination of location data between user terminals (14) and to and from network resources (30, 32), and the utilisation of the location data in a manner convenient to users. User terminals, such as cellular telephones, personal digital assistants (PDAs), personal computers,...
CURRENT ASSIGNEES: QUALCOMM INC
EP2348842381 | EPO PATENTS | 09-MAY-2018
6. Wireless communications system with location-dependent services
A system enabling the dissemination of location data between user terminals (14) and to and from network resources (30, 32), and the utilisation of the location data in a manner convenient to users. User terminals, such as cellular telephones, personal digital assistants (PDAs), personal computers,...
CURRENT ASSIGNEES: YOGOGO LTD
WO2002017567A2 | WIPO APPLICATIONS | 28-FEB-2002
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1. Location based service provider
The disclosed method and system provide extensible or stand-alone location enabled services at granularity down to a stand-alone service. The various interfaces are preferably specified via DTD or schemas for communication based on XML. This collection of services enables management of mobile device...
CURRENT ASSIGNEES: PITNEY BOWES MAPINFO CORP
US20040023666 | US APPLICATIONS | 05-FEB-2004
2. Location based service provider
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3. Location based service provider
The disclosed method and system provide extensible or stand-alone location enabled services at granularity down to a stand-alone service. The various interfaces are preferably specified via DTD or schemas for communication based on XML. This collection of services enables management of mobile device...
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US7386318 | US PATENTS | 10-JUN-2008
4. Location based service provider
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CURRENT ASSIGNEES: PITNEY BOWES MAPINFO CORP
CA2479833A1 | CANADA APPLICATIONS | 02-OCT-2003
5. Location based service provider
The disclosed method and system provide extensible or stand-alone location enabled services at granularity down to a stand-alone service. The various interfaces are preferably specified via DTD or schemas for communication based on XML. This collection of services enables management of mobile device...
CURRENT ASSIGNEES: PITNEY BOWES SOFTWARE INC [+1]
EP1488646B1 | EPO PATENTS | 03-MAY-2017
6. Mobile valet
A system provides location-based services through an enhanced mobile device. The system determines a current location of the mobile device, and determines whether the current location of the mobile device falls within one or more geographic regions defined in a database. If the current location...
CURRENT ASSIGNEES: ACCENTURE GLOBAL SRVC LTD
US20120196626 | US APPLICATIONS | 02-AUG-2012
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1. Method and System for Dynamic Estimation and Predictive Route Generation
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2. Method and System for Dynamic Estimation and Predictive Route Generation
The preferred embodiments of the present invention are directed to methods and systems for dynamic route estimation and prediction using discrete sampled location updates from various mobile devices for the purpose of providing a graphical representation of a mobile device's route along a known...
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US20210254990 | US APPLICATIONS | 19-AUG-2021
3. Method and System for Dynamic Estimation and Predictive Route Generation
The preferred embodiments of the present invention are directed to methods and systems for dynamic route estimation and prediction using discrete sampled location updates from various mobile devices for the purpose of providing a graphical representation of a mobile device's route along a known...
CURRENT ASSIGNEES: BLUESTONE INNOV LLC
US20160198629 | US APPLICATIONS | 07-JUL-2016
4. Method and System for Dynamic Estimation and Predictive Route Generation
The preferred embodiments of the present invention are directed to methods and systems for dynamic route estimation and prediction using discrete sampled location updates from various mobile devices for the purpose of providing a graphical representation of a mobile device's route along a known...
CURRENT ASSIGNEES: BLUESTONE INNOV LLC
US20190234754 | US APPLICATIONS | 01-AUG-2019
5. Locating a mobile station and applications therefor
A location system and applications therefor is disclosed for wireless telecommunication infrastructures. The system is an end-to-end solution having one or more location systems for outputting requested locations of hand sets or mobile stations (MS) based on, e.g., CDMA, GSM, GPRS, TDMA or WIFI...
CURRENT ASSIGNEES: FINETRAK LLC
US8994591 | US PATENTS | 31-MAR-2015
6. Platform and applications for wireless location and other complex services
A network services architecture is disclosed that allows complex services, such as wireless location services, to be more easily integrated into a telecommunications network. In particular, location based services utilizing a wireless location gateway can be more easily integrated into the network...
CURRENT ASSIGNEES: MOBILE MAVEN LLC
US8135413 | US PATENTS | 13-MAR-2012
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MEDIATEK INC (5)
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Application Number * 17/322,839 *	Application/Control No. 17/322,839	Applicant(s)/Patent under Reexamination Sheha et al.	
	Examiner ANTONUCCI, ANNE MARIE	Art Unit 3666	

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Date Filed: **23 October 2021**	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:

/FELICIA D ROBERTS/

Technology Center: OPLC

Telephone: (571)272-0550

2 TDs approved with this filing date

PTO/AIA/26 (04-14)
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In re Application of: SHEA et at.

Application No.: 17/322,839

Filed: 05/17/2021

For: Method and System for Dynamic Estimation and Predictive Route Generation

The applicant, Bluestone Ventures, Inc., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 9,921,077 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

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is held unenforceable;
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I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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/Jongkook Park/ — Signature
10/23/2021 — Date

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This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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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.

PTO/AIA/26 (04-14)
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TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) BSV-012

In re Application of: SHEA et at.

Application No.: 17/322,839

Filed: 05/17/2021

For: Method and System for Dynamic Estimation and Predictive Route Generation

The applicant, Bluestone Ventures, Inc., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. 10,502,583 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☑ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☐ The undersigned is an attorney or agent of record. Reg. No._____

/Jongkook Park/	10/23/2021
Signature	Date
Jongkook Park	
Typed or printed name	
Chief Executive Officer	202-318-0172
Title	Telephone Number

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

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

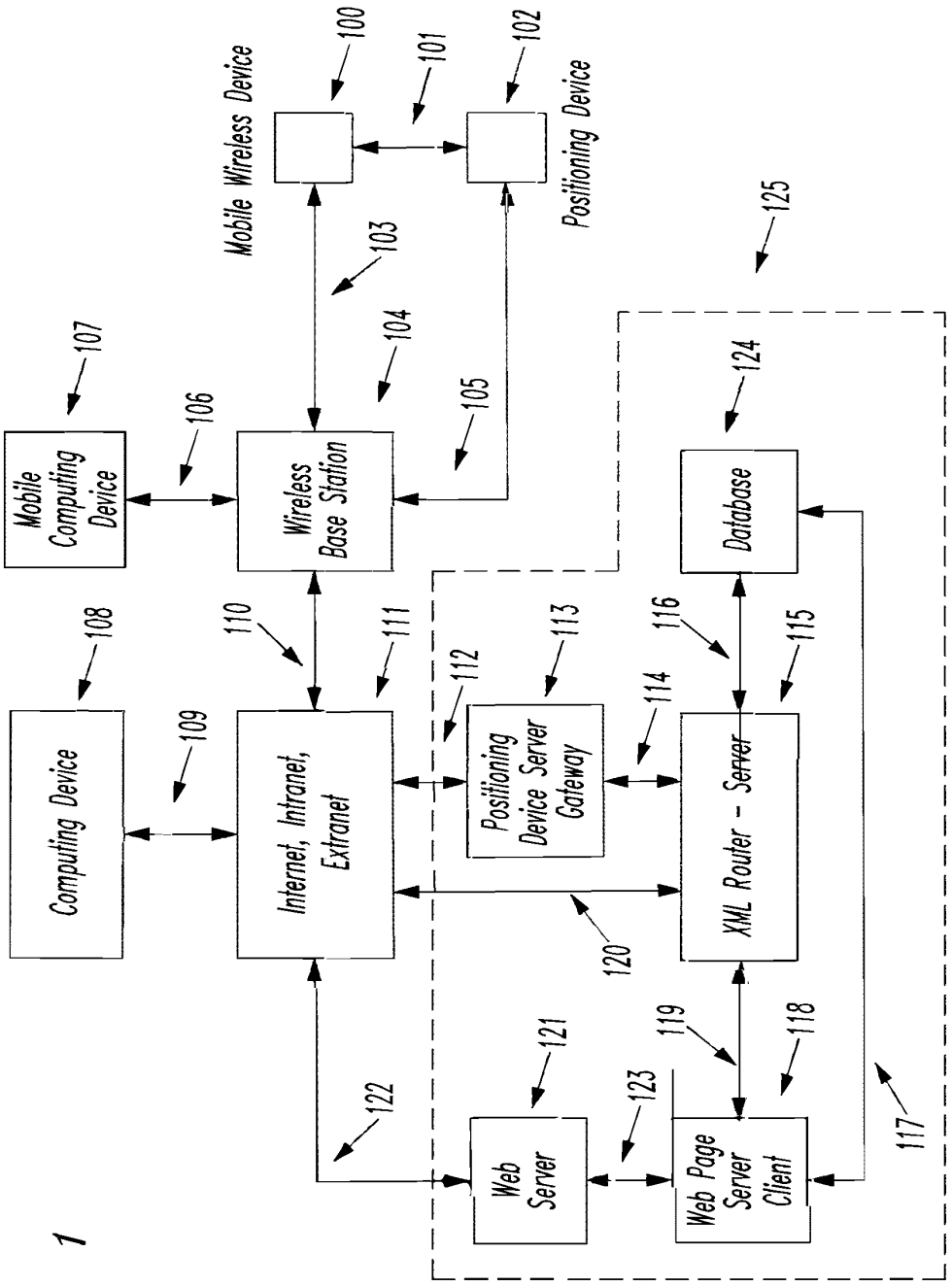

Mobile Wireless Device
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Positioning Device
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104
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106
107
Mobile Computing Device
Wireless Base Station
125
124
Database
108
Computing Device
109
110
111
Internet, Intranet, Extranet
112
113
Positioning Device Server Gateway
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116
115
XML Router - Server
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121
122
123
119
118
Web Server
Web Page Server Client
117

FIG. 1

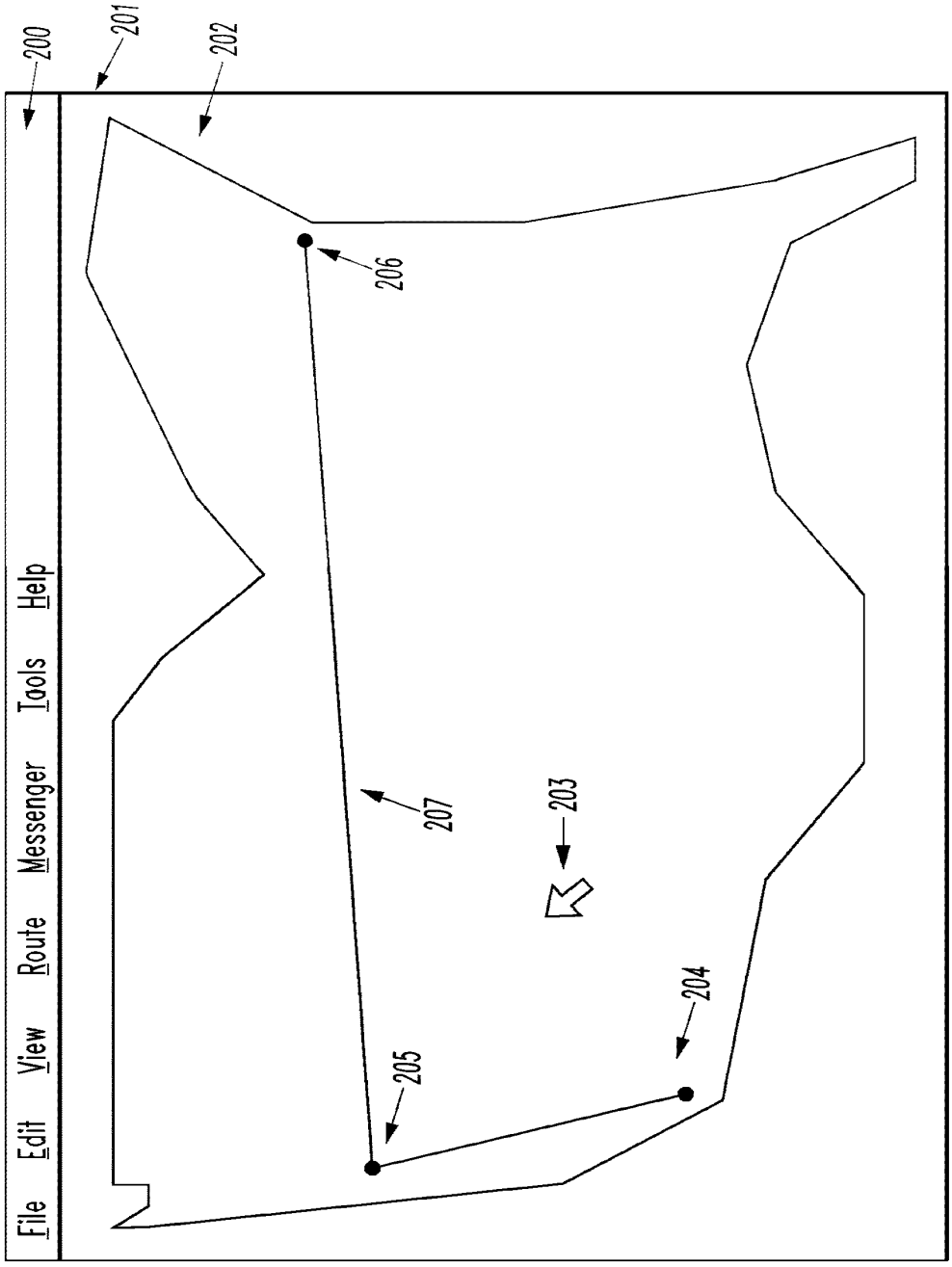

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FIG. 2

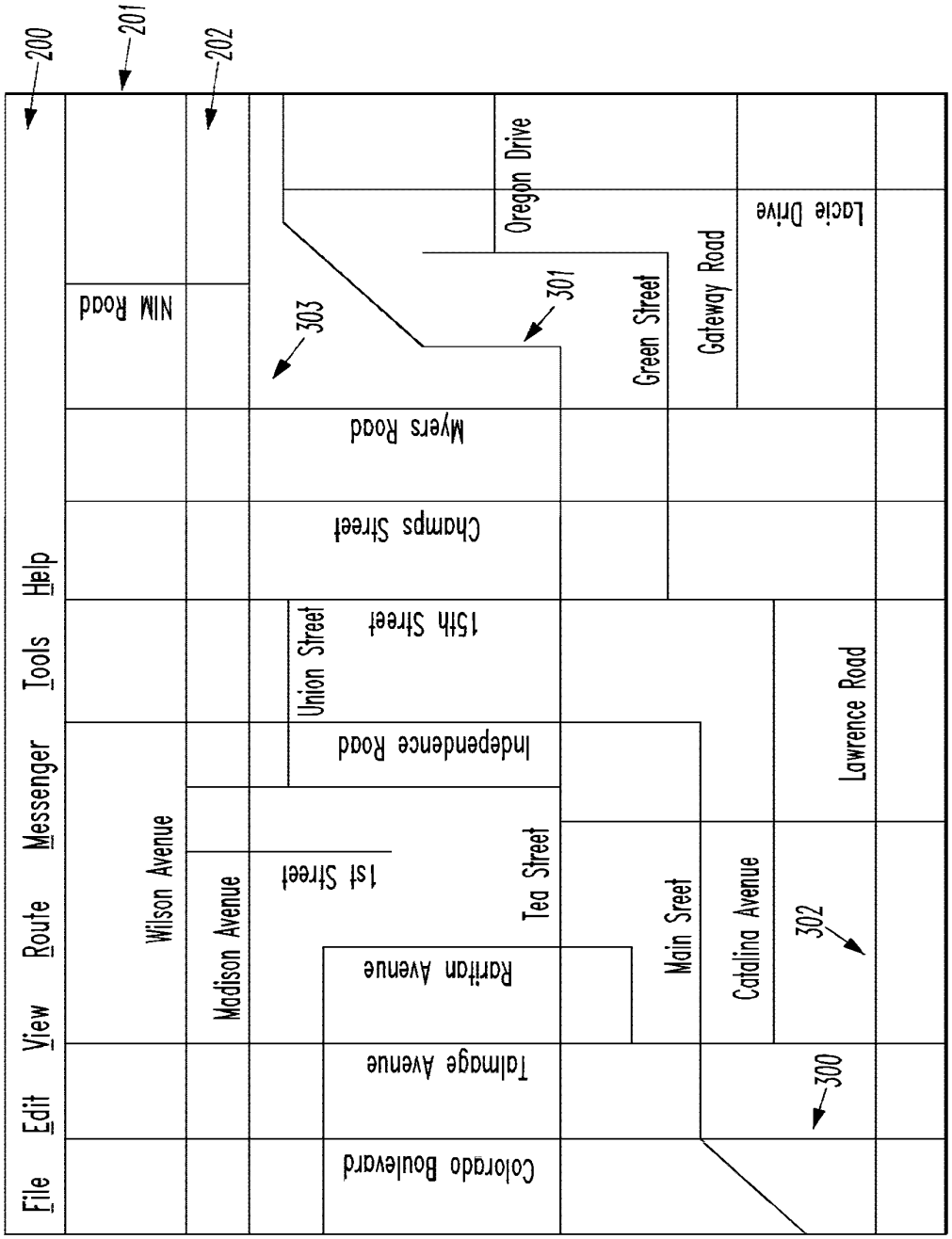

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Talmage Avenue
Raritan Avenue
1st Street
Tea Street
Independence Road
Union Street
15th Street
Champs Street
Myers Road
303
301
Oregon Drive
Green Street
Gateway Road
Lacie Drive
Main Sreet
Catalina Avenue
Lawrence Road
302
300

FIG. 3

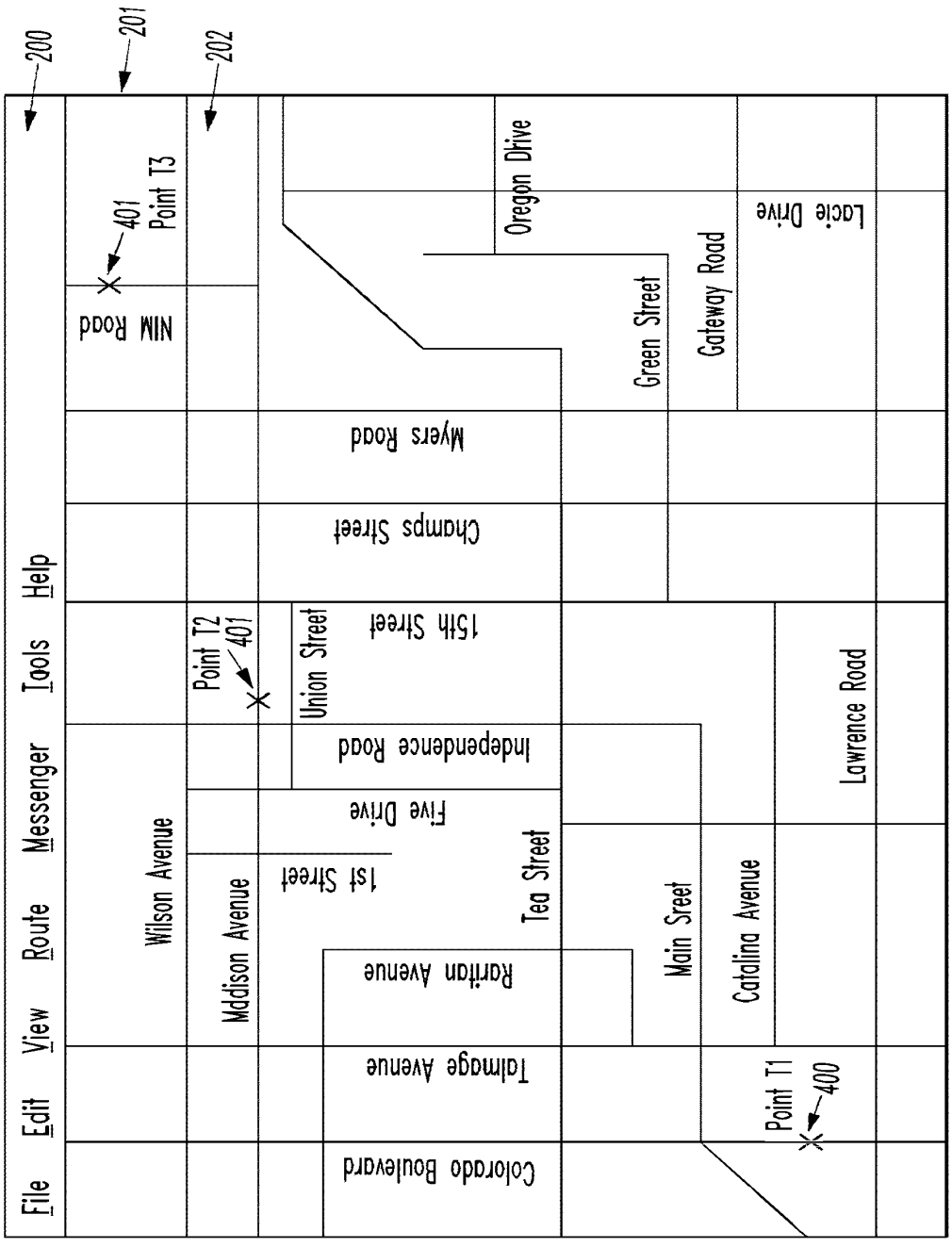

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Myers Road
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15th Street
Union Street
Point T2
401
Independence Road
Five Drive
1st Street
Wilson Avenue
Mddison Avenue
Ted Street
Raritan Avenue
Talmage Avenue
Colorado Boulevard
Main Sreet
Catalina Avenue
Lawrence Road
Point T1
400

FIG. 4

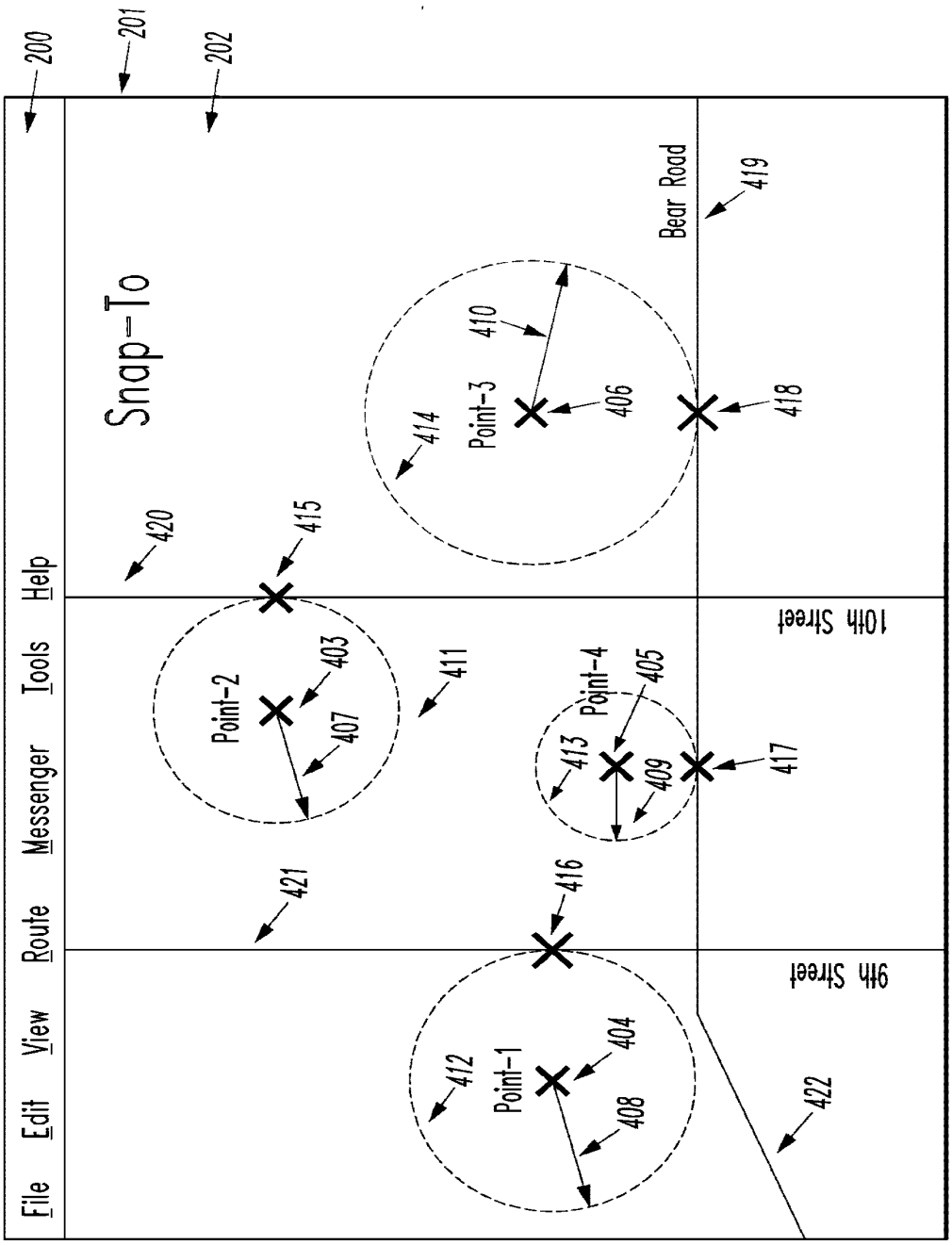

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Point-3
Point-4
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FIG. 4A

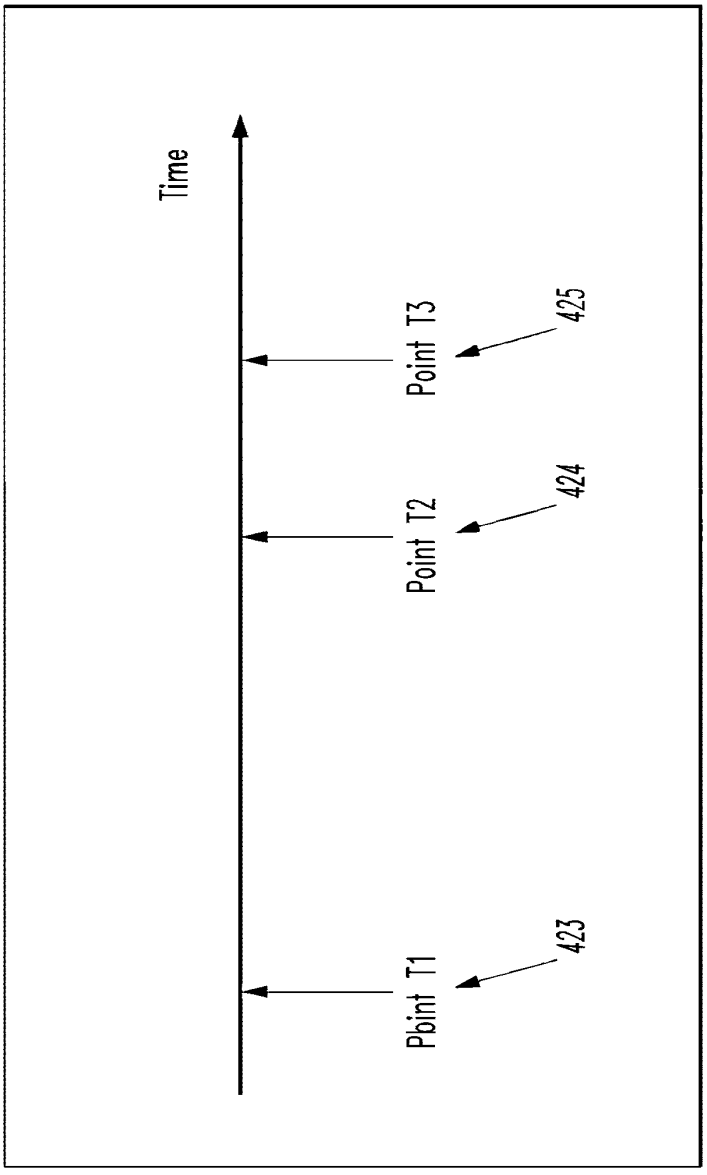


FIG. 4B

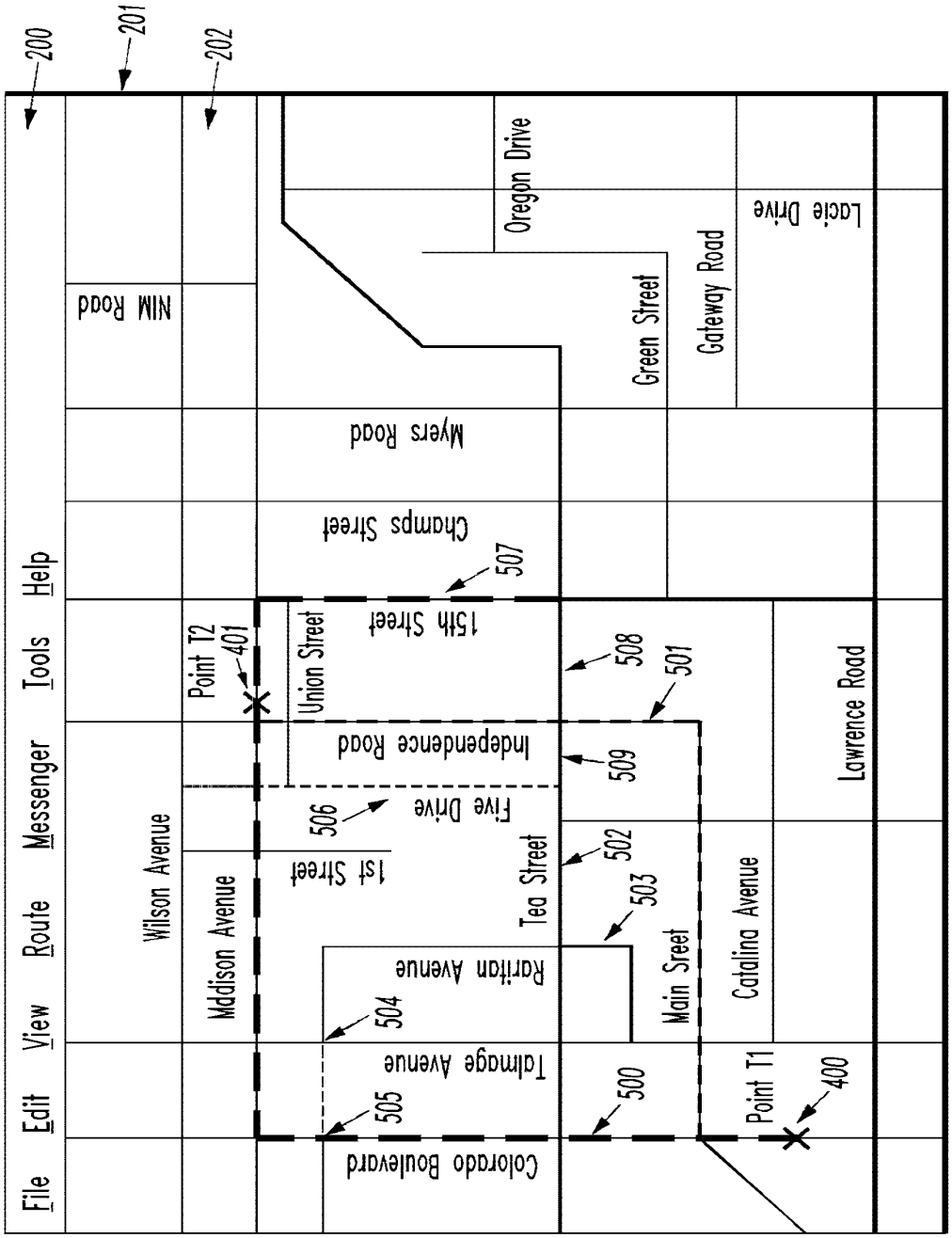

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Union Street
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501
Lawrence Road
Independence Road
509
Five Drive
506
1st Street
Wilson Avenue
Mddison Avenue
Tea Street
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503
Raritan Avenue
Main Sreet
Catalina Avenue
504
Talmage Avenue
505
500
Point T1
400
Colorado Boulevard

FIG. 5

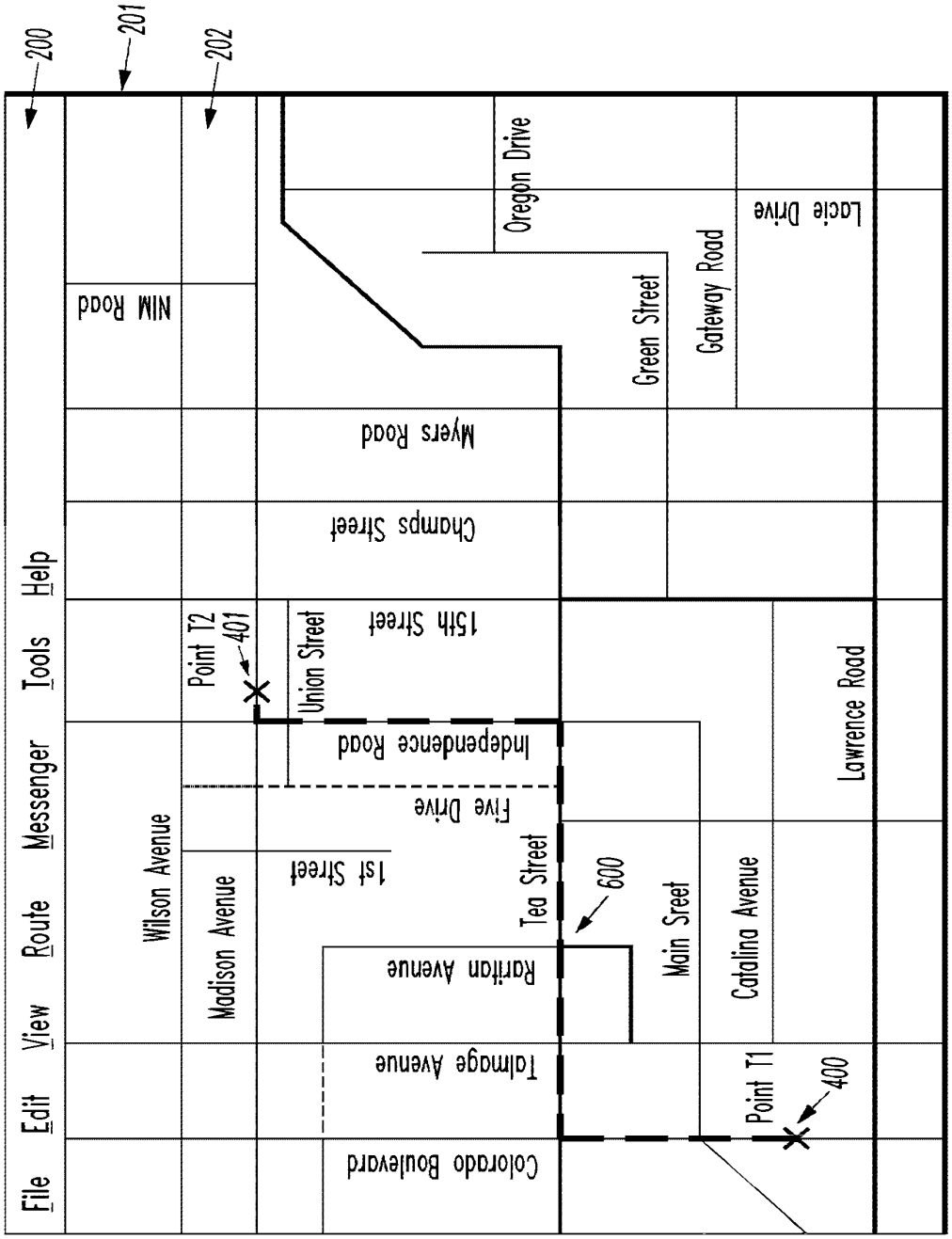

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Myers Road
NIM Road
Oregon Drive
Green Street
Gateway Road
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Lawrence Road
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Raritan Avenue
Talmage Avenue
Colorado Boulevard
Main Sreet
Catalina Avenue
Point T1
400

FIG. 6

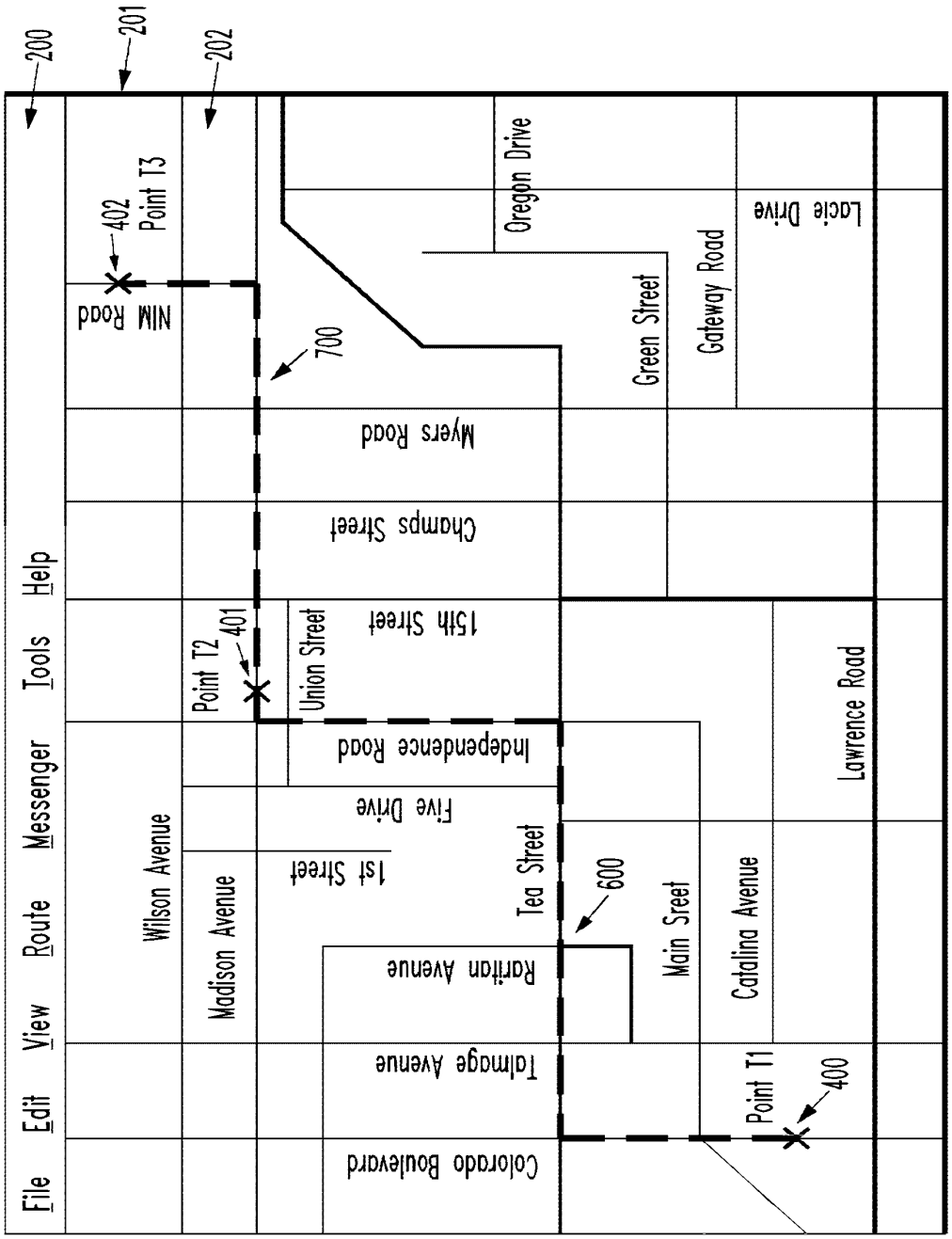

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Gateway Road
Lacie Drive
Myers Road
Champs Street
15th Street
Point T2
401
Union Street
Independence Road
Five Drive
1st Street
Wilson Avenue
Madison Avenue
Tea Street
600
Raritan Avenue
Talmage Avenue
Colorado Boulevard
Main Sreet
Catalina Avenue
Lawrence Road
Point T1
400

FIG. 7

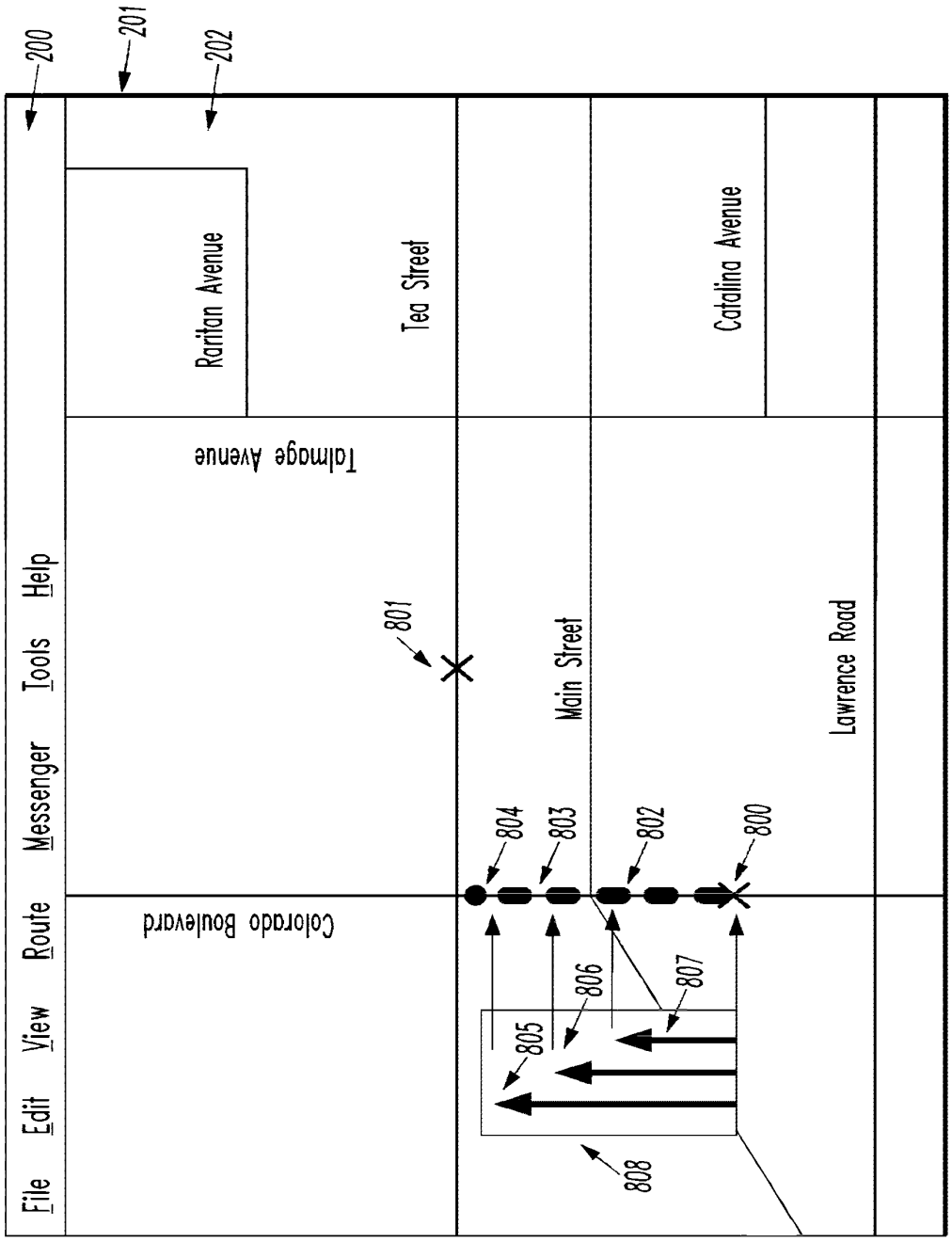

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Raritan Avenue
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Main Street
Lawrence Road
Colorado Boulevard
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FIG. 8

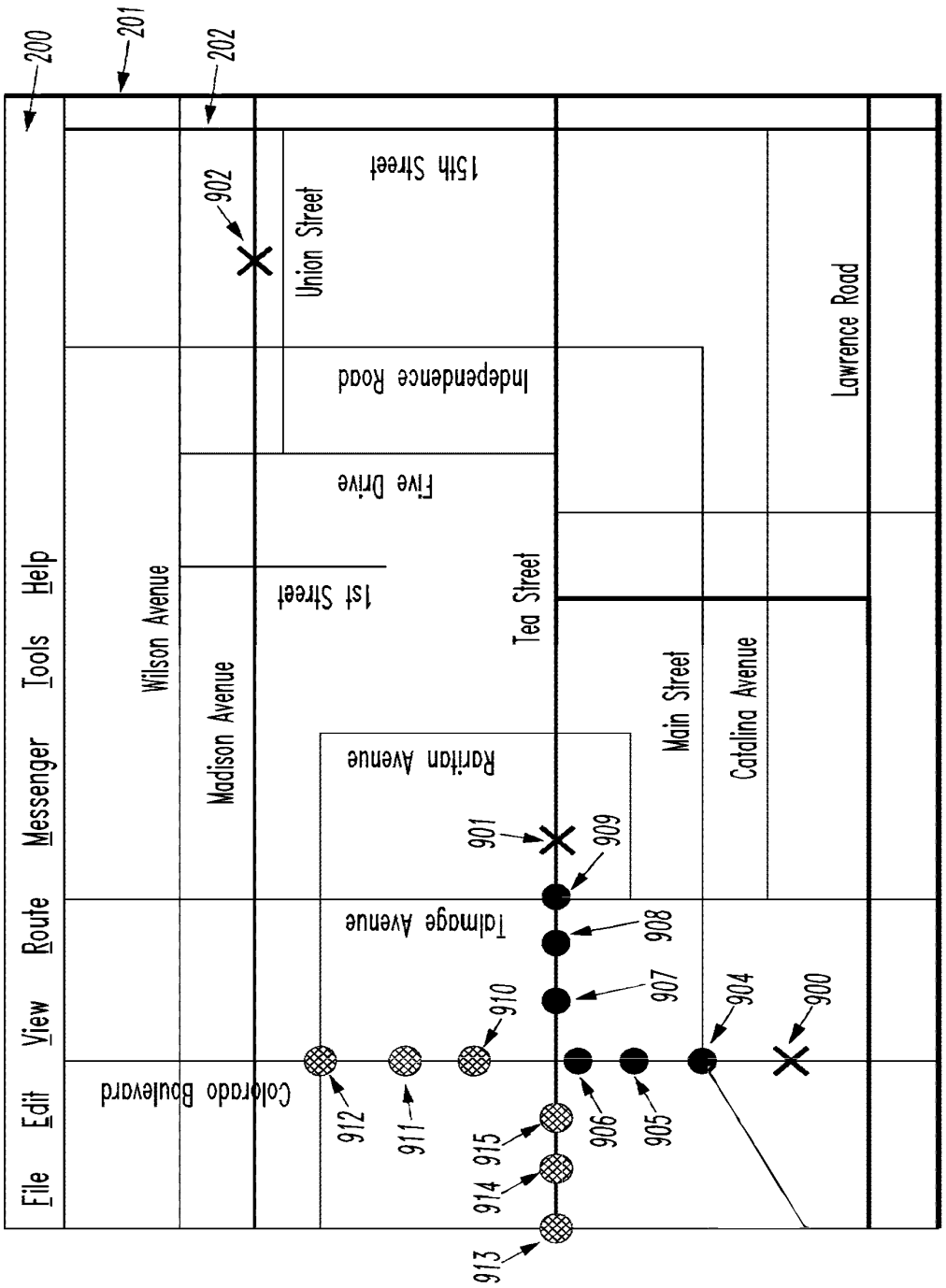

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Wilson Avenue
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Catalina Avenue
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FIG. 9

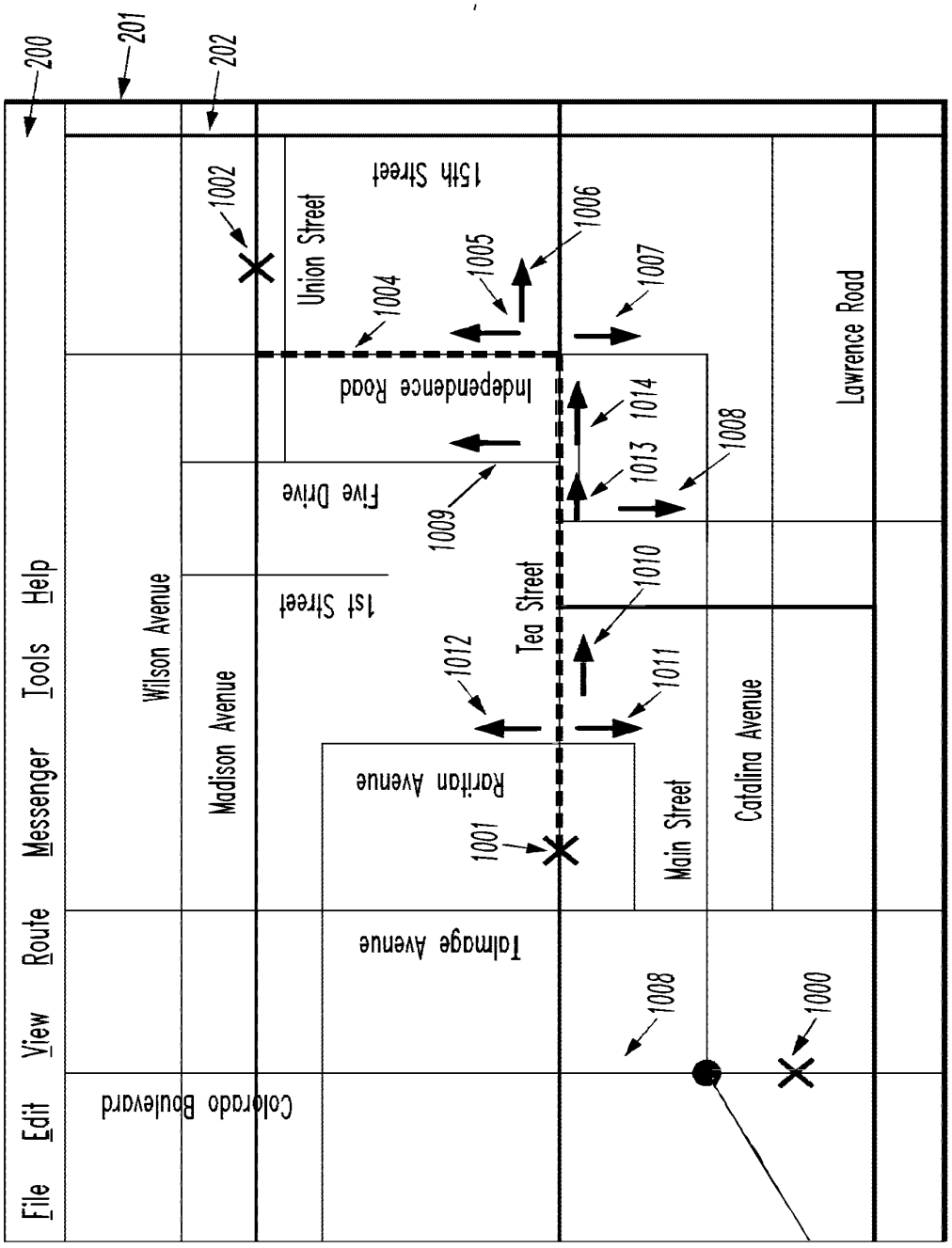

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Colorado Boulevard
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Raritan Avenue
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Union Street
Independence Road
Five Drive
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Wilson Avenue
Madison Avenue
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Main Street
Catalina Avenue
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FIG. 10

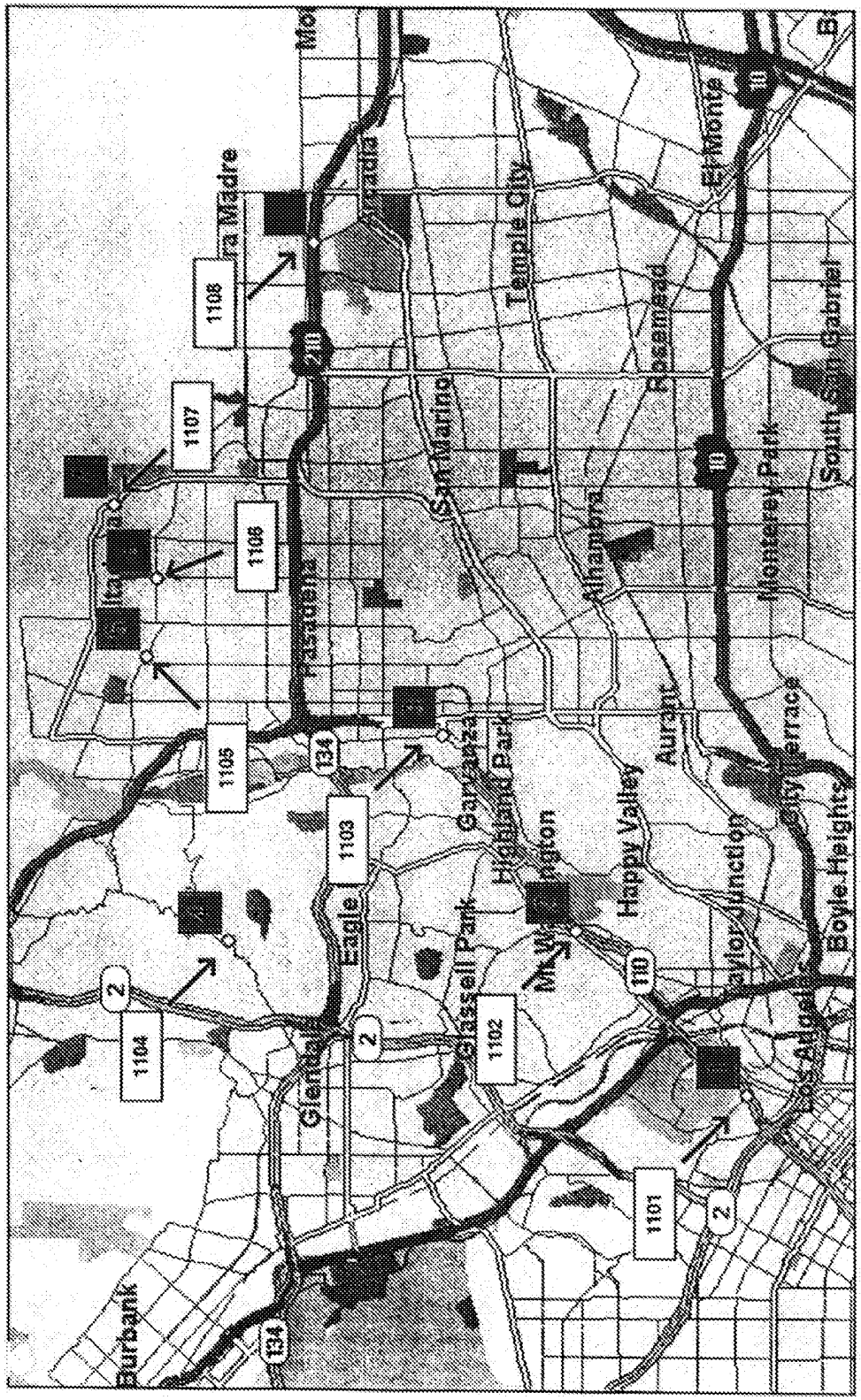

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Eagle
Glassell Park
Garvanza
Highland Park
Mt. Washington
Happy Valley
Aurant
Taylor Junction
Lily Terrace
Boyle Heights
Los Angeles
Monterey Park
Alhambra
Rosemead
Temple City
San Marino
Pasadena
Arcadia
Sierra Madre
El Monte
South San Gabriel
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FIG. 11

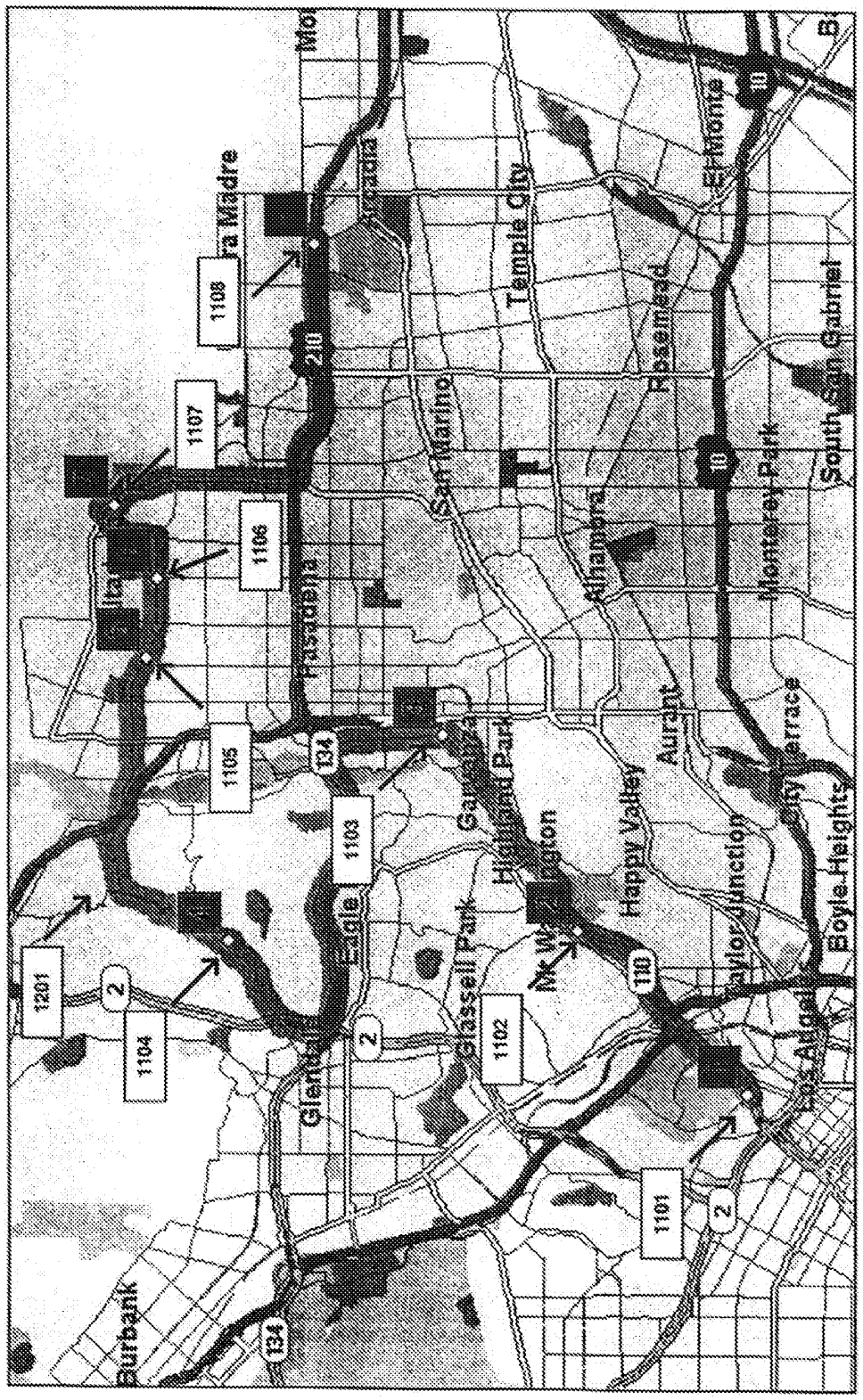

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Arcadia
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South San Gabriel
Monterey Park
Happy Valley
Aurant
Taylor Junction
Boyle Heights
City Terrace
East Adgel

FIG. 12

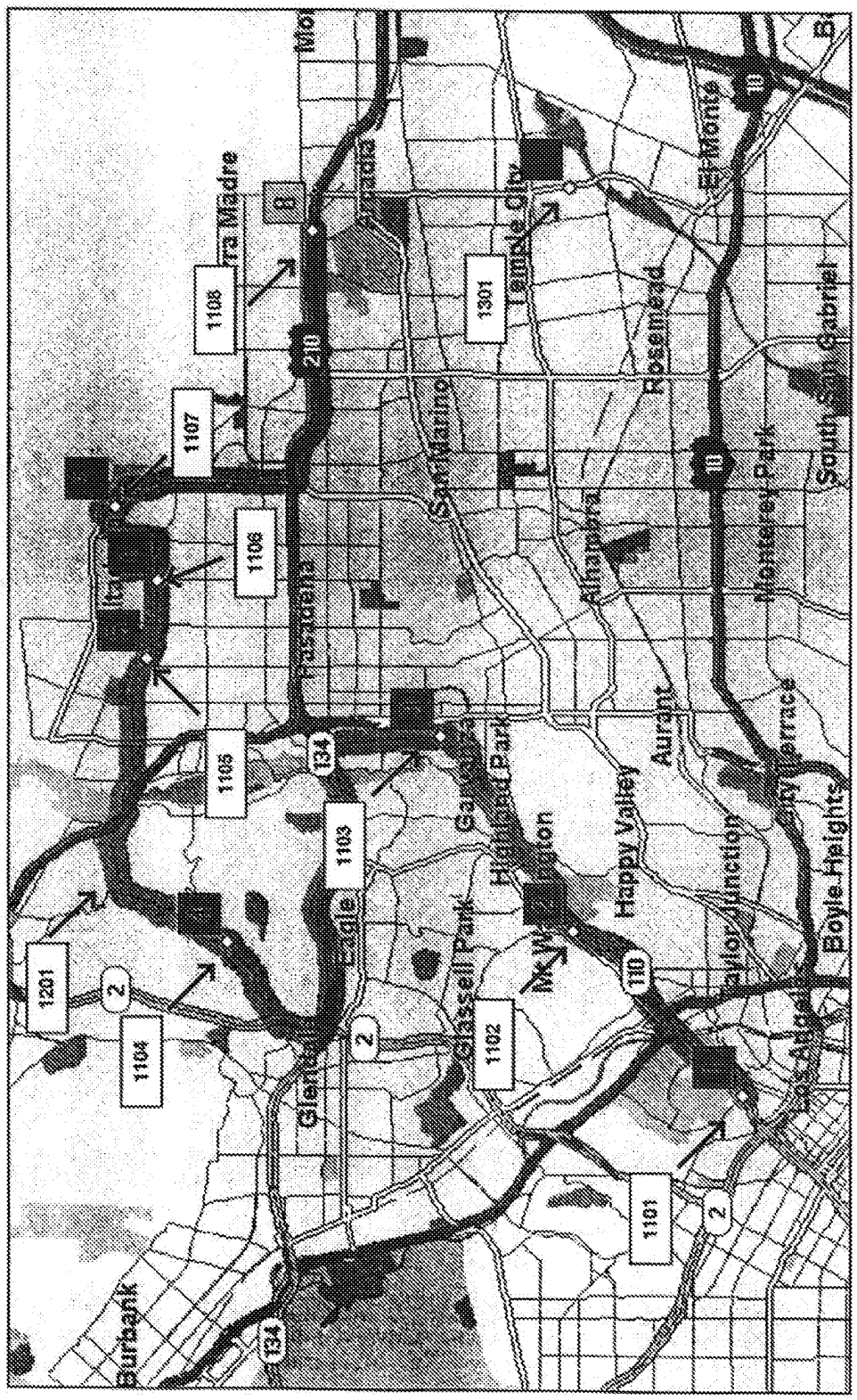

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Highland Park
Eagle Rock
Happy Valley
Taylor Junction
Boyle Heights
Pasadena
San Marino
Alhambra
Rosemead
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Arcadia
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FIG. 13

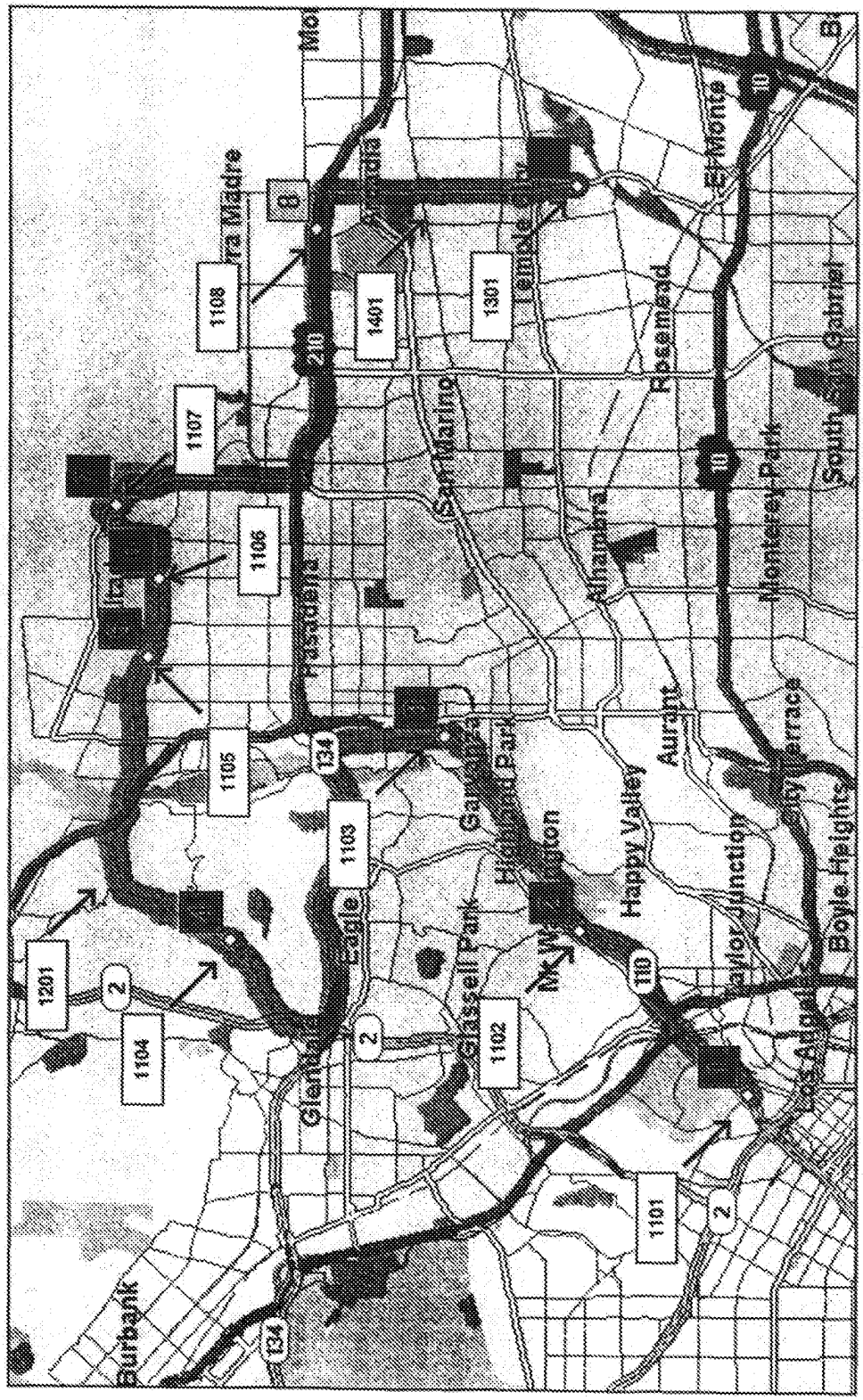

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FIG. 14

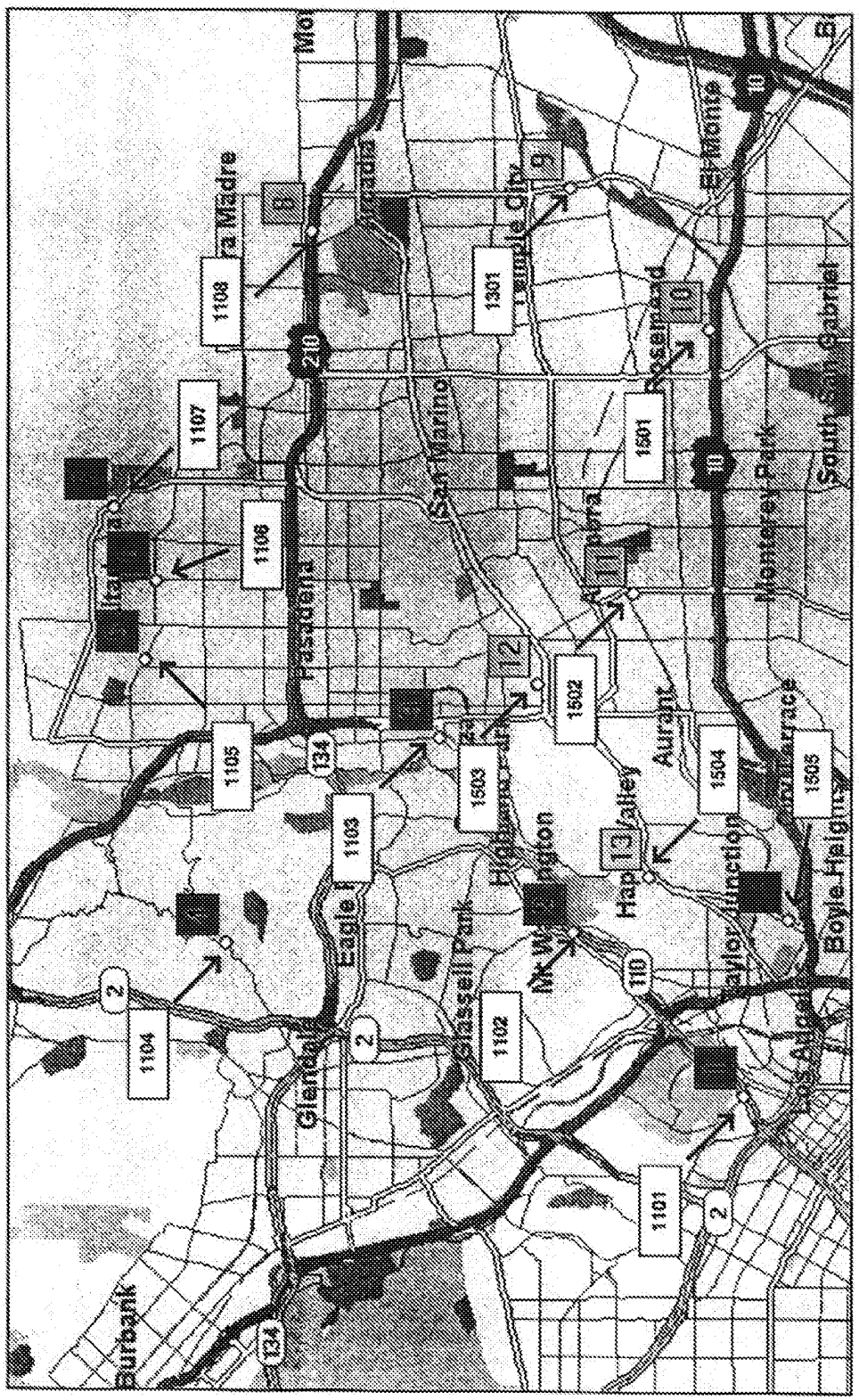

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Glendale
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Altadena
San Marino
Temple City
Rosemead
El Monte
South San Gabriel
Monterey Park
Montebello
Boyle Heights
Los Angeles
Hacienda Heights
Whittier
Arcadia
Monrovia
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FIG. 15

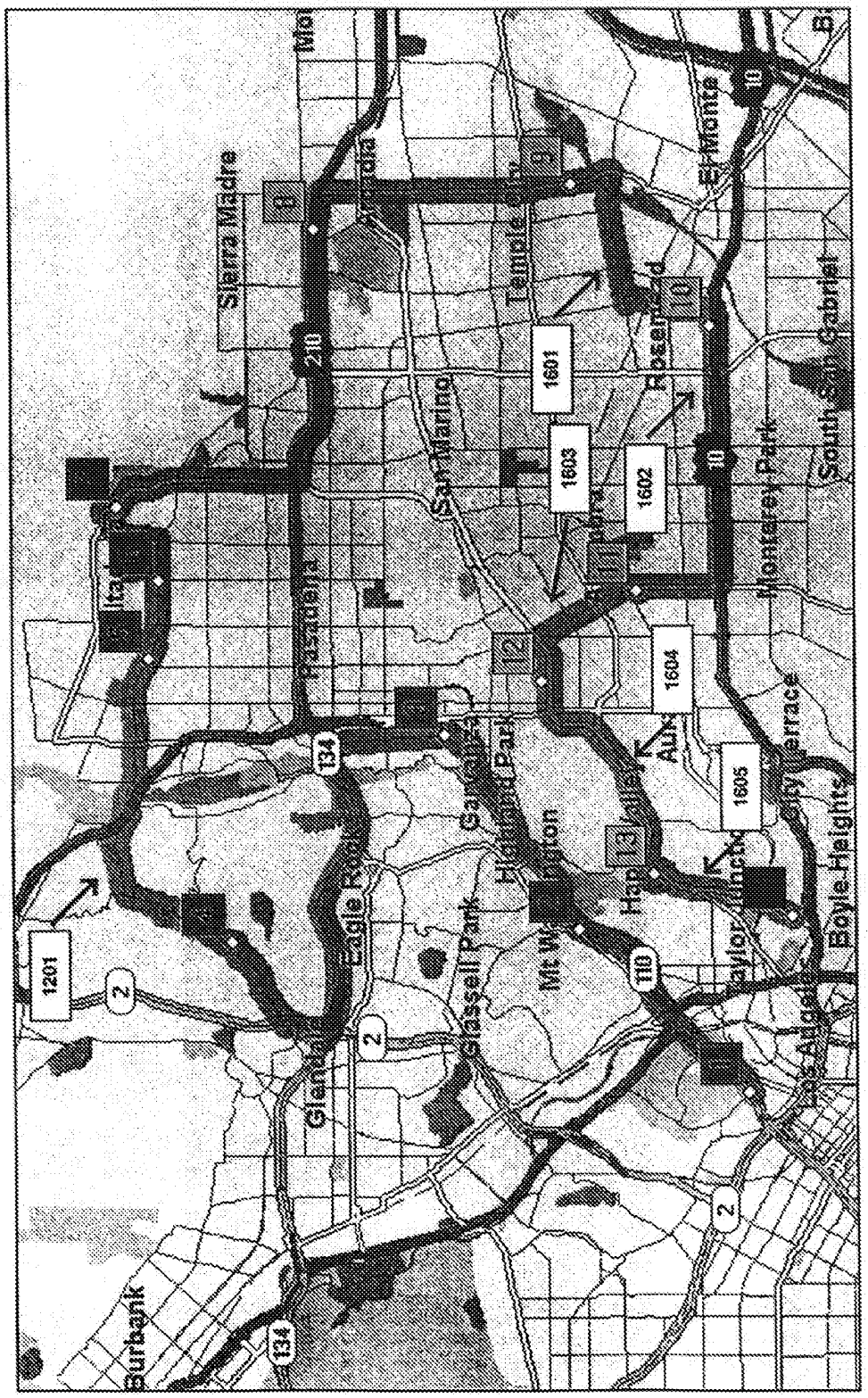

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Mt Washington
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FIG. 16

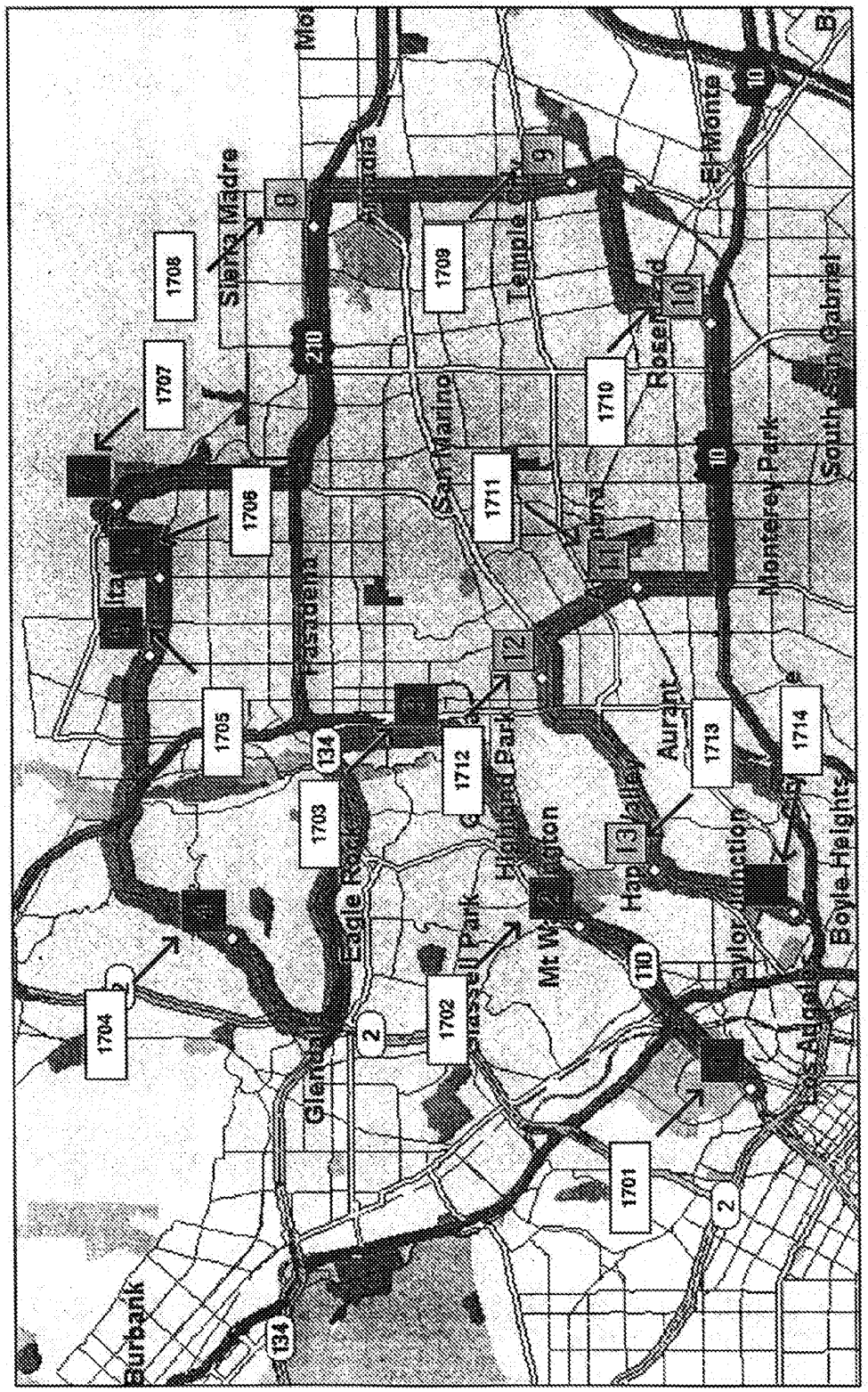

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Eagle Rock
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Mt Washington
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9
8
12
13

FIG. 17

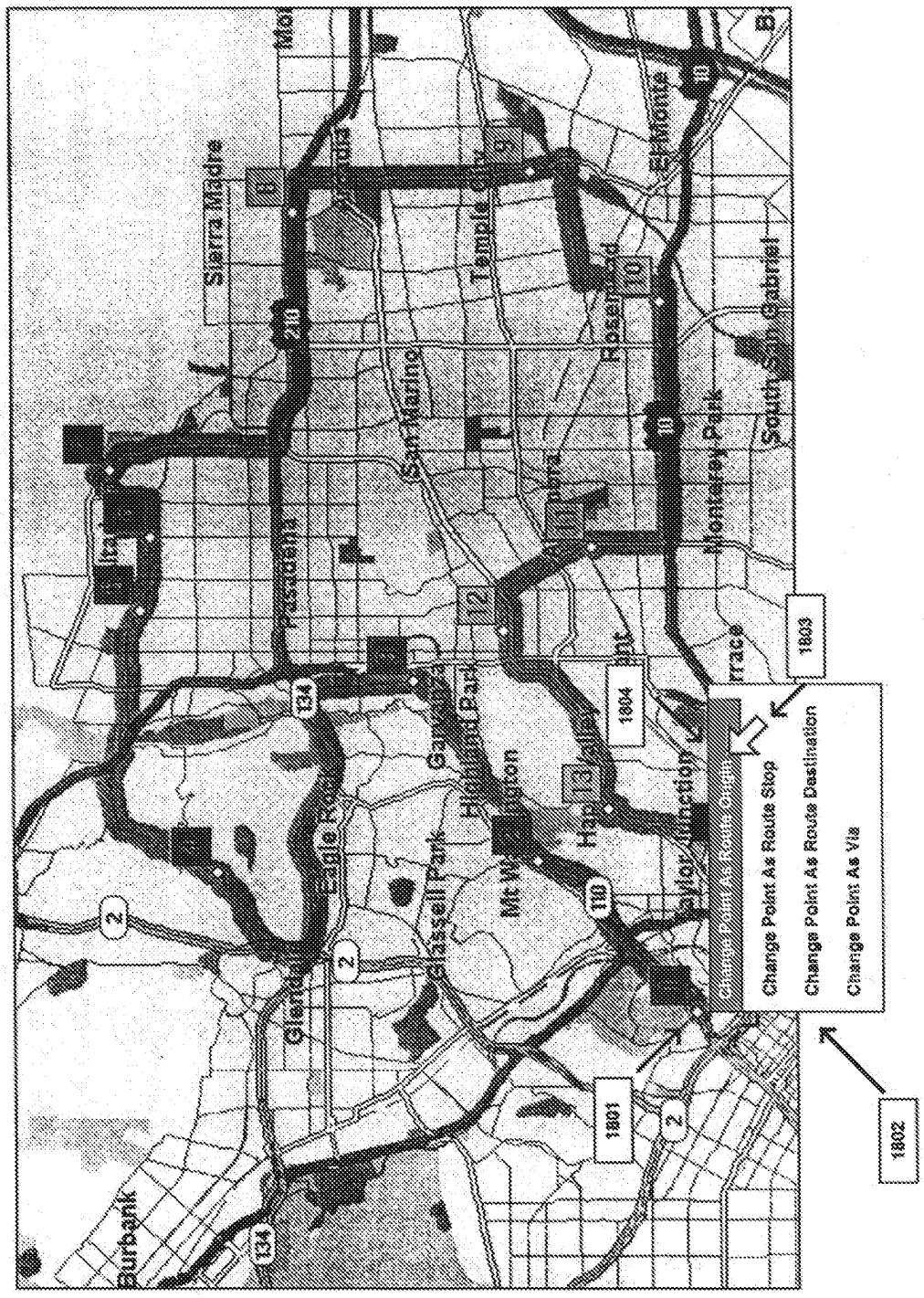

Sierra Madre
Pasadena
San Marino
Temple City
Rosemead
El Monte
Monterey Park
South San Gabriel
Burbank
Glendale
Eagle Rock
Glassell Park
Highland Park
Garvanza
Mt Washington
Hazard
Taylor Yard
Arroyo Junction
Change Point As Route Stop
Change Point As Route Destination
Change Point As Via
1801
1802
1803
1804

FIG. 18

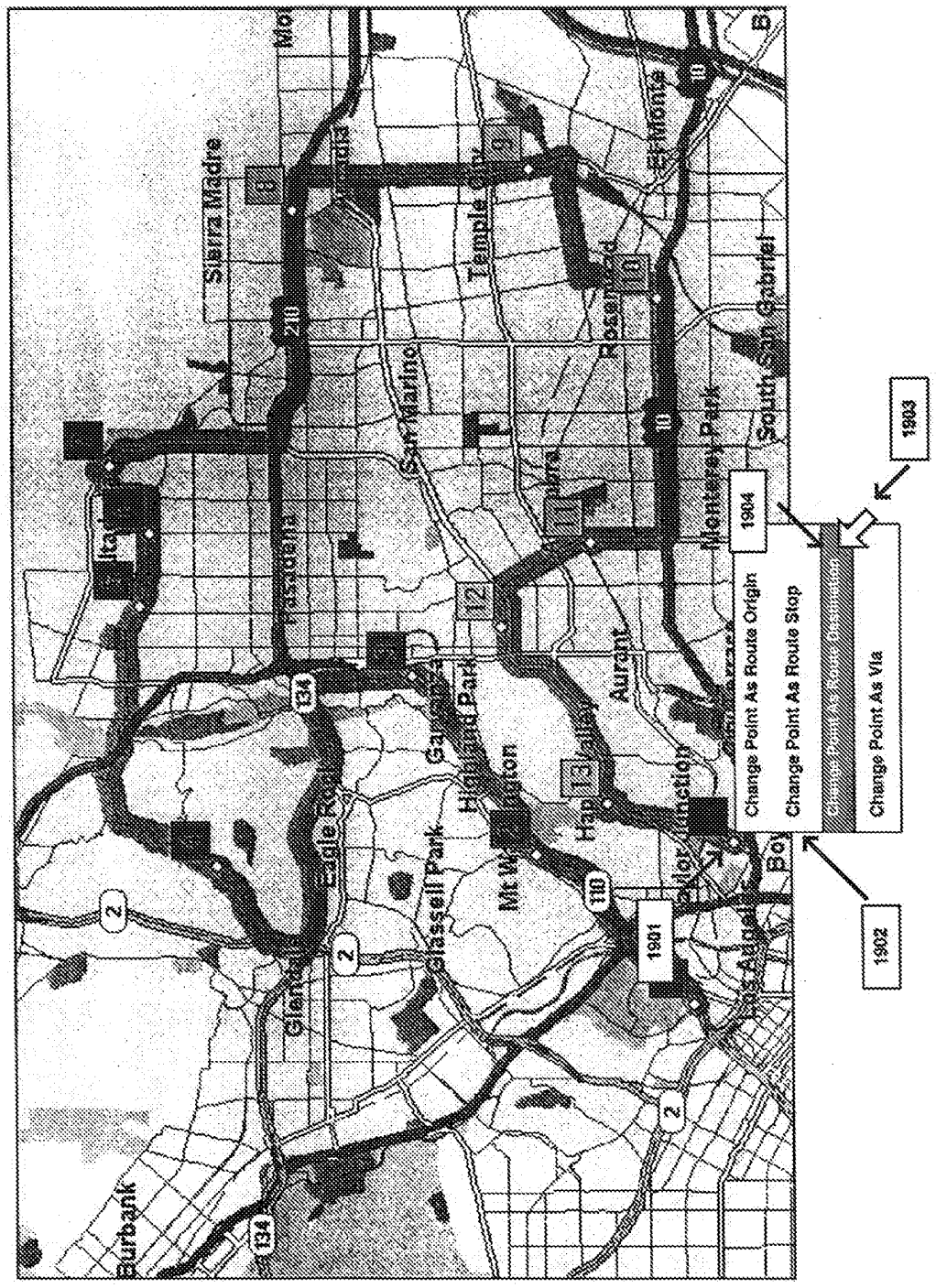

Sierra Madre
Pasadena
San Marino
Temple City
Rosemead
Monterey Park
South San Gabriel
Burbank
Glendale
Eagle Rock
Highland Park
Garvanza
Mt Washington
Aurant
Hap
Valley
Pico Junction
Los Angeles
Change Point As Route Origin
Change Point As Route Stop
Change Point As Via
1901
1902
1903
1904

FIG. 19

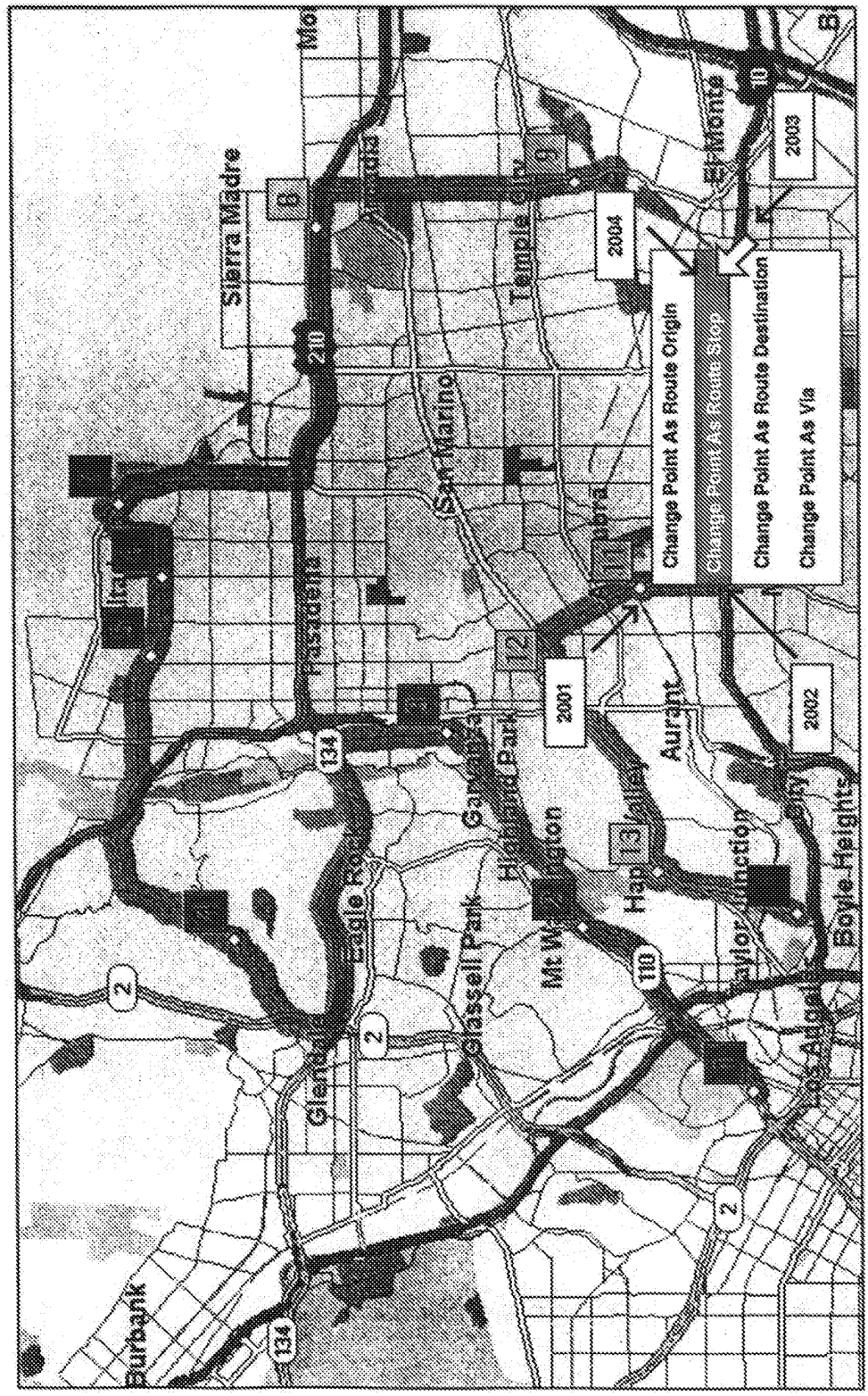

Change Point As Route Origin
Change Point As Route Stop
Change Point As Route Destination
Change Point As Via
2001
2002
2003
2004
Sierra Madre
Temple City
San Marino
El Monte
Pasadena
Glendale
Eagle Rock
Glassell Park
Highland Park
Garvanza
Mt Washington
Hermon
Aurant
Boyle Heights
Los Angeles
Burbank
210
134
2
110
10
5
13

FIG. 20

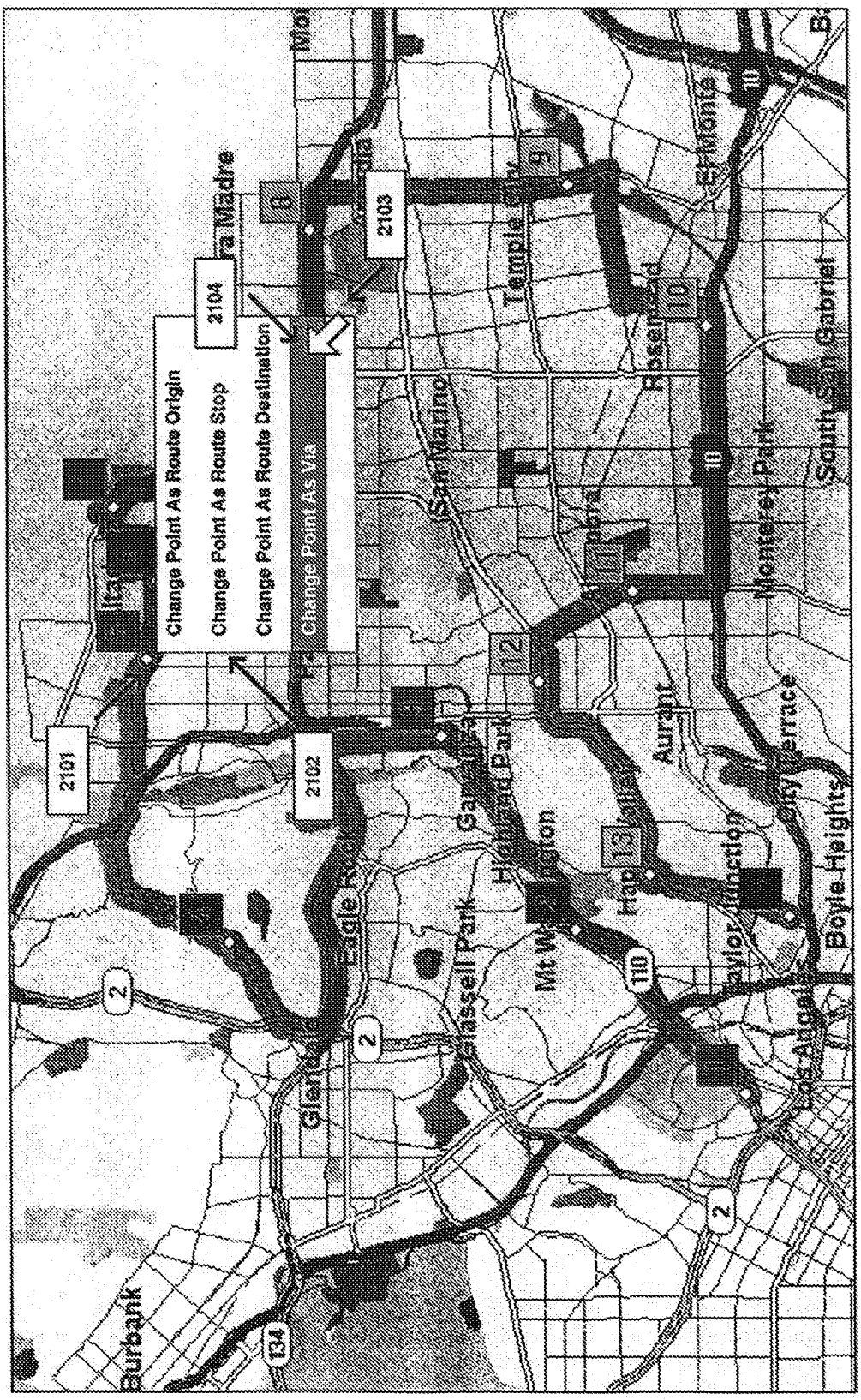

Change Point As Route Origin
Change Point As Route Stop
Change Point As Route Destination
2101
2102
2103
2104
Change Point As Via
Burbank
Glendale
Eagle Rock
Glassell Park
Highland Park
Mt Washington
Hospital
Aurant
Monterey Park
South San Gabriel
Temple City
Arcadia
Boyle Heights
Los Angeles
Taylor Junction
San Marino
Pasadena
Ra Madre
134
2
110
210
605

FIG. 21

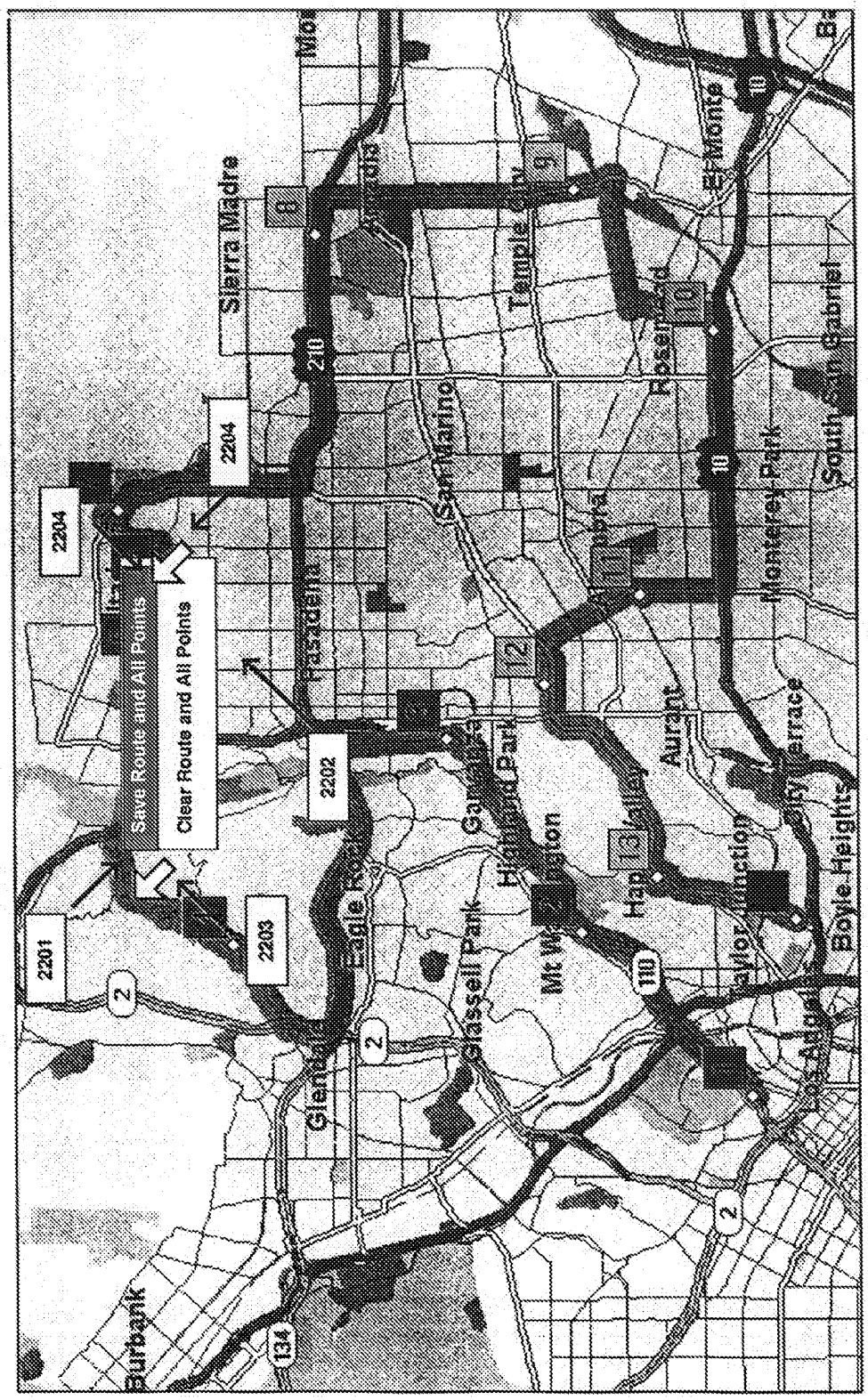

Save Route and All Points
Clear Route and All Points
2201
2203
2202
2204
2204
Sierra Madre
Pasadena
San Marino
Temple City
Rosemead
El Monte
South San Gabriel
Monterey Park
Alhambra
Arcadia
Glendale
Eagle Rock
Glassell Park
Highland Park
Garvanza
Mt Washington
Hermon
Aurant
Hacienda Heights
Boyle Heights
Los Angeles
Burbank
210
134
2
5
10
110
710
605
605
605

FIG. 22

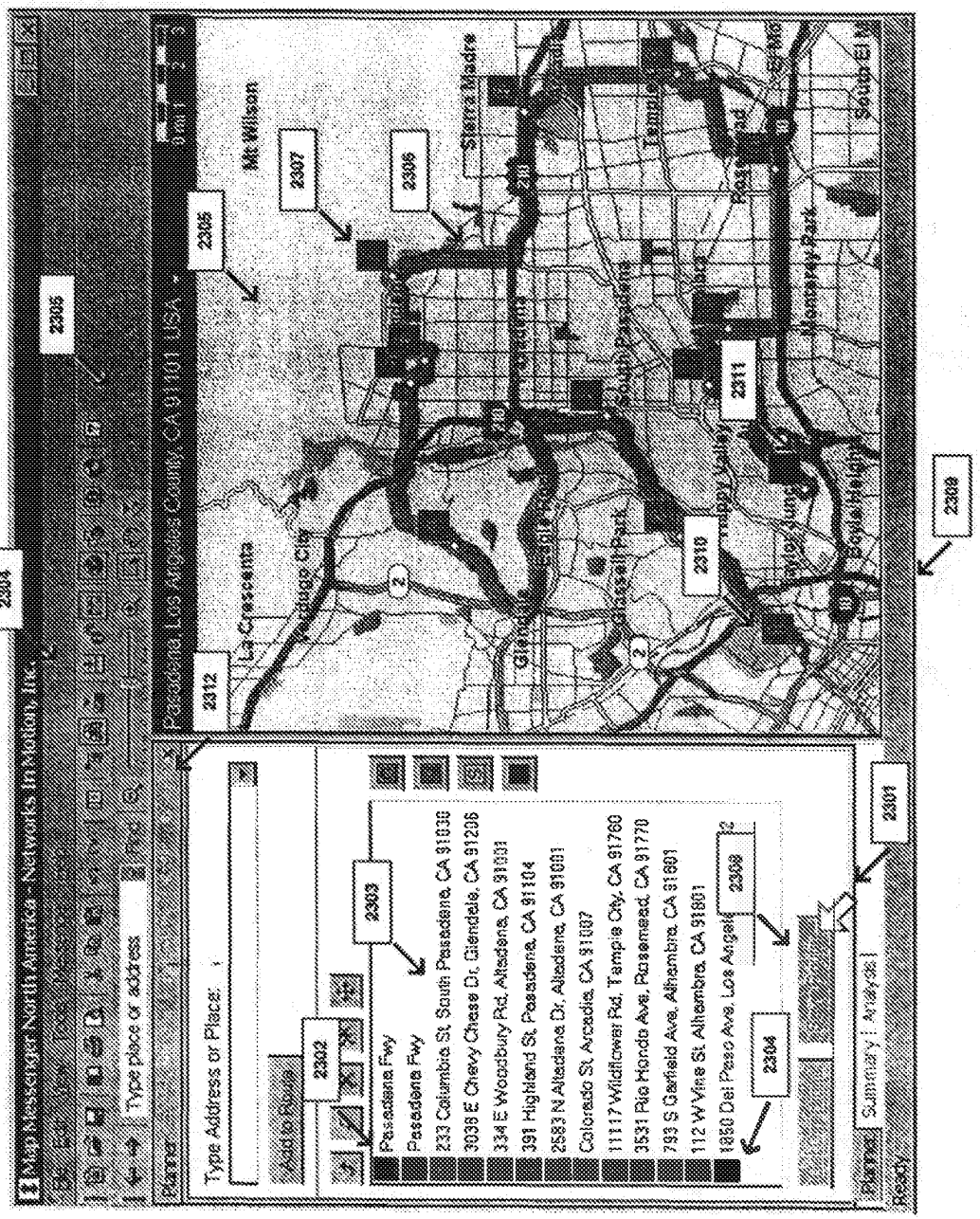

2304
2305
2306
2307
2308
2309
2310
2311
2312
2301
2302
2303
2304
Mt Wilson
La Crescenta
Sierra Madre
Pasadena Fwy
Pasadena Fwy
233 Columbia St, South Pasadena, CA 91030
3038 E Chevy Chase Dr, Glendale, CA 91206
334 E Woodbury Rd, Altadena, CA 91001
391 Highland St, Pasadena, CA 91104
2583 N Altadena Dr, Altadena, CA 91001
Colorado St, Arcadia, CA 91007
11117 Wildflower Rd, Tampia City, CA 91780
3531 Rio Hondo Ave, Rosemead, CA 91770
793 S Garfield Ave, Alhambra, CA 91801
112 W Vine St, Alhambra, CA 91801
1850 Del Paso Ave, Los Angeles, CA 91001
Type Address or Place:
Add to Route
Type place or address
Summary | Analysis
Ready

FIG. 23

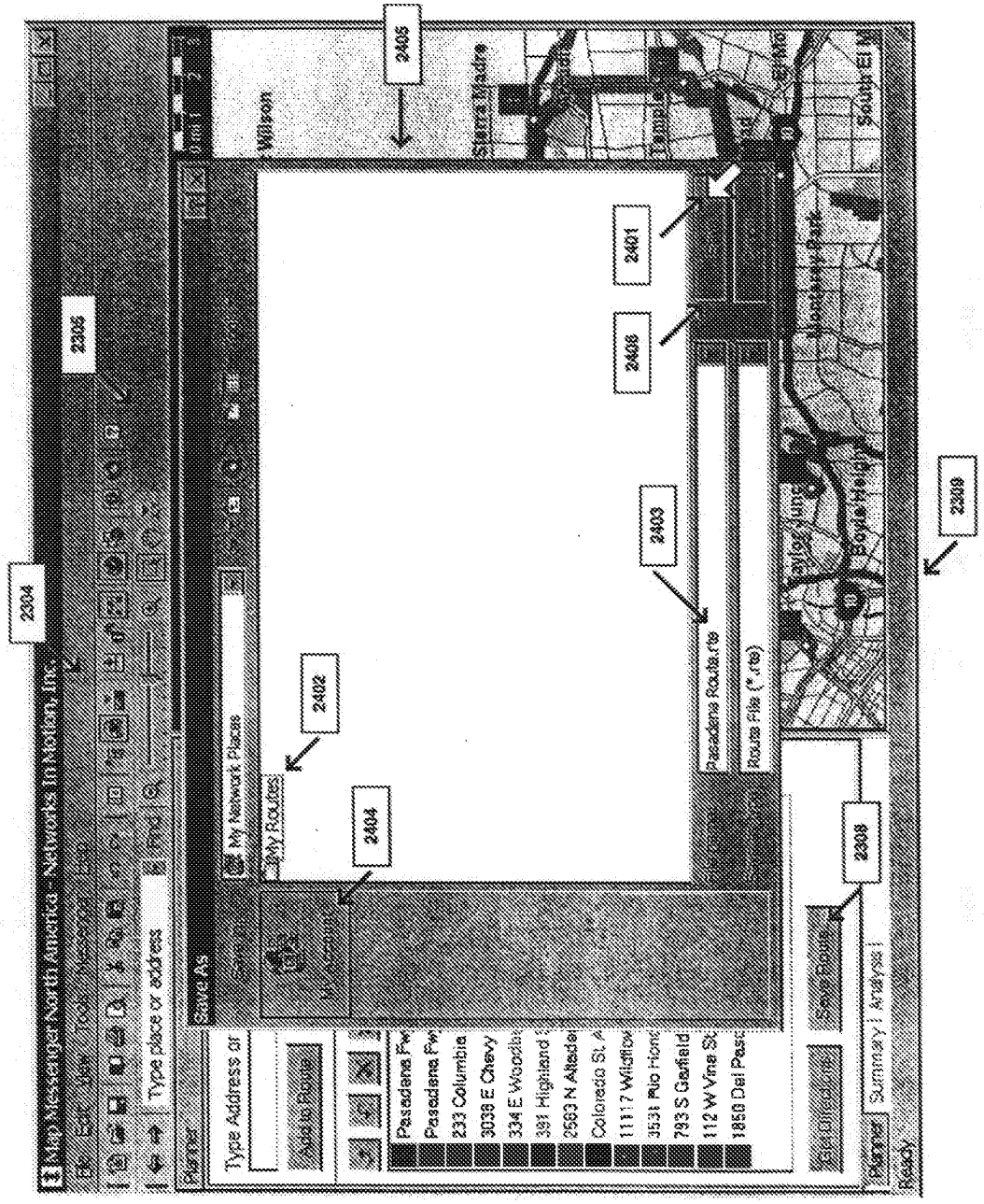

2304
2305
2306
2307
2308
2309
2401
2402
2403
2404
2405
2406
Wilson
Sierra Madre
Pasadena Routes
Route Pile (*.rte)
My Network Places
My Routes
Add to Route
Save Route
Get Directions
Planner
Summary
Analysis
Ready

FIG. 24

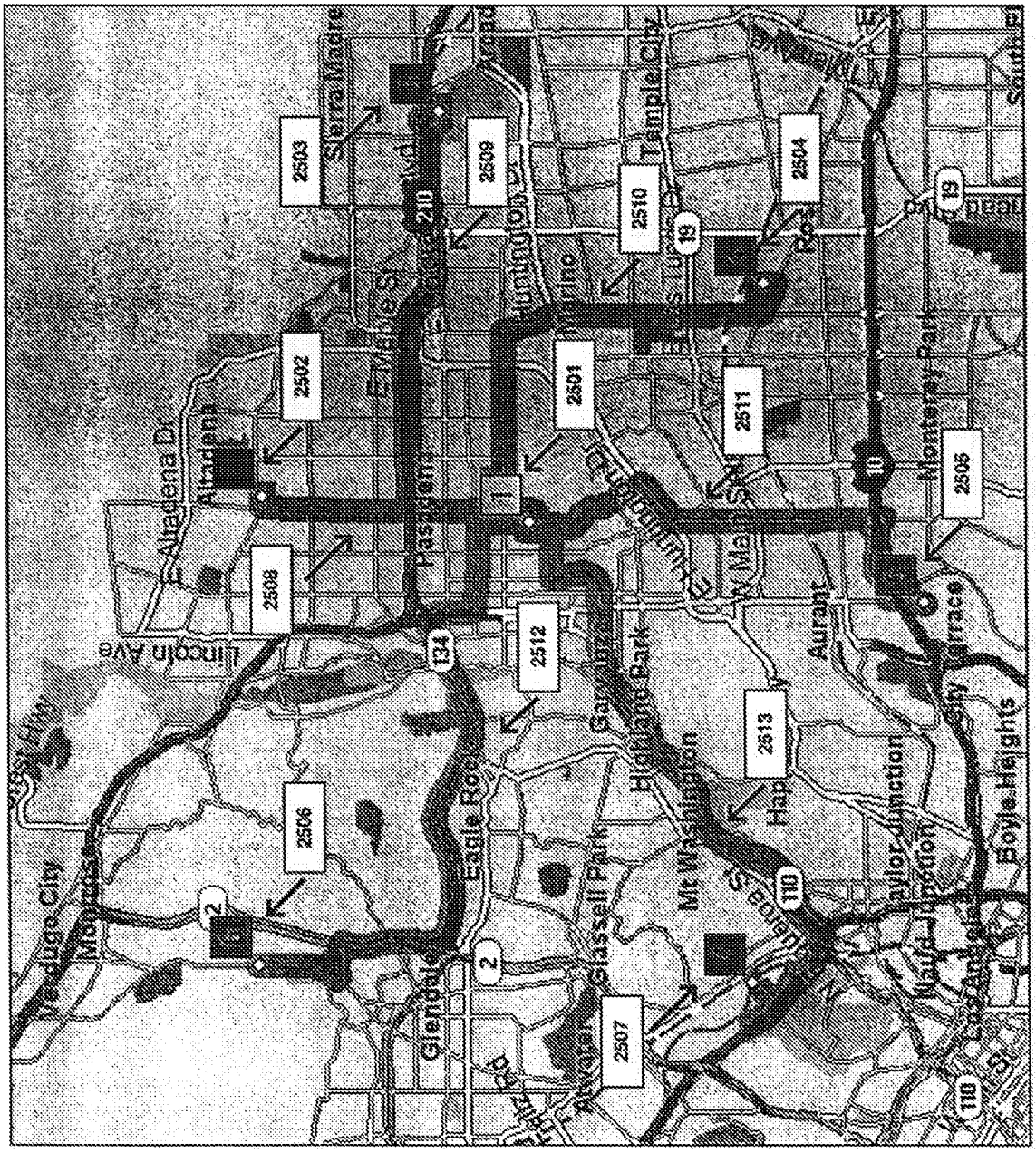

2501
2502
2503
2504
2505
2506
2507
2508
2509
2510
2511
2512
2513
Sierra Madre
E Altadena Dr
Altadena
Lincoln Ave
E Mable St
Pasadena
Huntington Dr
Arcadia
Temple City
Monterey Park
Rosemead
Alhambra
Garvanza
Highland Park
Eagle Rock
Glassell Park
Mt Washington
Aurant
Boyle Heights
Monrovia
Glendale
Los Angeles
Hap
210
134
2
5
10
110
605

FIG. 25

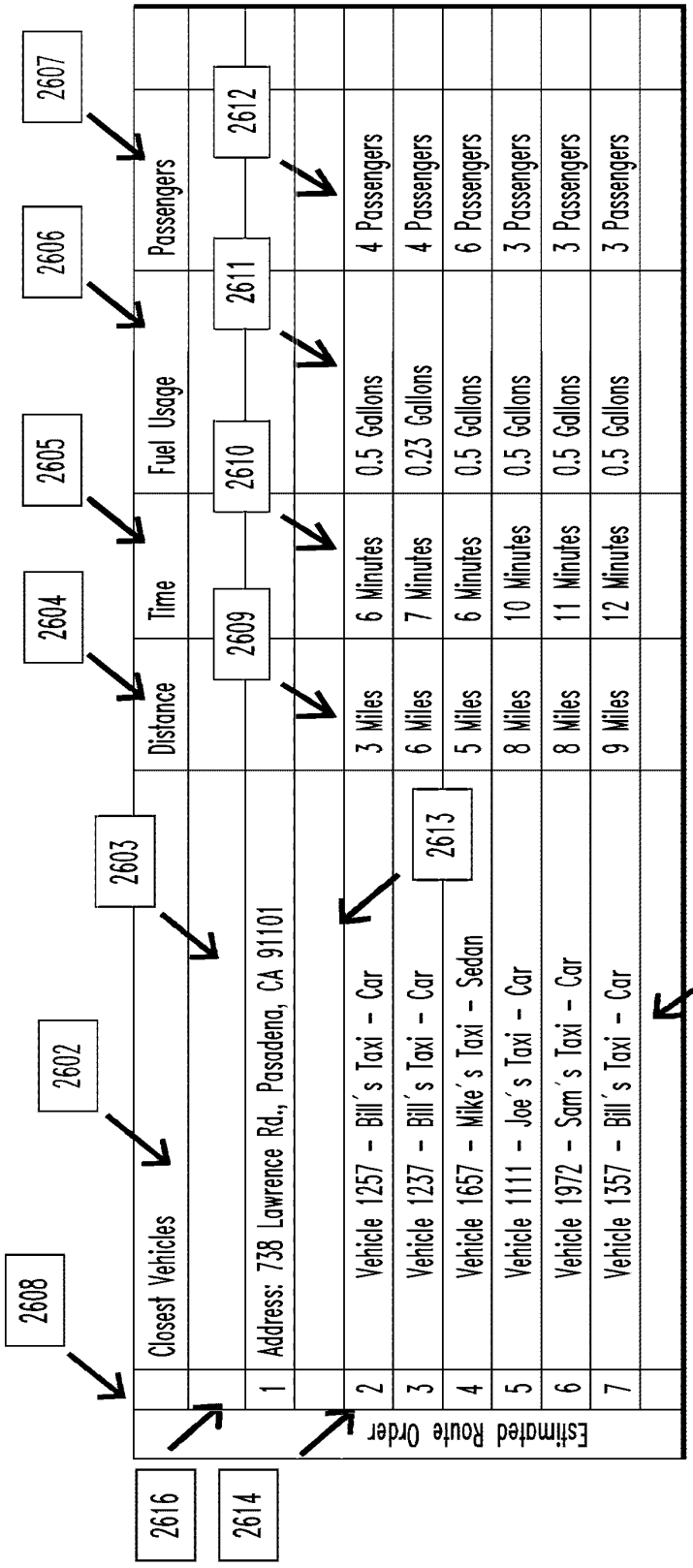

2601
2602
2603
2604
2605
2606
2607
2608
2609
2610
2611
2612
2613
2614
2615
2616
Estimated Route Order
Closest Vehicles
Distance
Time
Fuel Usage
Passengers
1
Address: 738 Lawrence Rd., Pasadena, CA 91101
2
Vehicle 1257 - Bill's Taxi - Car
3 Miles
6 Minutes
0.5 Gallons
4 Passengers
3
Vehicle 1237 - Bill's Taxi - Car
6 Miles
7 Minutes
0.23 Gallons
4 Passengers
4
Vehicle 1657 - Mike's Taxi - Sedan
5 Miles
6 Minutes
0.5 Gallons
6 Passengers
5
Vehicle 1111 - Joe's Taxi - Car
8 Miles
10 Minutes
0.5 Gallons
3 Passengers
6
Vehicle 1972 - Sam's Taxi - Car
8 Miles
11 Minutes
0.5 Gallons
3 Passengers
7
Vehicle 1357 - Bill's Taxi - Car
9 Miles
12 Minutes
0.5 Gallons
3 Passengers

FIG. 26

Electronic Patent Application Fee Transmittal					
Application Number:	17322839				
Filing Date:	17-May-2021				
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation				
First Named Inventor/Applicant Name:	Michael Sheha				
Filer:	Jongkook Park				
Attorney Docket Number:	BSV-012				
Filed as Large Entity					
Filing Fees for Utility under 35 USC 111(a)					
Description		**Fee Code**	**Quantity**	**Amount**	**Sub-Total in USD($)**
Basic Filing:					
Pages:					
Claims:					
Miscellaneous-Filing:					
Petition:					
Patent-Appeals-and-Interference:					
Post-Allowance-and-Post-Issuance:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	1814	2	170	340
		Total in USD ($)		**340**

Electronic Acknowledgement Receipt	
EFS ID:	44106830
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	23-OCT-2021
Filing Date:	17-MAY-2021
Time Stamp:	18:56:47
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$340
RAM confirmation Number	E20210MI57214531
Deposit Account	506825
Authorized User	Jongkook Park
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	BSV-012-Response-NFR.pdf	140594 70b08e961ed7ec4b3bb5af8fce28af650627309c	no	11
Warnings:					
Information:					
2	Terminal Disclaimer Filed	BSV-012-TD-9921077.pdf	130568 c7cf8938134d55c75c39a57015ee283f0b697648	no	2
Warnings:					
Information:					
3	Terminal Disclaimer Filed	BSV-012-TD-10502583.pdf	130584 eff6b932c054d9aa251581687938828a7de93fbc	no	2
Warnings:					
Information:					
4	Drawings-only black and white line drawings	BSV-012-Drawing-HR.pdf	16193284 491fc4342296e6dcba5d3f468418af43a91194c0	no	28
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	37957 37073e81428533f738c98bdbdb6ddd16de74c0d3	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	16632987		

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	Sheha et al.	Examiner	Antonucci, Anne Marie
Serial No.	17/322,839	Group Art No.	3667
Filed	May 17, 2021	Confirmation No.	8783
For	Method and System for Dynamic Estimation and Predictive Route Generation		

October 23, 2021

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

RESPONSE TO NON-FINAL OFFICE ACTION

In response to the Office action dated July 28, 2021, Applicants make the following amendments to the claims and remarks. The amendments to the claims are reflected in the listing of claims that begins on page 2 of this paper. The remarks begin on page 7 of this paper.

In the Claims:

1. (Currently Amended) A method performed by a computing system, comprising:

receiving first data comprising a plurality of location updates from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers, each of the plurality of service providers having at least a first characteristic and a second characteristic, and each of the plurality of location updates representing a location of a respective one of the plurality of service providers at a particular time;

receiving second data representing a destination location;

determining, for each of the plurality of service providers and using at least the first data and the second data, at least one of a distance between the ~~transportation~~ service provider and the destination location[[,]] and an estimated time of arrival of the service provider at the destination location;

designating a subset of the plurality of service providers ~~using~~ based on at least the first characteristics of the plurality of service providers ~~one of the determined distances between the service providers and the destination location, the determined estimated times of arrival of the service providers at the destination location, and a capability of the service provider~~; and

selecting, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer using at least one of (i) the determined distances between the service providers in the subset of the plurality of service providers and the destination location, (ii) the determined estimated times of arrival at the destination location of the service providers in the subset of the plurality of service providers ~~at the destination location~~, and ~~capabilities~~ (iii) the second characteristics of the service providers in the subset of the plurality of service providers.

2. (Currently Amended) The method of claim 1, further comprising causing a display of ~~a plurality of indicators~~ an indicator on a graphical representation of a map, ~~each of~~ the ~~plurality of indicators corresponding to~~ indicator representing a current position of the preferred service provider based on a respective one of the plurality of location updates.

3. (Currently Amended) The method of claim 2, wherein the display of the ~~plurality of indicators~~ indicator is provided at a customer mobile device.

4. (Original) The method of claim 1, further comprising calculating an estimated route for

the preferred service provider to the destination location based on a location of the preferred service provider relative to the destination location.

5. (Original) The method of claim 1, further comprising dispatching the preferred service provider to the destination location.

6. (Currently Amended) The method of claim 1, wherein the location updates from the plurality of ~~service provider~~ mobile devices include real-time location updates from the plurality of ~~service provider~~ mobile devices.

7. (Currently Amended) The method of claim 1, further comprising calculating, in real-time by the ~~server~~ computing system, estimated ~~route between the current positions of~~ routes between the subset of the plurality of service providers and the destination location.

8. (Original) The method of claim 1, further comprising receiving third data representing one of a route stop, an origin, a via, and a stop for the preferred service provider.

9. (Original) The method of claim 1, further comprising causing a display, on a graphical representation of a map, a route taken by the preferred service provider to the destination location.

Claims 10 – 18 (Cancelled).

19. (New) The method of claim 1, wherein the first characteristics of the plurality of service providers include vehicle capacities.

20. (New) The method of claim 1, wherein the first characteristics of the plurality of service providers include vehicle types.

21. (New) The method of claim 1, further comprising:

for each of the service providers in the subset of the plurality of service providers, calculating, using map data, a route from the service provider to the destination location,

wherein, for each of the service providers in the subset of the plurality of service providers, the determined distance between the service provider and the destination location and the determined estimated time of arrival of the service provider at the destination location are determined by the computing system using the second data, at least a portion of the first data, and the route for the service provider.

22. (New) The method of claim 1, further comprising:

for each of the service providers in the subset of the plurality of service providers, calculating, using map data and one or more route preferences for the service provider, a route from the service provider to the destination location,

wherein, for each of the service providers in the subset of the plurality of service providers, the determined distance between the service provider and the destination location and the determined estimated time of arrival of the service provider at the destination location are determined by the computing system using the second data, at least a portion of the first data, and the route for the service provider.

23. (New) A method performed by a computing system, comprising:

receiving first data from a plurality of mobile devices, each of the plurality of mobile devices being remote from the computing system, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers, and the first data representing locations of the plurality of mobile devices;

receiving second data representing a destination location;

for each service provider in a subset of the plurality of service providers, maintaining at the computing system one or more characteristics of the service provider and at least one of a determined distance between the service provider and the destination location and a determined estimated time of arrival of the service provider at the destination location, wherein the determined distance and the determined estimated time of arrival are determined by the computing system using the second data and at least a portion of the first data; and

designating, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer based on at least the one or more characteristics of the preferred service provider and at least one of the determined distance between the preferred service provider and the destination location and the determined estimated time of arrival of the preferred service provider at the destination location.

24. (New) The method of claim 23, further comprising:

for each of the service providers in the subset of the plurality of service providers, calculating, using map data, a route from the service provider to the destination location,

wherein, for each of the service providers in the subset of the plurality of service providers, the determined distance between the service provider and the destination location and the determined estimated time of arrival of the service provider at the destination location are

determined by the computing system using the second data, at least a portion of the first data, and the route for the service provider.

25. (New) The method of claim 23, further comprising:

for each of the service providers in the subset of the plurality of service providers, calculating, using map data and one or more route preferences for the service provider, a route from the service provider to the destination location,

wherein, for each of the service providers in the subset of the plurality of service providers, the determined distance between the service provider and the destination location and the determined estimated time of arrival of the service provider at the destination location are determined by the computing system using the second data, at least a portion of the first data, and the route for the service provider.

26. (New) The method of claim 23, further comprising dispatching the preferred service provider to the destination location.

27. (New) The method of claim 23, wherein the first data includes GPS location information representing real-time location updates from the plurality of mobile devices.

28. (New) The method of claim 23, further comprising calculating, in real-time by the computing system, estimated routes between the subset of the plurality of service providers and the destination location.

29. (New) The method of claim 23, wherein the destination location is one of a route stop, an origin, a via, and a stop.

30. (New) The method of claim 23, wherein the one or more characteristics include a vehicle capacity.

31. (New) The method of claim 23, wherein the one or more characteristics include a vehicle type.

32. (New) A method performed by a computing system, comprising:

receiving first data from a plurality of mobile devices, each of the plurality of mobile devices being remote from the computing system, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers, and the first data representing locations of the plurality of mobile devices;

receiving second data representing a destination location;

for each service provider in a subset of the plurality of service providers, maintaining at

the computing system one or more characteristics of the service provider and one or more route preferences for the service provider; and

designating, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer based on at least the one or more characteristics of the preferred service provider, map data, and the one or more route preferences for the preferred service provider.

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

for each of the service providers in the subset of the plurality of service providers, calculating, using the map data and the one or more route preferences for the service provider, an estimated route from the service provider to the destination location,

wherein, the preferred service provider is designated from the subset of the plurality of service providers based on the one or more characteristics of the preferred service provider and the estimated route from the preferred service provider to the destination location.

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

for each of the service providers in the subset of the plurality of service providers, calculating, in real-time using the map data and the one or more route preferences for the service provider, a route from the service provider to the destination location,

wherein, the preferred service provider is designated from the subset of the plurality of service providers based on the one or more characteristics of the preferred service provider and the route from the preferred service provider to the destination location.

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

for each of the service providers in the subset of the plurality of service providers, calculating, using the map data, current position information for the mobile device corresponding to the service provider, and the one or more route preferences for the service provider, a route from the service provider to the destination location,

wherein, the preferred service provider is designated from the subset of the plurality of service providers based on the one or more characteristics of the preferred service provider and the route from the service provider to the destination location.

36.(New) The method of claim 32, wherein the first data includes GPS location information representing real-time location updates from the plurality of mobile devices.

37. (New) The method of claim 32, wherein the destination location is one of a route

stop, an origin, a via, and a stop.

38. (New) The method of claim 32, wherein the one or more characteristics include a vehicle capacity.

39. (New) The method of claim 32, wherein the one or more characteristics include a vehicle type.

Remarks

Upon the filing of this response, claims 1-9 and 19-39 are pending, with claims 1, 23, and 32 being independent claims. Claims 10-18 have been cancelled, claims 1, 2, 3, 6, and 7 have been amended to improve the form of the claims, and claims 19-39 have been added. Applicants submit that no new matter has been added and that the claims as currently presented have support in the application as originally filed.

Objection to the Drawings

The Examiner objected to the drawings as being blurry and difficult to read. In response, Applicants submit herewith replacement drawing sheets, which are identical to the originally filed drawings and contains no new matter.

Rejection under 35 USC 112

The Examiner rejected claims 1-18 under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite. Applicants submit that certain of the claim amendments set forth above address the Examiner's concerns and that the claims as currently presented are in compliance with 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph.

Rejection under 35 USC 101

The Examiner rejected claims 1-18 as unpatentable under 35 U.S.C. 101 because the claimed invention is directed to an abstract idea without significantly more. *See* Office Action at 6. For the reasons set forth below, this rejection is in error and should be withdrawn.

The Examiner asserts that clauses 3, 4, and 5 of claim 1 "are a simple process that, under their broadest reasonable interpretation, covers performance of the limitations in the mind…[;] [f]or example, the claim limitations encompass a person looking at data received and determining information (distances, estimated times of arrival, etc.) from the received data, and designating a subset therefrom, and selecting a preferred service provider from the subset." *See* Office Action at 6-7. However, this analysis misapplies the law of 35 U.S.C. 101 and ignores critical context of the claim language.

As stated in MPEP 2106(a)(2)(III)(A), "a claim with limitations that cannot *practically* be performed in the human mind does *not* recite a mental process" (emphasis added). Indeed, as indicated in the MPEP, similar claim limitations (i.e. "a method for calculating an absolute position of a GPS receiver…an absolute time…[and] estimat[ing] the distance from the GPS receiver to a plurality of satellites") have been specifically found to not recite mental processes because they cannot be practically performed in the human mind. *Id.* (citing *SiRF Tech., Inc. v. Int'l Trade Comm'n*, 601 F.3d 1319, 1331-33 (Fed. Cir. 2010)).

Like the claims in *SiRF Tech.*, the claims here include limitations which could not practically be performed entirely in the human mind. For example, claim 1 recites *inter alia*:

> - receiving ***first data*** **comprising** ***a plurality of location updates*** from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers…. and ***each of the plurality of location updates representing a location of a respective one of the plurality of service providers at a particular time*** (emphasis added); and
> - receiving ***second data*** representing a destination location (emphasis added); and
> - ***determining***, for ***each*** of the plurality of service providers and ***using at least the first data and the second data***, at least one of ***a distance*** between the service provider and the destination location and ***an estimated time of arrival*** of the service provider at the destination location (emphasis added).

As reflected by the claim language, the "first data" comprises location update each of which represents the location of a service provider at any particular time. As the first data is received to reflect the locations of the service providers, the method subsequently computes, for each service provider, the distance between the service provider and the destination location and/or the estimated time of arrival ("ETA") of the service provider at the destination location. The Examiner has not shown how the human mind is "practically" capable of performing these calculations (i.e., distance and ETA) for "a *plurality* of location updates from a *plurality* of mobile devices" at any meaningful rate.

A simple example clearly illustrates how the rationale underlying the rejection is flawed. The Examiner asserts that "the claim limitations encompass a person looking at data received and determining information (distances, estimated times of arrival, etc.) from the received data…". *See* Office Action at 7. However, in order for the method to accurately determine a

distance or an ETA as claimed, it must first determine a route by which the service provider can reach the destination location. In addition, to determine an ETA, the method must also determine other travel variables, e.g., permissible/average speed of travel. That prior determination of route/travel variables requires a preexisting knowledge of essentially all possible variations of a route (i.e., a map of all roads in a given area), and the relevant travel variables, e.g., permissible/average speed, on each of segment of the route. Even assuming, *arguendo*, that a human mind was capable of calculating a "bird's eye" distance and ETA between a service provider location and destination location at a meaningful rate, it is not reasonable to suggest or assume that a human mind would be practically capable of knowing essentially every possible variation of a route (even in an area personally familiar to the human) and knowing the relevant travel variables on each segment of the route. Consequently, the method, as a whole, is not merely a mental process because there is no evidence here that the calculations can be performed entirely in the human mind.

Alternatively, even if the cited portions of the claim were determined to be merely a mental process, the additional language recited in the claims would integrate the process into a practical application, or otherwise, amount to significantly more than a mere mental process, for the reasons explained above.

Double Patenting Rejection

In the Office action, the Examiner rejected claims 1-18 on the ground of non-statutory double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 9,921,077. The Examiner also rejected claims 1-18 on the ground of non-statutory double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 10,502,583. In response to the double patenting rejections, Applicants are filing concurrently herewith an appropriate terminal disclaimer to overcome the rejection.

Conclusion

In view of the foregoing remarks, Applicants submit that claims 1-9 and 19-39 are in condition for allowance. The Examiner is invited to contact the Applicants' undersigned attorney if any unresolved matters remain with respect to the present application. The

Commissioner is hereby authorized to charge any fee deficiency or credit any fee payment to Deposit Account No. 506825.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/322,839	Filing Date 05/17/2021	☐ 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 $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $480 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	10/23/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 30	Minus	** 30	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

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

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

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/322,839	05/17/2021	Michael Sheha	BSV-012

CONFIRMATION NO. 8783

133855
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PUBLICATION NOTICE

OC000000128291362

Title: Method and System for Dynamic Estimation and Predictive Route Generation

Publication No.US-2021-0278234-A1
Publication Date:09/09/2021

NOTICE OF PUBLICATION OF APPLICATION

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

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

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

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Courtesy Reminder for
Application Serial No: 17/322,839

Attorney Docket No: BSV-012
Customer Number: 133855
Date of Electronic Notification: 07/28/2021

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

jwyoo@giplaw-korea.com
jpark@hyunusa.com
jpark@bluestoneip.com

To view your correspondence online or update your email addresses, please visit us anytime at **https://ppair-my.uspto.gov/pair/PrivatePair.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

133855 7590 07/28/2021

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EXAMINER
ANTONUCCI, ANNE MARIE

ART UNIT	PAPER NUMBER
3667	

NOTIFICATION DATE	DELIVERY MODE
07/28/2021	ELECTRONIC

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

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

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

jpark@bluestoneip.com
jpark@hyunusa.com
jwyoo@giplaw-korea.com

Office Action Summary	Application No. 17/322,839	Applicant(s) Sheha et al.	
	Examiner ANNE M ANTONUCCI	Art Unit 3667	AIA (FITF) Status No

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

Period for Reply

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

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

Status

1)☑ Responsive to communication(s) filed on 17 May 2021.

☐ 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) 1-18 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) 1-18 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 17 May 2021 is/are: a)☐ accepted or b)☑ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

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

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

4) ☐ Other: _____.

Notice of Pre-AIA or AIA Status

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

Status of the Claims

This **first non-final action** is in response to applicant's **original filing** of **17 May 2021**. **Claims 1-18** are pending and have been considered as follows.

Drawings

The drawings are objected to because several of the figures are blurry and difficult to read. For example, in figures 11-25, the drawings, including the reference numbers are fuzzy/blurry and difficult to read/distinguish the reference numbers in the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

> The following is a quotation of 35 U.S.C. 112(b):
> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.
>
> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-18 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention. Specifically,

- In claim 1, lines 13-14, the limitation “and a capability of the service provider” is recited. Previously in the limitation, a subset of the plurality of services providers are designated. Each of the other options/limitations provided for such designation are using determined distances (plural) and determined estimated times of arrival (plural). However, this limitation is a singular capability of a single service provider. As such, it is unclear what service provider of the plurality of service providers is being used for such determination/designation, or if it is the capabilities of each of the services providers being evaluated.
- In claim 1, line 16-19, the limitation “using at least one of the determined distances between the subset of the plurality of service providers and the destination location, the determined estimated times of arrival of the subset of

the plurality of the service providers at the destination location, and capabilities of the subset of plurality of service providers" is recited. It is unclear to the examiner if it is one of the determined distances, all of the determined estimated times of arrival or all of the capabilities that are being used (i.e., one of is only referring to one of the determined distances), or if instead "one of" is meant to indicate, one of: the determined distances, the determined estimated times of arrival, and capabilities. In other words, it is unclear to the examiner exactly what "one of" is meant to refer to.

- In claim 1, line 19, the limitation "capabilities of the subset of plurality of service providers" is recited. It is unclear to the examiner if "capabilities" are referring to the same capability previously recited at lines 13-14 AND it is unclear to the examiner if "plurality of service providers" is the same plurality of service providers previously recited in the claim, or if these are different plurality of service providers.
- Claims 2-6 are rejected as being dependent upon a rejected claim.
- In claim 7, line 2, the limitation "the current positions" is recited. There is insufficient antecedent basis for this limitation in the claim.
- Claims 8-9 are rejected as being dependent upon a rejected claim.
- In claim 10, lines 17-18, the limitation "and a capability of the service provider" is recited. Previously in the limitation, a subset of the plurality of services providers are designated. Each of the other options/limitations provided for such designation are using determined distances (plural) and determined estimated times of arrival (plural). However, this limitation is a singular

capability of a single service provider. As such, it is unclear what service provider of the plurality of service providers is being used for such determination/designation, or if it is the capabilities of each of the services providers being evaluated.

- In claim 10, lines 20-23, the limitation "using at least one of the determined distances between the subset of the plurality of service providers and the destination location, the determined estimated times of arrival of the subset of the plurality of the service providers at the destination location, and capabilities of the subset of plurality of service providers" is recited. It is unclear to the examiner if it is one of the determined distances, all of the determined estimated times of arrival or all of the capabilities that are being used (i.e., one of is only referring to one of the determined distances), or if instead, "one of" is meant to indicate, one of: the determined distances, the determined estimated times of arrival, and capabilities. In other words, it is unclear to the examiner exactly what "one of" is meant to refer to.
- In claim 1, line 23, the limitation "capabilities of the subset of plurality of service providers" is recited. It is unclear to the examiner if "capabilities" are referring to the same capability previously recited at lines 17-18 AND it is unclear to the examiner if "plurality of service providers" is the same plurality of service providers previously recited in the claim, or if these are different plurality of service providers.
- Claims 11-15 are rejected as being dependent upon a rejected claim.

- In claim 6, line 3, the limitation "the current positions" is recited. There is insufficient antecedent basis for this limitation in the claim.
- Claims 17-18 are rejected as being dependent upon a rejected claim.

Claim Rejections - 35 USC § 101

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

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

Claims 1-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to an abstract idea without significantly more. With regards to independent claims 1 and 10, the claims recite the limitations of determining, for each of the plurality of service providers and using at least the first data and the second data, at least one of a distance between the transportation provider and the destination location, and an estimated time of arrival of the service provider at the destination location; designating a subset of the plurality of service providers using at least one of the determined distances between the service providers and the destination location, the determined estimated times of arrival of the service providers at the destination location, and a capability of the service provider; and selecting, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer using at least one of the determined distances between the subset of the plurality of service providers and the destination location, the determined estimated times of arrival of the subset of the plurality of service providers at the destination location, and capabilities of the subset of plurality of service providers. These limitations, as drafted, are a simple process that, under their broadest reasonable interpretation, covers performance of the

limitations in the mind. For example, the claim limitations encompass a person looking at data received and determining information (distances, estimated times of arrival, etc.) from the received data, and designating a subset therefrom, and selecting a preferred service provider from the subset. The Examiner notes that under MPEP 2106.04(a)(2)(III), the courts consider a mental process (thinking) that "can be performed in the human mind, or by a human using a pen and paper" to be an abstract idea. *CyberSource Corp. v. Retail Decisions, Inc.,* 654 F.3d 1366, 1372, 99 USPQ2d 1690, 1695 (Fed. Cir. 2011). As the Federal Circuit explained, "methods which can be performed mentally, or which are the equivalent of human mental work, are unpatentable abstract ideas the 'basic tools of scientific and technological work' that are open to all.'" 654 F.3d at 1371, 99 USPQ2d at 1694 (citing *Gottschalk v. Benson,* 409 U.S. 63, 175 USPQ 673 (1972)). See also *Mayo Collaborative Servs. v. Prometheus Labs. Inc.,* 566 U.S. 66, 71, 101 USPQ2d 1961, 1965 ("'[M]ental processes[] and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work'" (quoting *Benson,* 409 U.S. at 67, 175 USPQ at 675)); *Parker v. Flook,* 437 U.S. 584, 589, 198 USPQ 193, 197 (1978) (same). As such, a person looking at the received data could determine data therefrom, and designate and selected specific data, either mentally or using a pen and paper. The mere nominal recitation (in claim 10) that the various steps are being executed by a processor does not take the limitations out of the mental process grouping. Thus, the claims recite a mental process.

This judicial exception is not integrated into a practical application. Claims 1 and 10 recite the additional limitations of receiving first data comprising a plurality of location

updates from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers and each of the plurality of location updates representing a location of a respective one of the plurality of service providers at a particular time; and receiving second data representing a destination location. These receiving steps recited are recited at a high level of generality (i.e., as a general means of gathering location updates from a plurality of mobile devices, and a destination location), and amount to mere data gathering, which is a form of insignificant extra-solution activity. Further, claim 11 recites the additional limitations of a computing system comprising at least one memory comprising computer executable instructions and at least one processor. The computing system comprising at least one memory comprising computer executable instructions and at least one processor merely describes how to generally "apply" the otherwise mental judgments in a generic or general purpose computing environment. The computing system comprising at least one memory comprising computer executable instructions and at least one processor are recited at a high level of generality and merely automate the generating steps. Accordingly, even in combination, these additional elements do not integrate the abstract idea into a practical application because they do not impose any meaningful limits on practicing the abstract idea.

The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception. As discussed above, the additional elements in the claims amount to no more than mere instructions to apply the exception using a computer. Further, applicant's specification does not provide any indication that the determining, designating and selecting steps are performing using

anything other than a conventional computer. MPEP 2106.05(d)(II), and the cases cited therein, including *Intellectual Ventures I, LLC v. Symantec Corp.*, 838 F.3d 1307, 1321 (Fed. Cir. 2016), *TLI Communications LLC v. AV Auto. LLC,* 823 F.3d 607, 610 (Fed. Cir. 2016), and *OIP Techs., Inc., v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015), indicate that mere performance of an action is a well-understood, routine, and conventional function when it is claimed in a merely generic manner (as it is here).

Dependent claims 2-9 and 11-18 further limit the abstract idea without integrating the abstract idea into practical application or adding significantly more. For example, in claim 2, the additional limitation of causing a display of a plurality of indicators on a graphical representation of a map, each of the plurality of indicators corresponding to a current position of the preferred service provider based on a respective one of the plurality of location updates. Federal Circuit in *Trading Techs. Int'l v. IBG LLC*, 921 F.3d 1084, 1093 (Fed. Cir. 2019), and *Intellectual Ventures I LLC v. Erie Indemnity Co.*, 850 F.3d 1315, 1331 (Fed. Cir. 2017), for example, indicated that the mere displaying of data (providing a notification) is a well understood, routine, and conventional function. As such, the causing of a display, as claimed in claim 2, is a step that is is well-understood, routine, conventional activity and does not integrate the abstract idea into practical application. As a further example, in claim 4, the addition limitations of calculating an estimated route for the preferred service provider to the destination location based on a location of the preferred service provider relative to the destination location, is a further steps that, under their broadest reasonable interpretation, covers performance of the limitation in the mind using a similar analysis applied to claim 1 above.

As such, claims 1-18 are rejected under 35 USC 101 as being drawn to an abstract idea without significantly more, and thus are ineligible.

Double Patenting

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

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP § 2146 *et seq.* for

applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

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

Claims 1-18 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 9,921,077. Although the claims at issue are not identical, they are not patentably distinct from each other because each of the limitations of the present claims can be mapped to a claim or a claim limitation of US. Patent No. 9,921,077. See the table below.

Claim (or claim limitation of Present Application)	**Corresponding limitation of US Patent 9,921,077 for mapping**
Claim 1 receiving first data comprising a plurality of location updates from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service	**Claim 1** receiving, at a server, first data comprising a plurality of location updates from a plurality of transportation provider mobile devices, each of the plurality of transportation provider mobile devices

providers and each of the plurality of location updates representing a location of a respective one of the plurality of service providers at a particular time	corresponding to a respective one of a plurality of transportation providers and each of the plurality of location updates representing a location of a respective one of the plurality of transportation providers at a particular time
Claim 1 receiving second data representing a destination location;	**Claim 1** receiving, at the server from a customer mobile device, second data comprising a pickup location for a customer associated with the customer mobile device;
Claim 1 determining, for each of the plurality of service providers and using at least the first data and the second data, at least one of a distance between the transportation provider and the destination location, and an estimated time of arrival of the service provider at the destination location;	**Claim 1** determining, for each of the plurality of transportation providers and using at least the first data and the pickup location, a distance between the transportation provider and the pickup location and an estimated time of arrival of the transportation provider at the pickup location;
Claim 1 designating a subset of the plurality of service providers using at least one of the	**Claim 1** generating, by the server, a sorted listing of the plurality of transportation providers

determined distances between the service providers and the destination location, the determined estimated times of arrival of the service providers at the destination location, and a capability of the service provider;	using at least one of the determined distances between the transportation providers and the pickup location and the determined estimated times of arrival of the transportation providers at the pickup location;
Claim 1 selecting, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer using at least one of the determined distances between the subset of the plurality of service providers and the destination location, the determined estimated times of arrival of the subset of the plurality of service providers at the destination location, and capabilities of the subset of plurality of service providers.	**Claim 1** selecting, based on the selection from the sorted listing and at least the first data and the second data, a preferred transportation provider from among the plurality of transportation providers to provide transportation for the customer.
Claim 2	**Claim 1** causing a display of a plurality of indicators on a graphical representation of a map, each of the plurality of

	indicators corresponding to a current position of a respective one of the plurality of transportation providers based on a respective one of the plurality of location updates;
Claim 3	**Claim 2**
Claim 4	**Claim 4**
Claim 5	**Claim 5**
Claim 6	**Claim 6**
Claim 7	**Claim 9**
Claim 8	Claim 8 of the current application would be obvious in view of claims 1-10 of US 9,921,077 as the calculating and display of an ultimate route to be taken by the preferred service provider would be known to one of ordinary skill in the art at the time of the invention.
Claim 9	Claim 9 of the current application would be obvious in view of claims 1-10 of US 9,921,077 as the calculating and display of an ultimate route to be taken by the preferred service provider would be

	known to one of ordinary skill in the art at the time of the invention.

With respect to claims 10-18, please see the mapping above for claims 1-9 which are commensurate in scope to claims 10-18, with claims 10-18 being drawn to a computing system, which is claimed in claim 11 of US 9,921,077.

Claims 1-18 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-21 of U.S. Patent No. 10,502,583. Although the claims at issue are not identical, they are not patentably distinct from each other because each of the limitations of the present claims can be mapped to a claim or a claim limitation of US. Patent No. 10,502,583. See the table below.

Claim (or claim limitation of Present Application)	**Corresponding limitation of US Patent 10,502,583 for mapping**
Claim 1 receiving first data comprising a plurality of location updates from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers and each of the plurality of location updates representing a location	**Claim 1** receiving, at a server, first data comprising a plurality of location updates from a plurality of transportation provider mobile devices, each of the plurality of transportation provider mobile devices corresponding to a respective one of a plurality of transportation providers and each of the plurality of location updates

of a respective one of the plurality of service providers at a particular time	representing a location of a respective one of the plurality of transportation providers at a particular time
Claim 1 receiving second data representing a destination location;	**Claim 1** receiving, at the server from a customer mobile device, second data comprising a pickup location for a customer associated with the customer mobile device;
Claim 1 determining, for each of the plurality of service providers and using at least the first data and the second data, at least one of a distance between the transportation provider and the destination location, and an estimated time of arrival of the service provider at the destination location;	**Claim 1** determining, for each of the plurality of transportations providers and using at least the first data and the pickup location, a distance between the transportation provider and the pickup location and an estimated time of arrival of the transportation provider at the pickup location;
Claim 1 designating a subset of the plurality of service providers using at least one of the determined distances between the service providers and the destination location, the determined estimated times	**Claim 1** designating, by the server, a subset of the plurality of transportation providers using at least one of the determined distances between the transportation providers, the pickup location, the determined estimated

of arrival of the service providers at the destination location, and a capability of the service provider;	times of arrival of the transportation providers at the pickup location, a vehicle passenger capacity;
Claim 1 selecting, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer using at least one of the determined distances between the subset of the plurality of service providers and the destination location, the determined estimated times of arrival of the subset of the plurality of service providers at the destination location, and capabilities of the subset of plurality of service providers.	**Claim 1** selecting, from the subset of the plurality of transportation providers and based on at least the first data and the second data, a preferred transportation provider from among the plurality of transportation providers to provide transportation for the customer
Claim 2	**Claim 1** causing a display of a plurality of indicators on a graphical representation of a map, each of the plurality of indicators corresponding to a current position of a respective one of the plurality of transportation providers based

	on a respective one of the plurality of location updates
Claim 3	**Claim 2**
Claim 4	**Claim 4**
Claim 5	**Claim 5**
Claim 6	**Claim 6**
Claim 7	**Claim 9**
Claim 8	Claim 8 of the current application would be obvious in view of claims 1-10 of US 10,502,583 as the calculating and display of an ultimate route to be taken by the preferred service provider would be known to one of ordinary skill in the art at the time of the invention.
Claim 9	Claim 9 of the current application would be obvious in view of claims 1-10 of US 10,502,583 as the calculating and display of an ultimate route to be taken by the preferred service provider would be known to one of ordinary skill in the art at the time of the invention.

With respect to claims 10-18, please see the mapping above for claims 1-9 which are commensurate in scope to claims 10-18, with claims 10-18 being drawn to a computing system, which is claimed in claim 11 of US 10,502,583.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNE MARIE ANTONUCCI whose telephone number is (313)446-6519. The examiner can normally be reached on Monday to Friday 8:30 to 5:00.

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

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Faris Almatrahi can be reached on 313-446-4821. 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 https://ppair-my.uspto.gov/pair/PrivatePair. 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.

ANNE MARIE. ANTONUCCI
Primary Examiner
Art Unit 3667

/ANNE MARIE ANTONUCCI/
Primary Examiner, Art Unit 3667

Notice of References Cited	Application/Control No. 17/322,839	Applicant(s)/Patent Under Reexamination Sheha et al.	
	Examiner ANNE M ANTONUCCI	Art Unit 3667	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-5675492-A	10-1997	Tsuyuki; Toshio	G01C21/3407	340/988
*	B	US-5543789-A	08-1996	Behr; David A.	G01C21/26	340/990
*	C	US-5610821-A	03-1997	Gazis; Denos C.	G01C21/3492	340/990
*	D	US-4888699-A	12-1989	Knoll; Peter	G01C21/3614	701/445
*	E	US-5721678-A	02-1998	Widl; Andreas	G01C21/26	705/417
*	F	US-5933100-A	08-1999	Golding; Andrew R.	G08G1/0104	340/995.13
	G					
	H					
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	J					
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	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
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	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
	17/322,839	Sheha et al.
	Examiner	Art Unit
	ANNE M ANTONUCCI	3667

CPC - Searched*		
Symbol	**Date**	**Examiner**
G01C 21/367; 21/26, 21/30; 21/34; 21/3676; 19/42; 21/3617; 21/3415; 21/3626; 21/3469	07/23/2021	AA
G06Q 50/30	07/23/2021	AA
G01S 19/42	07/23/2021	AA
G08G 1/202	07/23/2021	AA

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

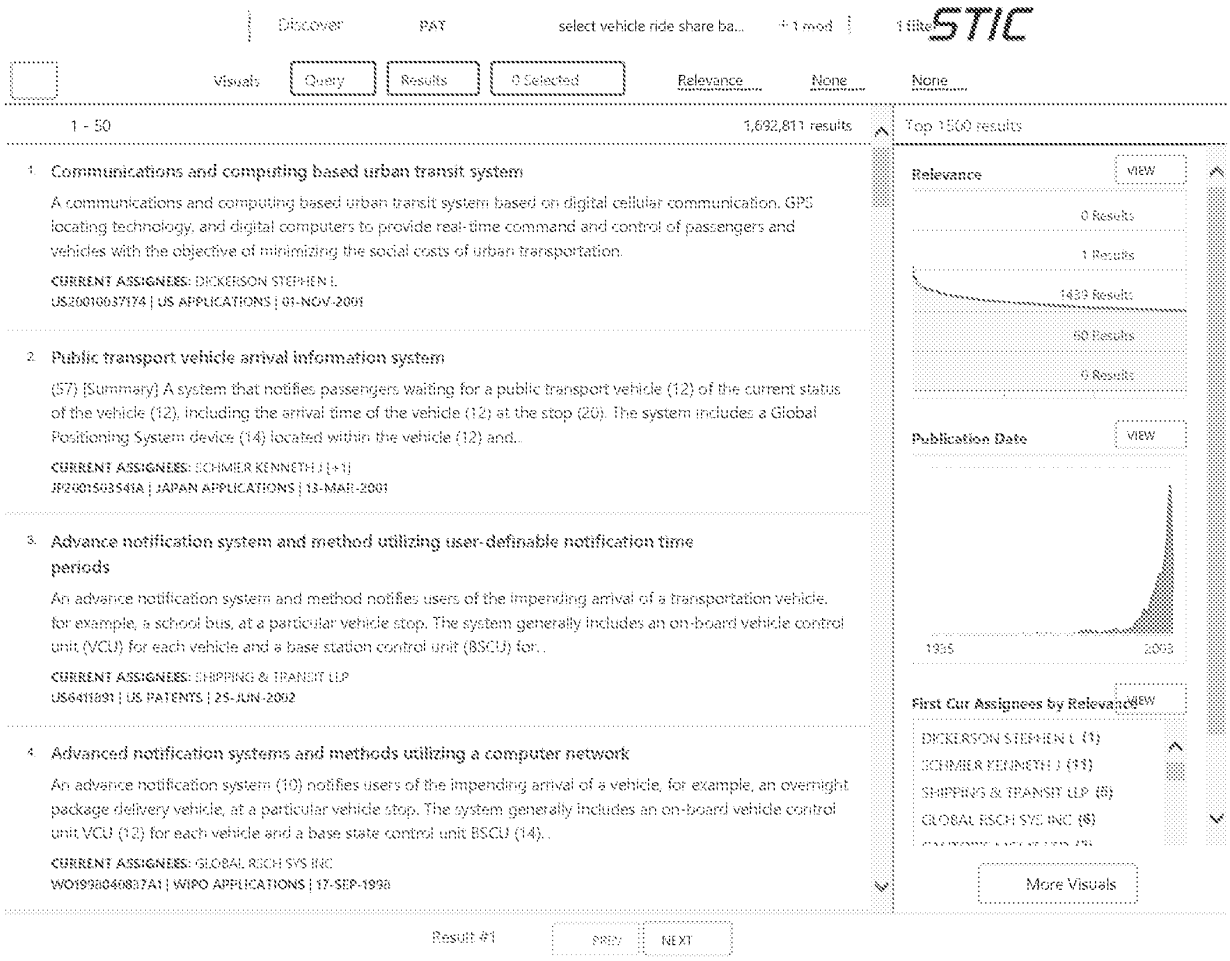
US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**

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

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/322,839	Sheha et al.
	Examiner	Art Unit
	ANNE M ANTONUCCI	3667

Search Notes		
Search Notes	**Date**	**Examiner**
G01C 21/367; 21/26, 21/30; 21/34; 21/3676; 19/42; 21/3617; 21/3415 ; 21/3626; 21/3469 (text limited)	07/23/2021	AA
G06Q 50/30 (text limited)	07/23/2021	AA
G01S 19/42 (text limited)	07/23/2021	AA
G08G 1/202 (text limited)	07/23/2021	AA
Inventor Name and Assignee search	07/23/2021	AA
IP.com Search	07/23/2021	AA
PE2E Search (keywords going to determining locations of a vehicle taxi fleet and determining best vehicle to provide transportation service)	07/23/2021	AA
review Parent Applications	07/23/2021	AA
Global Dossier search	07/23/2021	AA

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
PE2E Search		07/23/2021	AA


Discover
PAT
select vehicle ride share ba...
+ 1 mod
1 filte
STIC
Visuals
Query
Results
0 Selected
Relevance
None
None
1 - 50
1,692,811 results
Top 1500 results
1. Communications and computing based urban transit system
A communications and computing based urban transit system based on digital cellular communication, GPS locating technology, and digital computers to provide real-time command and control of passengers and vehicles with the objective of minimizing the social costs of urban transportation.
CURRENT ASSIGNEES: DICKERSON STEPHEN L
US20010037174 | US APPLICATIONS | 01-NOV-2001
2. Public transport vehicle arrival information system
(57) [Summary] A system that notifies passengers waiting for a public transport vehicle (12) of the current status of the vehicle (12), including the arrival time of the vehicle (12) at the stop (20). The system includes a Global Positioning System device (14) located within the vehicle (12) and...
CURRENT ASSIGNEES: SCHMIER KENNETH J [+1]
JP2001503541A | JAPAN APPLICATIONS | 13-MAR-2001
3. Advance notification system and method utilizing user-definable notification time periods
An advance notification system and method notifies users of the impending arrival of a transportation vehicle, for example, a school bus, at a particular vehicle stop. The system generally includes an on-board vehicle control unit (VCU) for each vehicle and a base station control unit (BSCU) for...
CURRENT ASSIGNEES: SHIPPING & TRANSIT LLP
US6411891 | US PATENTS | 25-JUN-2002
4. Advanced notification systems and methods utilizing a computer network
An advance notification system (10) notifies users of the impending arrival of a vehicle, for example, an overnight package delivery vehicle, at a particular vehicle stop. The system generally includes an on-board vehicle control unit VCU (12) for each vehicle and a base state control unit BSCU (14)...
CURRENT ASSIGNEES: GLOBAL RSCH SYS INC
WO1998040837A1 | WIPO APPLICATIONS | 17-SEP-1998
Relevance
VIEW
0 Results
1 Results
1499 Results
50 Results
0 Results
Publication Date
VIEW
1995
2003
First Cur Assignees by Relevance
VIEW
DICKERSON STEPHEN L (1)
SCHMIER KENNETH J (11)
SHIPPING & TRANSIT LLP (8)
GLOBAL RSCH SYS INC (6)
More Visuals
Result #1
PREV
NEXT

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	563	(bluestone SAME ventures).as. ((sheha SAME angie) (sheha SAME michael) (petilli SAME stephen).in. (yarlagadda SAME arun).in.)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:21 AM
L2	10093	(service SAME provider) AND (time SAME arrival SAME destination)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:25 AM
L3	4	L1 AND L2	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:25 AM
L4	553	((sheha SAME angie) (sheha SAME michael) (petilli SAME stephen).in. (yarlagadda SAME arun).in.)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:26 AM
L5	4	L2 AND L4	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:26 AM
L6	197	(bluestone SAME ventures).as. ((sheha SAME angie).in. (sheha SAME michael).in. (petilli SAME stephen).in. (yarlagadda SAME arun).in.)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:27 AM
L7	0	L2 AND L6	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:29 AM
L8	563	(bluestone SAME ventures).as. ((sheha SAME angie) (sheha SAME michael) (petilli SAME stephen).in. (yarlagadda SAME arun).in.)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:47 AM
L9	10093	(service SAME provider) AND (time	(US-PGPUB; USPAT; USOCR; FIT (CN, FR,	OR	ON	ON	2021/07/23 07:47 AM

		SAME arrival SAME destination)	WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L10	4	L1 AND L2	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:47 AM
L11	553	((sheha SAME angie) (sheha SAME michael) (petilli SAME stephen).in. (yarlagadda SAME arun).in.)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:47 AM
L12	4	L2 AND L4	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:47 AM
L13	197	(bluestone SAME ventures).as. ((sheha SAME angie).in. (sheha SAME michael).in. (petilli SAME stephen).in. (yarlagadda SAME arun).in.)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:47 AM
L14	0	L2 AND L6	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:47 AM
L15	2	16/377228.app.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 07:48 AM
L16	156137	(G01C21/367 OR G01C21/26 OR G01C21/30 OR G01C21/34 OR G01C21/3676 OR G01C19/42 OR G01C21/3617 OR G01C21/3415 OR G01C21/3626 OR G06Q50/30 OR G01C21/3469 OR G01S19/42 OR G08G1/202).cpc.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 08:04 AM
L17	7	"9921077".pn.	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 08:04 AM

L18	1	("5675492").pn. OR ("9921077").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:20 AM
L19	13	("5819227"|"4888699"|"20050114190"|"9195765"|"5543789"|"5721678"|"5933100"|"20150153191"|"20160018969"|"6085148"|"9378511"|"5948040"|"5610821").PN.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:21 AM
L20	6	("9607346" "9354069" "8577390" "8095152" "7881730" "7565155").pn.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:51 AM
L21	2141	(rid$4 match$4 shar$4 hail$4) WITH (transport$5 taxi vehicl$3) WITH (pickup (pick adj3 up)) WITH (location spot place)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:52 AM
L22	440	L21 SAME (distance SAME time)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:53 AM
L23	238	L16 AND L22	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:53 AM
L24	287	dispatch$3 SAME ((pick adj3 up) pickup) SAME time SAME (sort$5 rank$5 list$5)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:54 AM
L25	3907	(rid$4 match$4 shar$4 hail$4) SAME (transport$5 taxi vehicl$3) SAME (pickup (pick adj3 up)) WITH (location spot place)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:55 AM
L26	60	L24 AND L25	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:55 AM
L27	57	("4437085" | "4613913" | "4631678" | "4646015" | "4660037" | "4686642" | "4688176" | "4734863" | "4737916" | "4763270" | "4774671" | "4774672").pn. OR ("4888699").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:55 AM
L28	548	("4311876" | "4466125" | "4951212" | "4954958" | "5172321" | "5243528" | "5262775" | "5283575" | "5291412" | "5291413" | "5293163" | "5293484").pn. OR ("5543789").urpn. AND	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:56 AM

		(PGPB | USPT | USOC).dbnm.					
L29	295	("4015804" | "4301506" | "4350970" | "4357593" | "4819174" | "4954958" | "4979118" | "5083256" | "5132684" | "5164904" | "5172321" | "5173691" | "5182555" | "5220507" | "5257023" | "5272638" | "5297049" | "5369591").pn. OR ("5610821").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:56 AM
L30	38	("5031104" | "5172321" | "5206811" | "5220507" | "5243528" | "5270937" | "5272638" | "5285391" | "5291413" | "5369588" | "5371678" | "5412573" | "5467276").pn. OR ("5675492").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:56 AM
L31	101	("5144553" | "5253162" | "5257195" | "5310999" | "5451758" | "5452217" | "5557524").pn. OR ("5721678").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:56 AM
L32	346	("5089826" | "5220507" | "5317311" | "5365449" | "5371678" | "5402117" | "5450343" | "5452217" | "5473324" | "5523950" | "5539398" | "5539645" | "5543789" | "5610821" | "5648768" | "5689252").pn. OR ("5933100").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:56 AM
L33	0	(L27 L28 L29 L30 L31 L32) AND L22	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:57 AM
L34	8	(L27 L28 L29 L30 L31 L32) AND L25	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 08:57 AM
L35	180	("20010037174" "6411891" "20020069017" "6006159" "6184802" "6356838" "6374176" "20020099500" "20020099599" "4148260" "5541845"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:03 AM

		"6389982" "20020082893" "20020138352" "6087952" "6253980" "20020082756" "4089272" "20010042996" "5758313" "5647281" "5657010" "5623878" "6241308" "6401078" "20020103728" "6336676" "5623260" "20020042670" "20020049523" "20020032507" "6124810" "3954064" "20030040944" "5403238" "6430486" "5485161" "20020070882" "20010056544" "6356822" "5880958" "6452870" "20020000357" "6427101" "4685398" "6539296" "5668543" "20020061758" "20010032743" "5934198" "6313760" "6529809" "5613216" "6271843" "5797330" "5199358" "20020059022" "20020188702" "20020107873" "5799263" "5884216" "5604676" "6088648" "6026345" "5400020" "20030036931" "4271762" "4361202" "3249063" "5920057" "5636122" "4217970" "20020063006" "6367817" "6526352" "20020198632" "20020062207" "5868077" "4072203" "5922040" "5063857" "5751245" "6246960" "6462697" "5110153" "4360875" "4212069" "5464082" "20020152053" "6084870" "5902351" "5971091" "6321158" "6370475" "5802492" "5666883" "5165838" "6405132" "5598783"					

		"20020029720" "20010034612" "6459973" "5590604" "5712789" "20020197135" "5791425" "6092468" "20030034873" "6135228" "4168770" "5801943" "5696503" "4447680" "3961582" "6524050" "5456184" "5122959" "6493921" "5432700" "5595121" "20030059288" "6339745" "5256021" "6435803" "5572449" "20030023362" "4153874" "6397136" "5590603" "5295551" "5973619" "6218961" "20020010974" "5808565" "6168367" "5390125" "6421606" "6445988" "6198994" "6249724" "5504482" "6169954" "6276542" "5961571" "20010037903" "5953706" "4075948" "4132175" "20030056997" "5982139" "6114834" "20020125050" "6134492" "5721685" "6085976" "6253134" "5736940" "5904101" "20030036835" "5825283" "6330501" "3108564" "20010054516" "5542357" "5438517" "6148291" "6157891" "6242701" "6308640" "5375059" "20020095326" "20010037904" "5555503" "5629855" "5669307" "6039135" "6275231" "5794730").pn.					
L36	11	L35 AND L25	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:03 AM
L37	0	L35 AND (((rid$4 match$4 shar$4 hail$4) WITH (transport$5 taxi vehicl$3) WITH (pickup (pick adj3 up)) WITH	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:03 AM

		(location spot place)) SAME (distance SAME time))					
L38	0	16/377288.app.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:05 AM
L39	2	16/377228.app.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:05 AM
L40	0	("2019/0234754").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:05 AM
L41	13	("4888699" | "5543789" | "5610821" | "5721678" | "5819227" | "5933100" | "5948040" | "6085148" | "9195765" | "9378511" | "20050114190" | "20150153191" | "20160018969").pn. OR ("10502583").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:05 AM
L42	0	("2019/0234754").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:06 AM
L43	14082	((dispatch$5 OR allocat$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR ride OR rides OR transport$5)) AND (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) AND (time AND distance)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:10 AM
L44	534	((dispatch$5 OR allocat$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR ride OR rides OR transport$5))	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:10 AM

		SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) SAME (time SAME distance)					
L45	69	L44 AND (@pd OR @ptad OR @prad OR @ad OR @rlad)<"20030410"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:11 AM
L46	1719	((dispatch$5 OR allocat$5 OR select$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR ride OR rides OR transport$5)) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) SAME (time SAME distance)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:11 AM
L47	248	L46 AND (@pd OR @ptad OR @prad OR @ad OR @rlad)<"20030410"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:12 AM
L48	6030	((time near3 arrival) AND distance).clm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:13 AM
L49	132	L48 AND L46	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:13 AM
L50	49266	((distance OR miles OR kilomet$2s OR klicks OR length OR extent OR range OR mileage OR milage OR far) SAME (destination OR (pickup OR pick$3 ADJ	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:14 AM

		up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points))).clm.					
L51	89	L49 AND L50	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:14 AM
L52	70	L51 AND (estimat$4 near3 time near3 arriv$5)	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:15 AM
L53	59	L51 AND (estimat$4 near3 time near3 arriv$5).clm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:15 AM
L54	4685	((dispatch$5 OR allocat$5 OR select$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR ride OR rides OR transport$5)) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) SAME (time SAME distance)	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 09:16 AM
L55	248	L54 AND (@pd OR @ptad OR @prad OR @ad OR @rlad)<"20030410"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:16 AM
L56	12	(((((((time near3 arrival) AND distance).clm.) AND (((dispatch$5 OR allocat$5 OR select$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 09:19 AM

		ride OR rides OR transport$5)) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) SAME (time SAME distance))) AND (((distance OR miles OR kilomet$2s OR klicks OR length OR extent OR range OR mileage OR milage OR far) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points))).clm.)) AND (estimat$4 near3 time near3 arriv$5).clm.) AND ((opt$5 select$4 specify$4 choos$3 determin$3 pick$3 click$3 choice$1 access$3 determin$3 designat$3 defin$3 identify$3) WITH (customer user passenger)).clm.) AND (location near3 (updat$4 real$1tim$3 OR real ADJ time OR RTC OR reactive OR synchronous OR actual ADJ time OR instantaneous$3 OR instant$3 OR immediate$3 OR spontaneous$3)).clm.					
L57	369	(((((((time near3 arrival) AND distance)) AND (((dispatch$5 OR	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO;	OR	ON	ON	2021/07/23 09:19 AM

		allocat$5 OR select$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR ride OR rides OR transport$5)) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) SAME (time SAME distance))) AND (((distance OR miles OR kilomet$2s OR klicks OR length OR extent OR range OR mileage OR milage OR far) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points))))) AND (estimat$4 near3 time near3 arriv$5)) AND ((opt$5 select$4 specify$4 choos$3 determin$3 pick$3 click$3 choice$1 access$3 determin$3 designat$3 defin$3 identify$3) WITH (customer user passenger))) AND (location near3 (updat$4 real$1tim$3 OR real ADJ time OR RTC OR reactive OR synchronous OR actual ADJ time OR instantaneous$3 OR	JPO; DERWENT; IBM_TDB)				

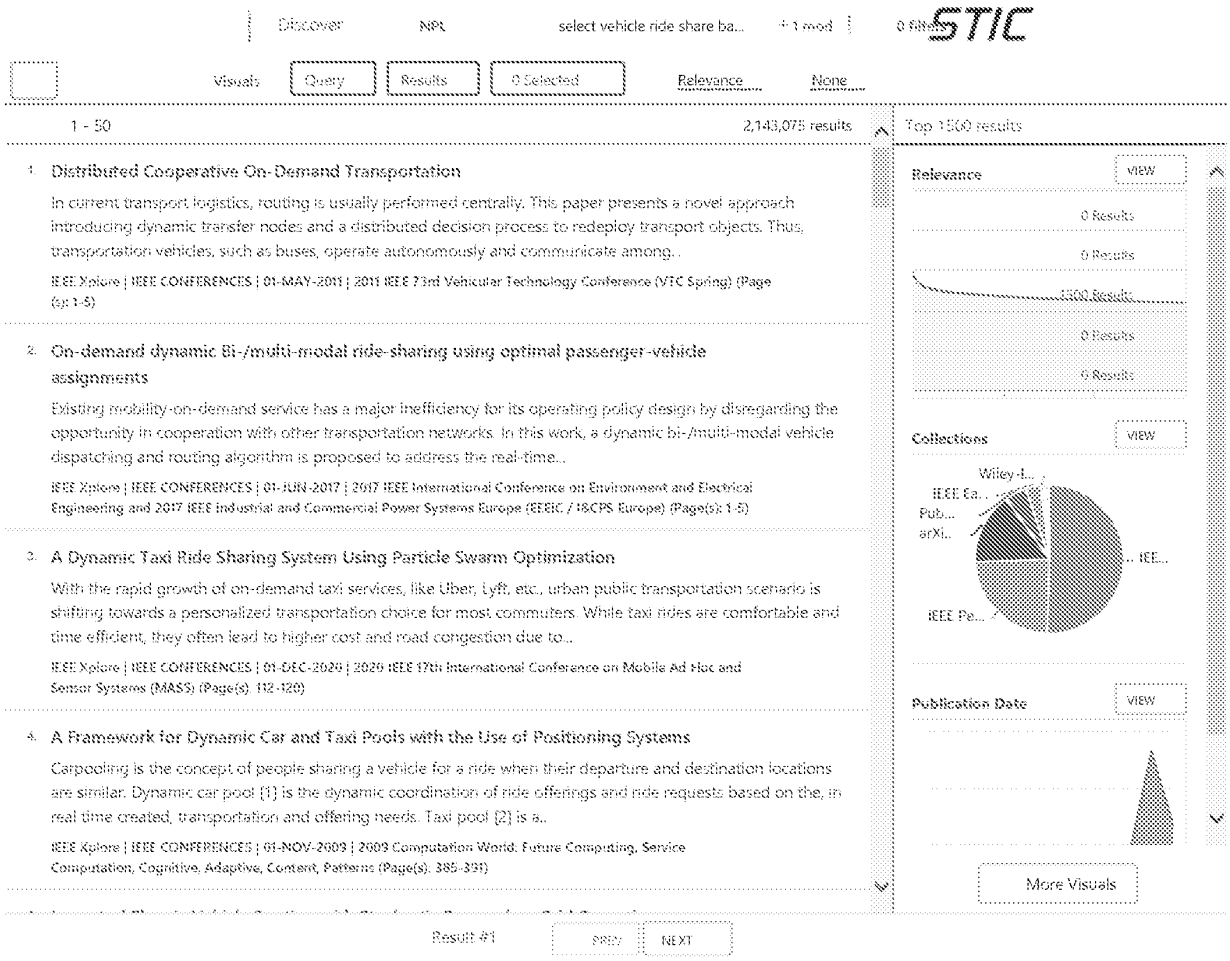
		instant$3 OR immediate$3 OR spontaneous$3))					
L58	30	L57 AND (@pd OR @ptad OR @prad OR @ad OR @rlad)<"20030410"	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/23 09:20 AM
L59	82	(((((((time near3 arrival) AND distance)) AND (((dispatch$5 OR allocat$5 OR select$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR ride OR rides OR transport$5)) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) SAME (time SAME distance))) AND (((distance OR miles OR kilomet$2s OR klicks OR length OR extent OR range OR mileage OR milage OR far) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points))))) AND (estimat$4 near3 time near3 arriv$5)) AND ((opt$5 select$4 specify$4 choos$3 determin$3 pick$3 click$3 choice$1 access$3 determin$3	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 09:25 AM

		designat$3 defin$3 identify$3) WITH (customer user passenger))) AND (location near3 (updat$4 real$1tim$3 OR real ADJ time OR RTC OR reactive OR synchronous OR actual ADJ time OR instantaneous$3 OR instant$3 OR immediate$3 OR spontaneous$3)) AND (((rid$4 match$4 shar$4 hail$4) WITH (transport$5 taxi vehicl$3) WITH (pickup (pick adj3 up)) WITH (location spot place)) SAME (distance SAME time))					
L60	695	L50 AND L25	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 10:21 AM
L61	124	L60 AND L22	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 10:21 AM
L62	87	L61 AND L16	(US-PGPUB; USPAT; USOCR; FIT (CN, FR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2021/07/23 10:21 AM
L63	2	15/657141.app.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/07/24 06:18 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	59	(((((time near3 arrival) AND distance).clm.) AND (((dispatch$5 OR allocat$5 OR select$5) near4 (vehic$4 OR automo$6 OR car OR cars OR taxi$1 OR truck$1 OR lorr$3 OR transit OR bus OR buses OR busses OR ride OR rides OR transport$5)) SAME	(US-PGPUB; USPAT)	OR	ON	ON	2021/07/23 09:15 AM

		(destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points)) SAME (time SAME distance))) AND (((distance OR miles OR kilomet$2s OR klicks OR length OR extent OR range OR mileage OR milage OR far) SAME (destination OR (pickup OR pick$3 ADJ up OR deliver$3 OR (hand$3 OR turn$3) ADJ over OR receiv$3 OR receipt OR accept$3 OR arrival) NEAR3 (location OR locations OR address OR street ADJ number OR directions OR site OR place OR point OR points))).clm.)) AND (estimat$4 near3 time near3 arriv$5).clm.					
N2	43	N1 AND ((opt$5 select$4 specify$4 choos$3 determin$3 pick$3 click$3 choice$1 access$3 determin$3 designat$3 defin$3 identify$3) WITH (customer user passenger)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/07/23 09:17 AM
N3	5	N2 AND (location near3 (updat$4 real$1tim$3 OR real ADJ time OR RTC OR reactive OR synchronous OR actual ADJ time OR instantaneous$3 OR instant$3 OR immediate$3 OR spontaneous$3)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/07/23 09:18 AM


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+ 1 mod
0 filters
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Visuals
Query
Results
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Relevance
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1 - 50
2,143,075 results
Top 1500 results
1. Distributed Cooperative On-Demand Transportation
In current transport logistics, routing is usually performed centrally. This paper presents a novel approach introducing dynamic transfer nodes and a distributed decision process to redeploy transport objects. Thus, transportation vehicles, such as buses, operate autonomously and communicate among...
IEEE Xplore | IEEE CONFERENCES | 01-MAY-2011 | 2011 IEEE 73rd Vehicular Technology Conference (VTC Spring) (Page(s): 1-5)
2. On-demand dynamic Bi-/multi-modal ride-sharing using optimal passenger-vehicle assignments
Existing mobility-on-demand service has a major inefficiency for its operating policy design by disregarding the opportunity in cooperation with other transportation networks. In this work, a dynamic bi-/multi-modal vehicle dispatching and routing algorithm is proposed to address the real-time...
IEEE Xplore | IEEE CONFERENCES | 01-JUN-2017 | 2017 IEEE International Conference on Environment and Electrical Engineering and 2017 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe) (Page(s): 1-5)
3. A Dynamic Taxi Ride Sharing System Using Particle Swarm Optimization
With the rapid growth of on-demand taxi services, like Uber, Lyft, etc., urban public transportation scenario is shifting towards a personalized transportation choice for most commuters. While taxi rides are comfortable and time efficient, they often lead to higher cost and road congestion due to...
IEEE Xplore | IEEE CONFERENCES | 01-DEC-2020 | 2020 IEEE 17th International Conference on Mobile Ad Hoc and Sensor Systems (MASS) (Page(s): 112-120)
4. A Framework for Dynamic Car and Taxi Pools with the Use of Positioning Systems
Carpooling is the concept of people sharing a vehicle for a ride when their departure and destination locations are similar. Dynamic car pool [1] is the dynamic coordination of ride offerings and ride requests based on the, in real time created, transportation and offering needs. Taxi pool [2] is a...
IEEE Xplore | IEEE CONFERENCES | 01-NOV-2009 | 2009 Computation World: Future Computing, Service Computation, Cognitive, Adaptive, Content, Patterns (Page(s): 385-391)
Relevance
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IEEE Pe...
Publication Date
VIEW
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Result #1
PREV
NEXT

Bibliographic Data

Application No: 17/322,839

Foreign Priority claimed: ○ Yes ◉ No

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

Verified and Acknowledged: /ANNE MARIE ANTONUCCI/ (Examiner's Signature) | (Initials)

Title: Method and System for Dynamic Estimation and Predictive Route Generation

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/17/2021	701	3667	BSV-012
RULE			

APPLICANTS

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INVENTORS

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Stephen Petilli, Laguna Niguel, CA, UNITED STATES

Arun Yarlagadda, Irvine, CA, UNITED STATES

CONTINUING DATA

This application is a CON of 17246628 05/01/2021

17246628 is a CON of 16862168 04/29/2020 PAT 10996071

16862168 is a CON of 16747460 01/20/2020 PAT 10677608

16747460 is a CON of 16517566 07/20/2019 PAT 10551208

16517566 is a CON of 16377228 04/07/2019 PAT 10502583

16377228 is a CON of 15887989 02/03/2018 PAT 10274337

15887989 is a CON of 15657141 07/22/2017 PAT 9921077

15657141 is a CON of 15435283 02/16/2017 PAT 9746341

15435283 is a CON of 14997521 01/16/2016 PAT 9607346

14997521 is a CON of 14067415 10/30/2013 PAT 9354069

14067415 is a CON of 13346265 01/09/2012 PAT 8577390

13346265 is a CON of 12929458 01/26/2011 PAT 8095152

12929458 is a CON of 12484091 06/12/2009 PAT 7881730

12484091 is a DIV of 10410740 04/10/2003 PAT 7565155

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

06/03/2021

STATE OR COUNTRY

UNITED STATES

ADDRESS

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FILING FEE RECEIVED

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/322,839	05/17/2021	Michael Sheha	BSV-012	8783

133855 7590 07/07/2021

Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

EXAMINER	
ART UNIT	PAPER NUMBER
3663	

NOTIFICATION DATE	DELIVERY MODE
07/07/2021	ELECTRONIC

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

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

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

jpark@bluestoneip.com
jpark@hyunusa.com
jwyoo@giplaw-korea.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 17/322,839	**Applicant(s)** Sheha et al.	
	Examiner CHERYL P GIBSON BAYLOR	**Art Unit** OPET	**AIA (FITF) Status** No

1. THE REQUEST FILED 17 May 2021 IS **GRANTED** .

The above-identified application has met the requirements for prioritized examination

A. ☑ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination**. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;

B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims** , or a multiple dependent claim;

C. filing a **request for continued examination** ;

D. filing a notice of appeal;

E. filing a request for suspension of action;

F. mailing of a notice of allowance;

G. mailing of a final Office action;

H. completion of examination as defined in 37 CFR 41.102; or

I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to CHERYL GIBSON BAYLOR at (571)272-3213. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/CHERYL GIBSON BAYLOR/ Paralegal Specialist, OPET	

U.S. Patent and Trademark Office
PTO-2298 (Rev. 02-2012)

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Jongkook Park
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Courtesy Reminder for
Application Serial No: 17/322,839

Attorney Docket No: BSV-012
Customer Number: 133855
Date of Electronic Notification: 06/04/2021

This is a courtesy reminder that new correspondence is available for this application. If you have not done so already, please review the correspondence. The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

An email notification regarding the correspondence was sent to the following email address(es) associated with your customer number:

jwyoo@giplaw-korea.com
jpark@hyunusa.com
jpark@bluestoneip.com

To view your correspondence online or update your email addresses, please visit us anytime at **https://ppair-my.uspto.gov/pair/PrivatePair.**
If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov or call 1-866-217-9197.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/322,839	05/17/2021	Michael Sheha	BSV-012

CONFIRMATION NO. 8783

133855
Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

IMPROPER CFR REQUEST

OC000000126068283

Date Mailed: 06/04/2021

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Continuity, Priority Claims, Petitions, and Non-Publication Requests

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

Improper Benefit Claim(s) to Prior-Filed Provisional Application(s)

The benefit claim(s) to prior-filed provisional application(s) is improper because the instant application was not filed within twelve (12) months from the filing date of the provisional application, and there is no indication of an intermediate nonprovisional or international application designationg the United States that is directly claiming the benefit of the provisional application and filed within 12 months of the filing date of the provisional application. Applicant should review each benefit claim submitted and, if appropriate, provide the proper reference to the prior-filed applications (including an indication of any intermediate application that is directly claiming the benefit of the provisional application and filed with 12 months of the filing date of the provisional application) as required by 37 CFR 1.78.

Alternatively, if the instant application (or intermediate application) was filed within 14 months of the prior provisional application, applicant may file a petition (in the instant application or the intermediate application, as appropriate) to restore the benefit of the provisional application if the delay in filing the instant application (or intermediate application) within the 12 month time period was unintentional. See 37 CFR 1.78 for the requirements of a petition to restore the benefit of the provisional application.

For applications filed on or after September 16, 2012, applicant must submit a corrected application data sheet (ADS) to include a specific reference.

Timeliness: The required reference for each benefit claim must be filed during the pendency of the instant application and within the later of: (1) four months from the actual filing date of the instant application, or the national stage commencement date if the instant application is a national stage application under 35 U.S.C. 371; or (2) sixteen months from the filing date of the prior-filed application. Failure to timely file the required reference is considered a waiver of any benefit claim, unless a grantable petition to accept an unintentionally delayed claim under 37 CFR 1.78, the petition fee set forth in 37 CFR 1.17(m), and the required reference are filed.

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**.

/sabubeker/

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/322,839	05/17/2021	Michael Sheha	BSV-012

CONFIRMATION NO. 8783

133855
Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030

INFORMAL NOTICE

OC000000126066983

Date Mailed: 06/04/2021

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
  Michael Sheha
  Angie Sheha
  Stephen Petilli
  Arun Yarlagadda

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**.

/tle/

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/322,839

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			N/A	320
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	700
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	800
TOTAL CLAIMS (37 CFR 1.16(i))	18 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*				x 480 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1820

APPLICATION AS AMENDED - PART II

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

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

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

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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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
17/322,839	05/17/2021	2642	1980	BSV-012	18	2

CONFIRMATION NO. 8783

FILING RECEIPT

133855
Jongkook Park
3949 Pender Dr.
Suite 350
Fairfax, VA 22030



Date Mailed: 06/04/2021

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

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

Inventor(s)

Michael Sheha, Laguna Niguel, CA;
Angie Sheha, Laguna Niguel, CA;
Stephen Petilli, Laguna Niguel, CA;
Arun Yarlagadda, Irvine, CA;

Applicant(s)

Bluestone Ventures, Inc., Fairfax, VA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 17/246,628 05/01/2021
which is a CON of 16/862,168 04/29/2020 PAT 10996071
which is a CON of 16/747,460 01/20/2020 PAT 10677608
which is a CON of 16/517,566 07/20/2019 PAT 10551208
which is a CON of 16/377,228 04/07/2019 PAT 10502583
which is a CON of 15/887,989 02/03/2018 PAT 10274337
which is a CON of 15/657,141 07/22/2017 PAT 9921077
which is a CON of 15/435,283 02/16/2017 PAT 9746341
which is a CON of 14/997,521 01/16/2016 PAT 9607346
which is a CON of 14/067,415 10/30/2013 PAT 9354069
which is a CON of 13/346,265 01/09/2012 PAT 8577390
which is a CON of 12/929,458 01/26/2011 PAT 8095152
which is a CON of 12/484,091 06/12/2009 PAT 7881730

which is a DIV of 10/410,740 04/10/2003 PAT 7565155

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

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

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

If Required, Foreign Filing License Granted: 06/03/2021
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/322,839**
Projected Publication Date: 09/09/2021
Non-Publication Request: No
Early Publication Request: No
Title

Method and System for Dynamic Estimation and Predictive Route Generation

Preliminary Class

455

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

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

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

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

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

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

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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.

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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).

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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.



United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :C46781

Sale Accounting Date:06/03/2021

Sale Item Reference Number	Effective Date
17322839	05/17/2021

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I202163B08180397	1051	LATE FILING FEE FOR OATH OR DECLARATION	$160.00	Deposit Account
I202163B08180397	1830	PROCESSING FEE, EXCEPT PROV. APPLS.	$140.00	Deposit Account

Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Michael SHEHA	Nonprovisional Application Number (if known):	
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☑ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /Jongkook Park/	Date 05-17-2020
Name (Print/Typed) Jongkook Park	Practitioner Registration Number 58840

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

☐ *Total of _____ forms are submitted.

Privacy Act Statement

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

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

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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.

Electronic Patent Application Fee Transmittal	
Application Number:	
Filing Date:	
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Filer:	Jongkook Park
Attorney Docket Number:	BSV-012
Filed as Large Entity	
Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	320	320
UTILITY SEARCH FEE	1111	1	700	700
UTILITY EXAMINATION FEE	1311	1	800	800
REQUEST FOR PRIORITIZED EXAMINATION	1817	1	4200	4200
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		6020

Electronic Acknowledgement Receipt	
EFS ID:	42745836
Application Number:	17322839
International Application Number:	
Confirmation Number:	8783
Title of Invention:	Method and System for Dynamic Estimation and Predictive Route Generation
First Named Inventor/Applicant Name:	Michael Sheha
Customer Number:	133855
Filer:	Jongkook Park
Filer Authorized By:	
Attorney Docket Number:	BSV-012
Receipt Date:	17-MAY-2021
Filing Date:	
Time Stamp:	22:29:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$6020
RAM confirmation Number	E20215GM30491681
Deposit Account	506825
Authorized User	Jongkook Park
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Abstract	BSV-012-Abstract.pdf	53599 36629af98a773528d7db673d6bb15bbad45cc59b	no	1
Warnings:					
Information:					
2	Application Data Sheet	BSV-012-ADS.pdf	1820199 382341a4d55eaf9e8aeabda6a068d75977ab32ca	no	9
Warnings:					
Information:					
3	Claims	BSV-012-Claims.pdf	55559 51388f56a81637d56b1511da5a9bc398045ab39a	no	3
Warnings:					
Information:					
4	Drawings-only black and white line drawings	BSV-012-Drawings.pdf	4224866 1cc40480da2aa9ea44ac7b65537446d69ac13eb5	no	28
Warnings:					
Information:					
5	Specification	BSV-012-Specification.pdf	3511587 9af5003513a91279a54b299f94245721c2b5a12d	no	41
Warnings:					
Information:					
6	Preliminary Amendment	BSV-012-Specification-Amendment.pdf	44704 d160ff5a6b4a589120f624ececa3d0a6c879f046	no	1
Warnings:					
Information:					

7	TrackOne Request	BSV-012-Track1.pdf	113826 64d8088aaacce830610bc1425a080c215ca0db18	no	2
Warnings:					
Information:					
8	Fee Worksheet (SB06)	fee-info.pdf	36925 4380cae7d8b1b9dd4e44f2aa17c1a5d4069a92da	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	9861265	

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.

ABSTRACT

The preferred embodiments of the present invention are directed to methods and systems for dynamic route estimation and prediction using discrete sampled location updates from various mobile devices for the purpose of providing a graphical representation of a mobile device's route along a known network path of map data. The embodiments also provide supplemental route metrics, such as traveled distance, elapsed time, etc., and the capability to assign destination points for the purpose of providing the ability to modify location update points in an application, such as a route planner, and/or to store the dynamically generated route based on various preferences for later retrieval.

PTO/AIA/14 (07-14)
Approved for use through 04/30/2017. 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	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

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
	Michael		Sheha	

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

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State/Province	CA
Postal Code	92677
Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
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Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

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Laguna Niguel	CA	US

Mailing Address of Inventor:

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Address 2	
City	Laguna Niguel
State/Province	CA
Postal Code	92677
Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Stephen		Petilli	

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

City	Laguna Niguel	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

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Address 2			
City	Laguna Niguel	State/Province	CA
Postal Code	92677	Country	US

Inventor 4 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Arun		Yarlagadda	

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

City	Irvine	State/Province	CA	Country of Residence	US

Mailing Address of Inventor:

Address 1	6 Berrywood Lane		
Address 2			
City	Irvine	State/Province	CA
Postal Code	92620	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	133855		
Email Address	jpark@bluestoneip.com	Add Email	Remove Email
Email Address	bbernstein@bluestoneip.com	Add Email	Remove Email

Application Information:

Title of the Invention	Method and System for Dynamic Estimation and Predictive Route Generation		
Attorney Docket Number	BSV-012	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	28	Suggested Figure for Publication (if any)	

Filing By Reference :

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

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	133855		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing 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)	
	Continuation of	17246628	2021-05-01	
Prior Application Status	Patented			Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17246628	Continuation of	16862168	2020-04-29	10996071	2021-05-04

Prior Application Status	Patented	Remove

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16862168	Continuation of	16747460	2020-01-20	10677608	2020-06-09
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16747460	Continuation of	16517566	2019-07-20	10551208	2020-02-04
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16517566	Continuation of	16377228	2019-04-07	10502583	2019-12-10
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16377228	Continuation of	15887989	2018-02-03	10274337	2019-04-03
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15887989	Continuation of	15657141	2017-07-22	9921077	2018-03-20
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15657141	Continuation of	15435283	2017-02-16	9746341	2017-08-29
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
15435283	Continuation of	14997521	2016-01-16	9607346	2017-03-28
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14997521	Continuation of	14067415	2013-10-30	9354069	2016-05-31
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14067415	Continuation of	13346265	2012-01-09	8577390	2013-11-05
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13346265	Continuation of	12929458	2011-01-26	8095152	2012-01-10
Prior Application Status	Patented			Remove	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12929458	Continuation of	12484091	2009-06-12	7881730	2011-02-01
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12484091	Division of	10410740	2003-04-10	7565155	2009-07-21
Prior Application Status	Expired			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Claims benefit of provisional	60371941	2002-04-10

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

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

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

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 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☒

Organization Name	Bluestone Ventures, Inc.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

Mailing Address Information For Applicant:			
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Country i	US	Postal Code	22030
Phone Number	202-318-0172	Fax Number	202-318-0172
Email Address	jpark@bluestoneip.com		

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

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not 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.

Remove

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

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1			
Address 2			
City		State/Province	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	BSV-012
	Application Number	
Title of Invention	Method and System for Dynamic Estimation and Predictive Route Generation	

Signature:

Remove

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications.					
Signature	/Jongkook Park/			Date (YYYY-MM-DD)	2021-05-17
First Name	Jongkook	Last Name	Park	Registration Number	58840
Additional Signature may be generated within this form by selecting the Add button. Add					

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.**

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

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

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

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

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

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

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

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

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

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

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

WHAT IS CLAIMED IS:

1. A method performed by a computing system, comprising:

receiving first data comprising a plurality of location updates from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers and each of the plurality of location updates representing a location of a respective one of the plurality of service providers at a particular time;

receiving second data representing a destination location;

determining, for each of the plurality of service providers and using at least the first data and the second data, at least one of a distance between the transportation provider and the destination location, and an estimated time of arrival of the service provider at the destination location;

designating a subset of the plurality of service providers using at least one of the determined distances between the service providers and the destination location, the determined estimated times of arrival of the service providers at the destination location, and a capability of the service provider; and

selecting, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer using at least one of the determined distances between the subset of the plurality of service providers and the destination location, the determined estimated times of arrival of the subset of the plurality of service providers at the destination location, and capabilities of the subset of plurality of service providers.

2. The method of claim 1, further comprising causing a display of a plurality of indicators on a graphical representation of a map, each of the plurality of indicators corresponding to a current position of the preferred service provider based on a respective one of the plurality of location updates.

3. The method of claim 2, wherein the display of the plurality of indicators is provided at a customer mobile device.

4. The method of claim 1, further comprising calculating an estimated route for the preferred service provider to the destination location based on a location of the preferred service provider relative to the destination location.

5. The method of claim 1, further comprising dispatching the preferred service provider to the destination location.

6. The method of claim 1, wherein the location updates from the plurality of service provider mobile devices include real-time location updates from the plurality of service provider mobile devices.

7. The method of claim 1, further comprising calculating, in real-time by the server, estimated routes between the current positions of the plurality of service providers and the destination location.

8. The method of claim 1, further comprising receiving third data representing one of a route stop, an origin, a via, and a stop for the preferred service provider.

9. The method of claim 1, further comprising causing a display, on a graphical representation of a map, a route taken by the preferred service provider to the destination location.

10. A computing system comprising:

at least one memory comprising computer executable instructions; and

at least one processor configured to execute the computer executable instructions, the computer executable instructions, when executed by the at least one processor, causing the computing system to perform:

receiving first data comprising a plurality of location updates from a plurality of mobile devices, each of the plurality of mobile devices corresponding to a respective one of a plurality of service providers and each of the plurality of location updates representing a location of a respective one of the plurality of service providers at a particular time;

receiving second data representing a destination location;

determining, for each of the plurality of service providers and using at least the first data and the second data, at least one of a distance between the transportation provider and the destination location, and an estimated time of arrival of the service provider at the destination location;

designating a subset of the plurality of service providers using at least one of the determined distances between the service providers and the destination location, the determined estimated times of arrival of the service providers at the destination location, and a capability of the service provider; and

selecting, from the subset of the plurality of service providers, a preferred service provider to provide a service for a customer using at least one of the determined distances

between the subset of the plurality of service providers and the destination location, the determined estimated times of arrival of the subset of the plurality of service providers at the destination location, and capabilities of the subset of plurality of service providers.

11. The computing system of claim 10, further comprising causing a display of a plurality of indicators on a graphical representation of a map, each of the plurality of indicators corresponding to a current position of the preferred service provider based on a respective one of the plurality of location updates.

12. The computing system of claim 11, wherein the display of the plurality of indicators is provided at a customer mobile device.

13. The computing system of claim 10, wherein the computer executable instructions, when executed by the at least one processor, further the computing system to perform calculating an estimated route for the preferred service provider to the destination location based on a location of the preferred service provider relative to the destination location.

14. The computing system of claim 10, wherein the computer executable instructions, when executed by the at least one processor, further the computing system to perform dispatching the preferred service provider to the destination location.

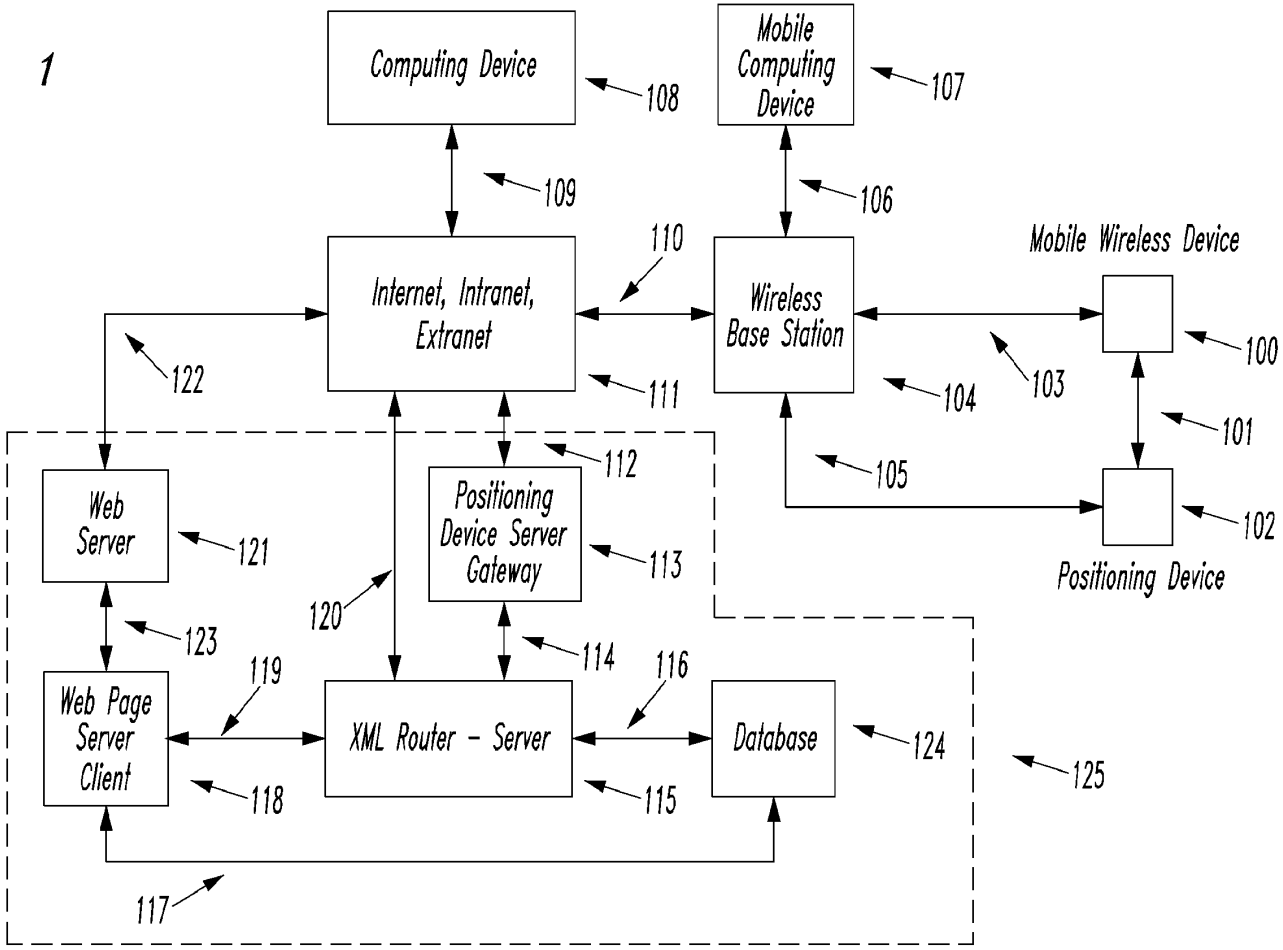
15. The computing system of claim 10, wherein the location updates from the plurality of service provider mobile devices include real-time location updates from the plurality of service provider mobile devices.

16. The computing system of claim 10, wherein the computer executable instructions, when executed by the at least one processor, further the computing system to perform calculating, in real-time by the server, estimated routes between the current positions of the plurality of service providers and the destination location.

17. The computing system of claim 10, wherein the computer executable instructions, when executed by the at least one processor, further the computing system to perform receiving third data representing one of a route stop, an origin, a via, and a stop for the preferred service provider.

18. The computing system of claim 10, wherein the computer executable instructions, when executed by the at least one processor, further the computing system to perform causing a display, on a graphical representation of a map, a route taken by the preferred service provider to the destination location.

FIG. 1


Computing Device
108
Mobile Computing Device
107
109
106
110
Internet, Intranet, Extranet
Wireless Base Station
Mobile Wireless Device
100
122
111
104
103
101
112
105
Web Server
121
Positioning Device Server Gateway
113
102
Positioning Device
120
123
114
116
119
Web Page Server Client
XML Router - Server
Database
124
125
118
115
117

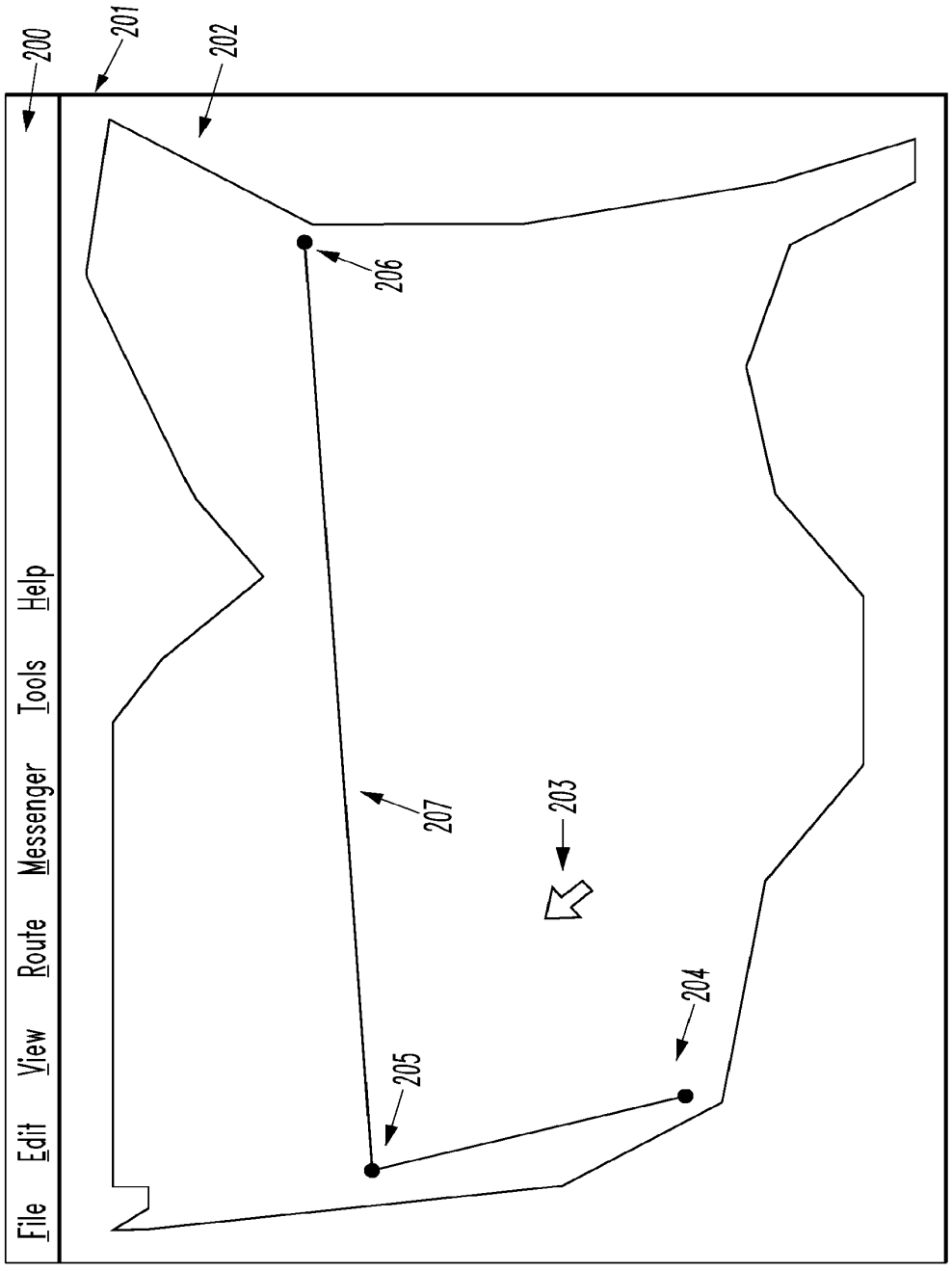

200
201
202
206
207
203
204
205
File Edit View Route Messenger Tools Help

FIG. 2

FIG. 3

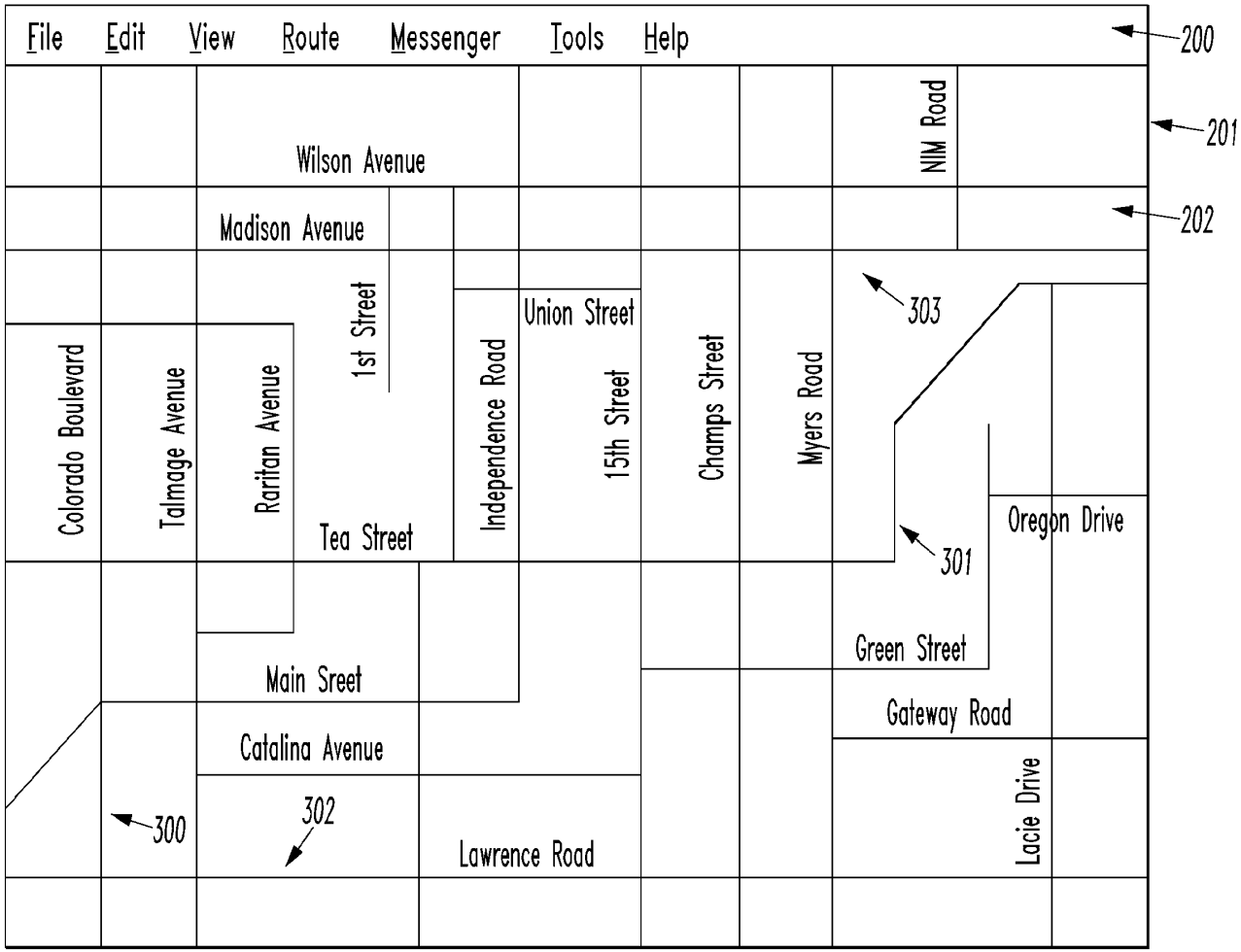

File
Edit
View
Route
Messenger
Tools
Help
200
201
202
Wilson Avenue
Madison Avenue
1st Street
Colorado Boulevard
Talmage Avenue
Raritan Avenue
Tea Street
Independence Road
Union Street
15th Street
Champs Street
Myers Road
NIM Road
303
301
Oregon Drive
Green Street
Gateway Road
Lacie Drive
Main Sreet
Catalina Avenue
Lawrence Road
300
302

FIG. 4

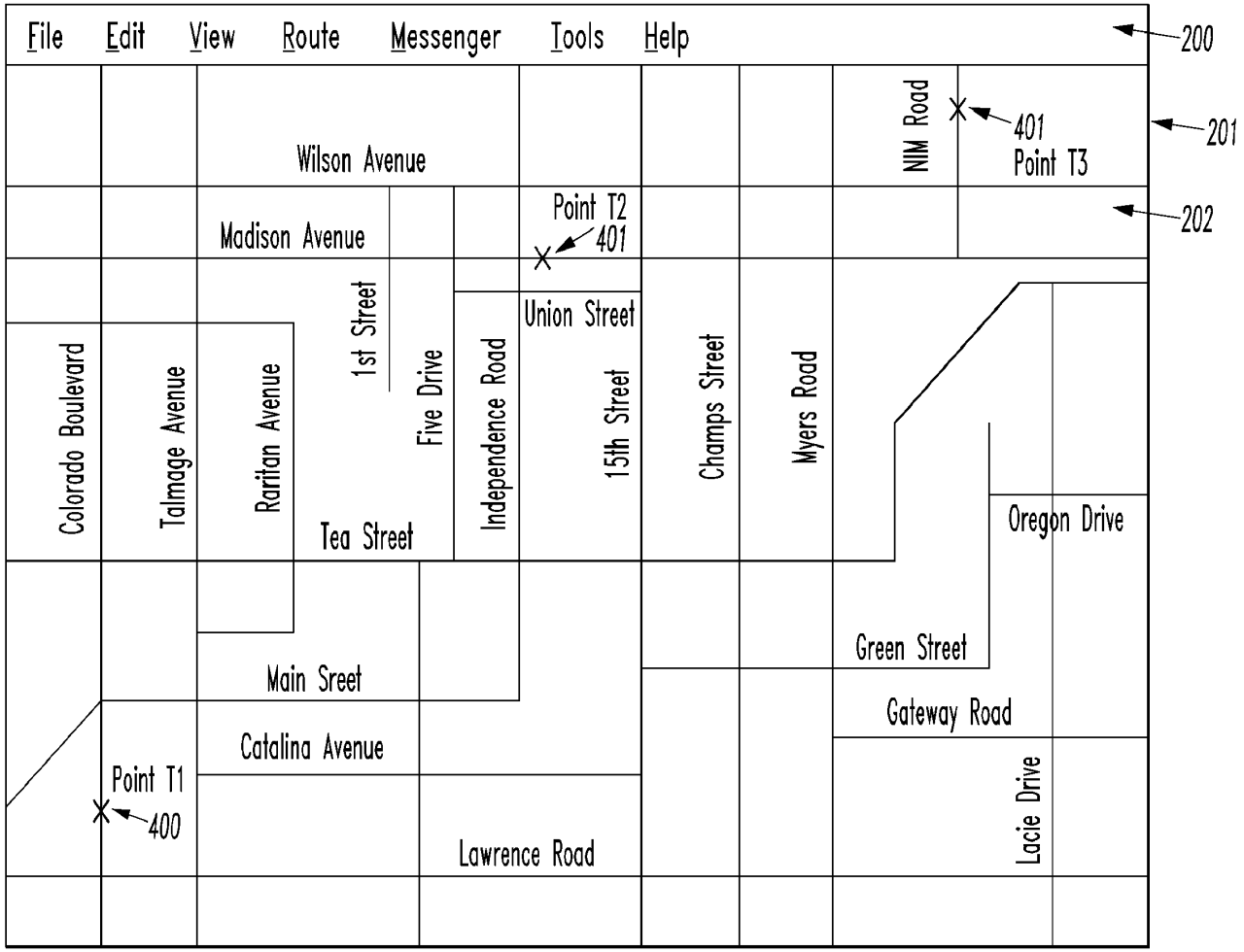
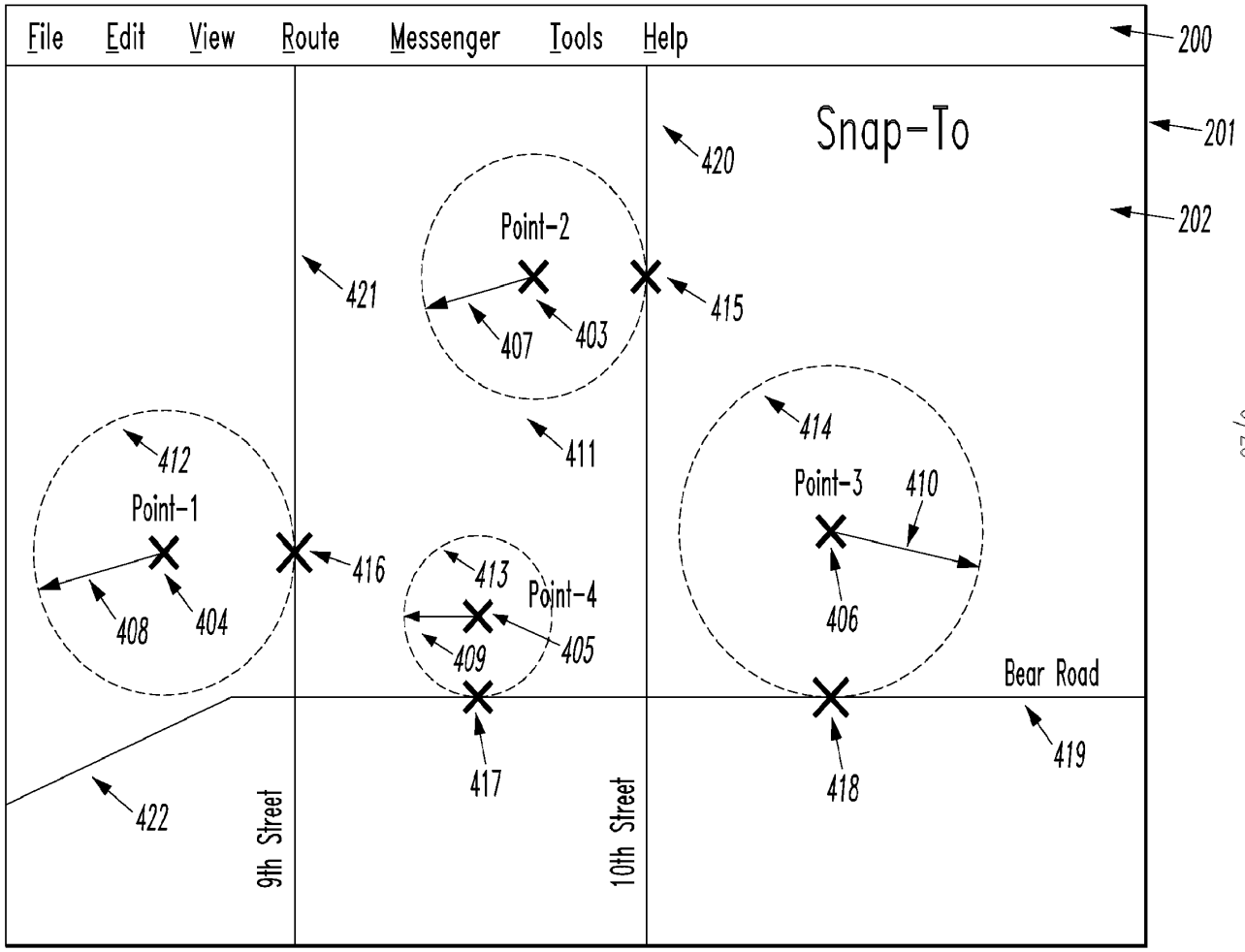

File
Edit
View
Route
Messenger
Tools
Help
200
201
202
Wilson Avenue
NIM Road
401
Point T3
Madison Avenue
Point T2
401
1st Street
Five Drive
Union Street
15th Street
Colorado Boulevard
Talmage Avenue
Raritan Avenue
Tea Street
Independence Road
Champs Street
Myers Road
Oregon Drive
Green Street
Main Sreet
Gateway Road
Catalina Avenue
Point T1
400
Lacie Drive
Lawrence Road

FIG. 4A


File
Edit
View
Route
Messenger
Tools
Help
200
Snap-To
201
202
420
421
Point-2
407
403
415
411
412
Point-1
408
404
416
413
Point-4
409
405
414
Point-3
410
406
Bear Road
419
417
418
422
9th Street
10th Street

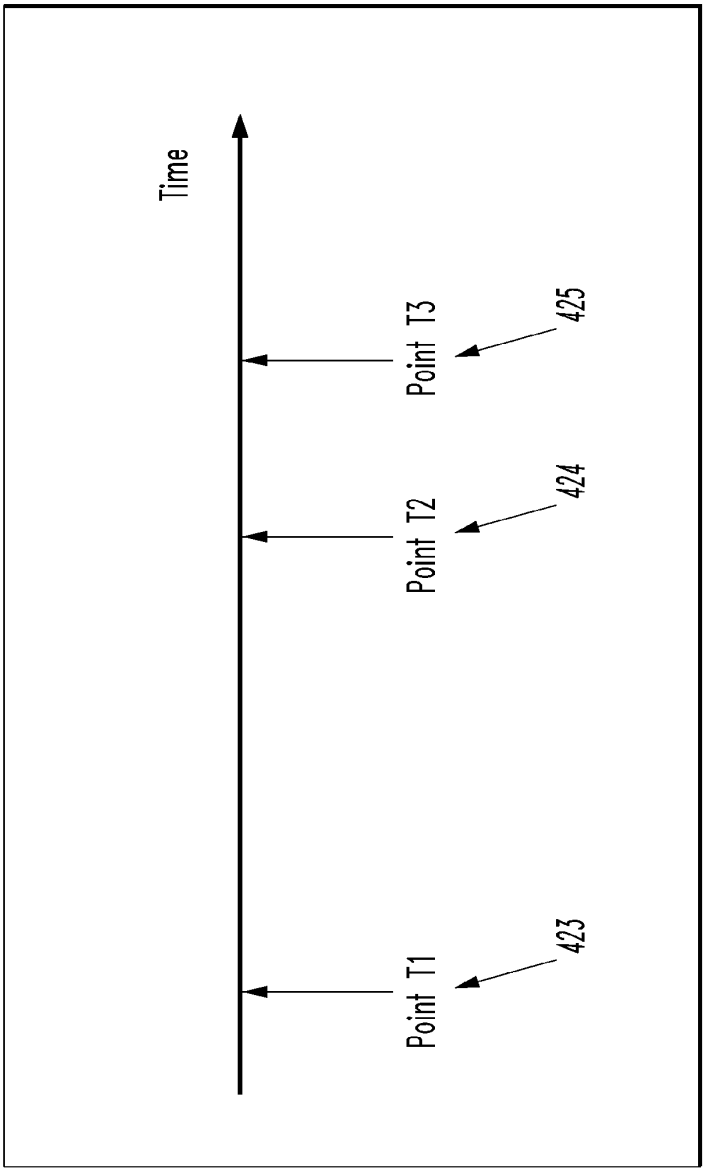


FIG. 4B

FIG. 5

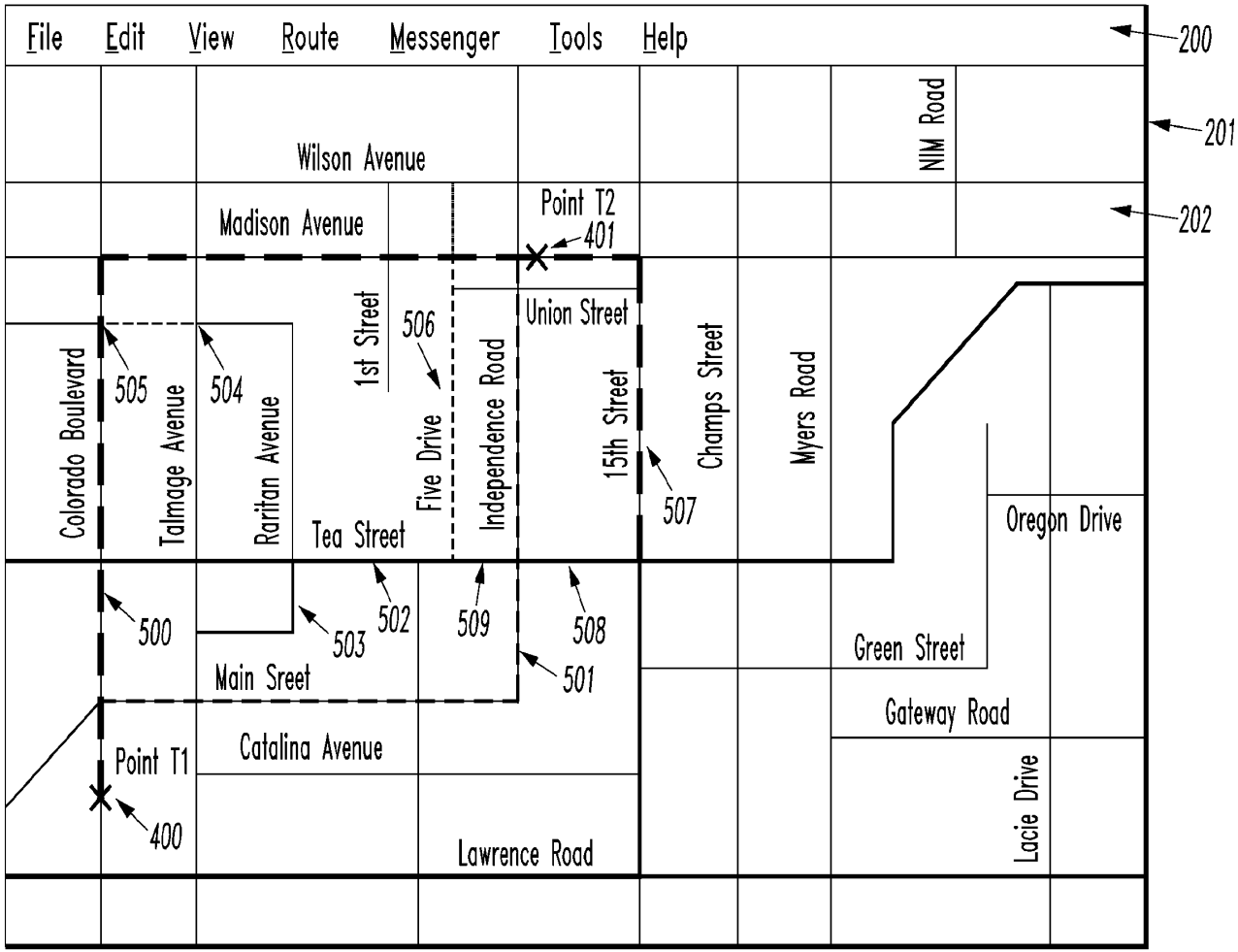

File
Edit
View
Route
Messenger
Tools
Help
200
201
202
Wilson Avenue
Madison Avenue
Point T2
401
NIM Road
Union Street
1st Street
506
Five Drive
Independence Road
15th Street
Champs Street
Myers Road
Colorado Boulevard
505
Talmage Avenue
504
Raritan Avenue
Tea Street
507
Oregon Drive
500
503
502
509
508
501
Green Street
Main Sreet
Gateway Road
Point T1
Catalina Avenue
400
Lacie Drive
Lawrence Road

FIG. 6

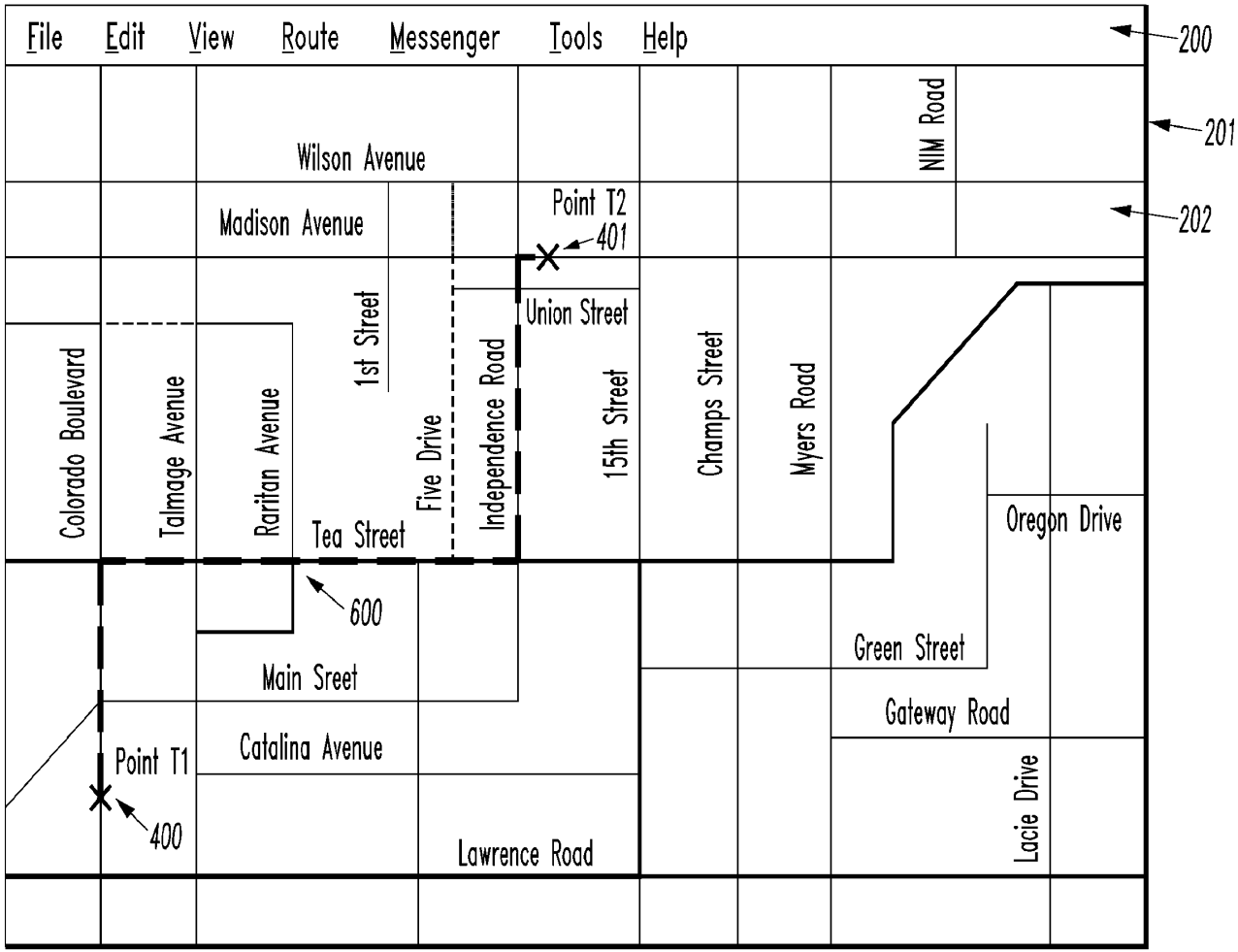
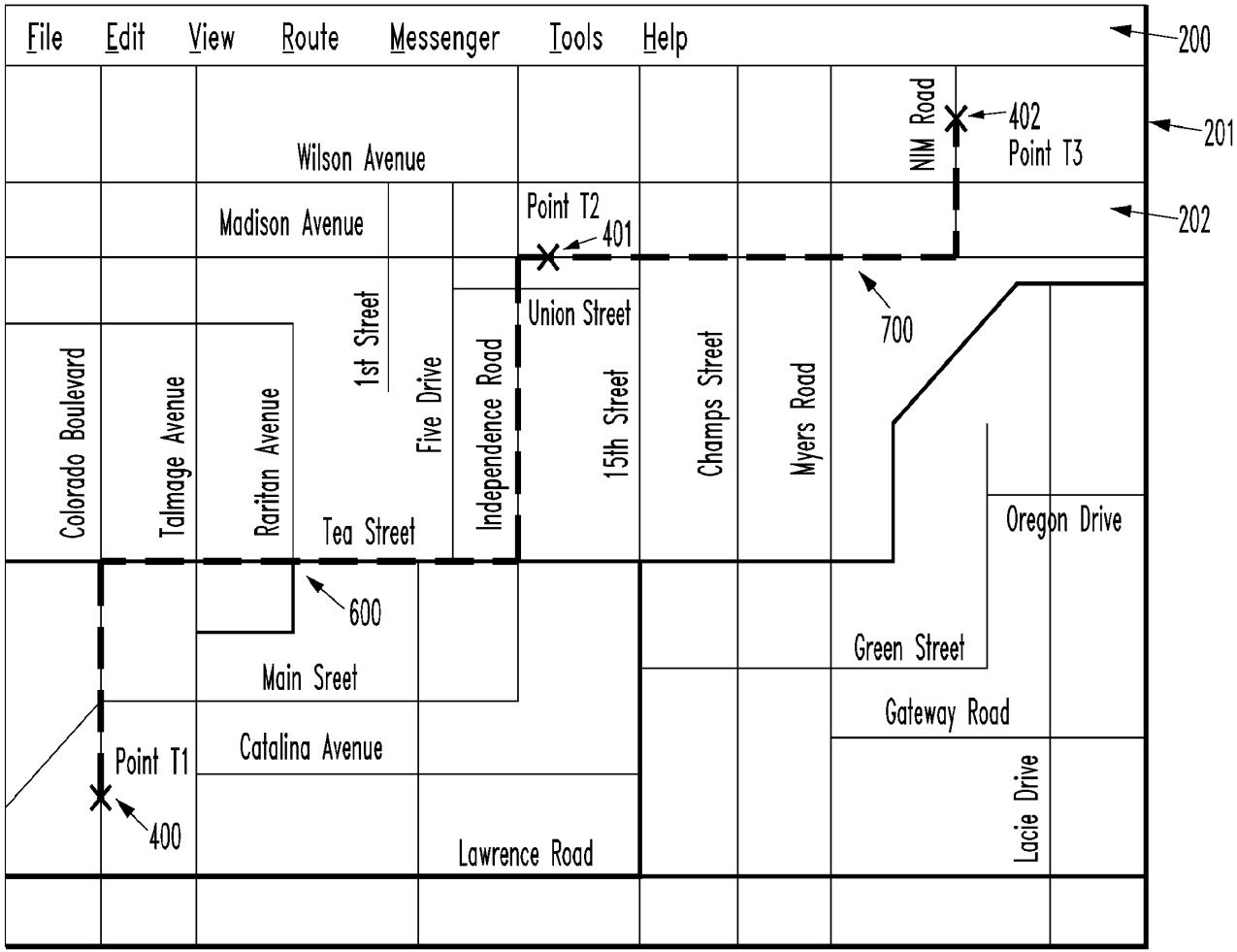

File
Edit
View
Route
Messenger
Tools
Help
200
201
202
Wilson Avenue
Madison Avenue
Point T2
401
NIM Road
1st Street
Union Street
Colorado Boulevard
Talmage Avenue
Raritan Avenue
Five Drive
Independence Road
15th Street
Champs Street
Myers Road
Tea Street
Oregon Drive
600
Green Street
Main Sreet
Gateway Road
Point T1
Catalina Avenue
Lacie Drive
400
Lawrence Road

FIG. 7


File
Edit
View
Route
Messenger
Tools
Help
200
201
202
Wilson Avenue
Madison Avenue
NIM Road
402
Point T3
Point T2
401
Union Street
15th Street
1st Street
Five Drive
Independence Road
Champs Street
Myers Road
700
Colorado Boulevard
Talmage Avenue
Raritan Avenue
Tea Street
600
Oregon Drive
Green Street
Main Sreet
Gateway Road
Catalina Avenue
Point T1
400
Lacie Drive
Lawrence Road

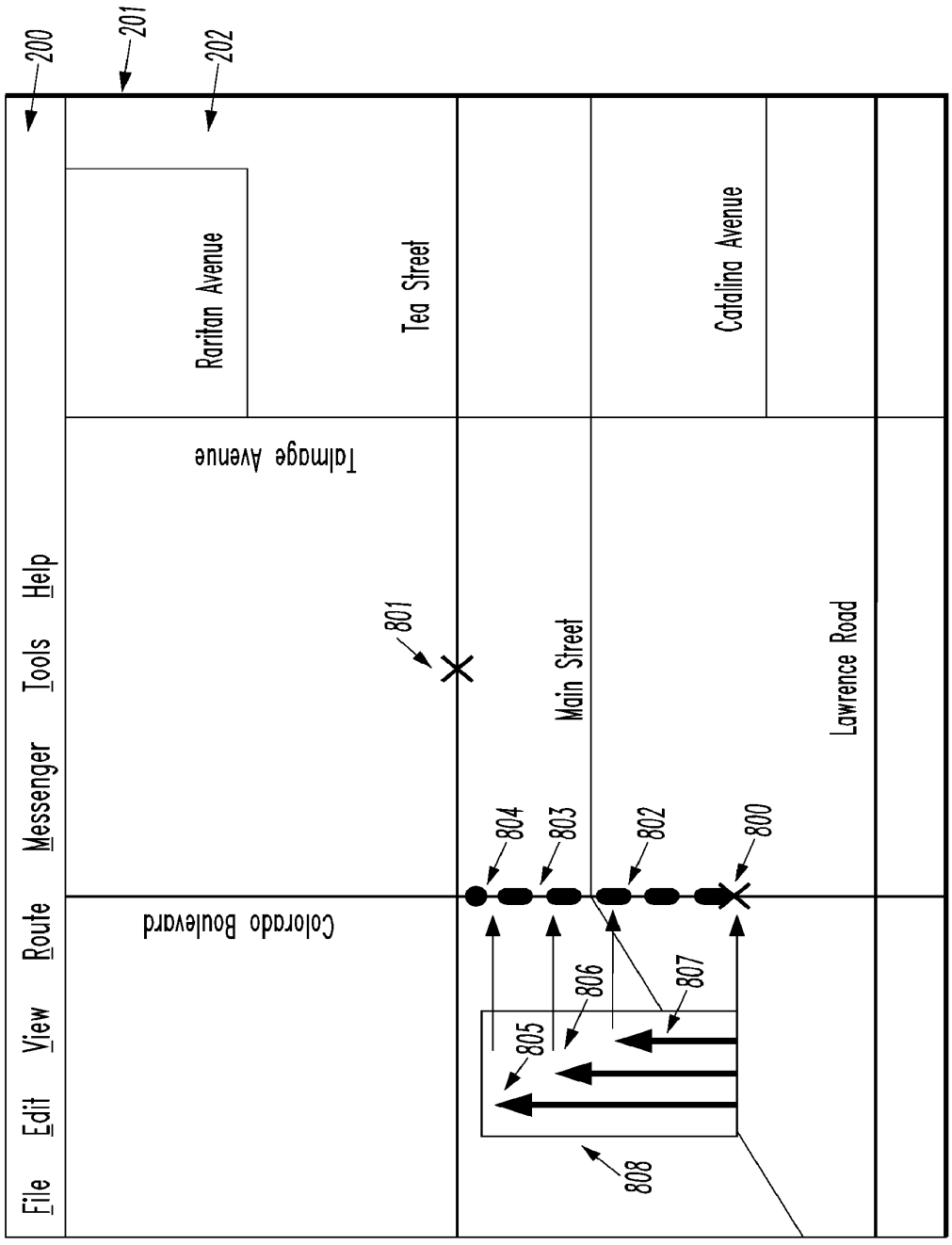

200
201
202
File Edit View Route Messenger Tools Help
Raritan Avenue
Tea Street
Catalina Avenue
Talmage Avenue
801
Main Street
Lawrence Road
Colorado Boulevard
804
803
802
800
806
807
805
808

FIG. 8

FIG. 9

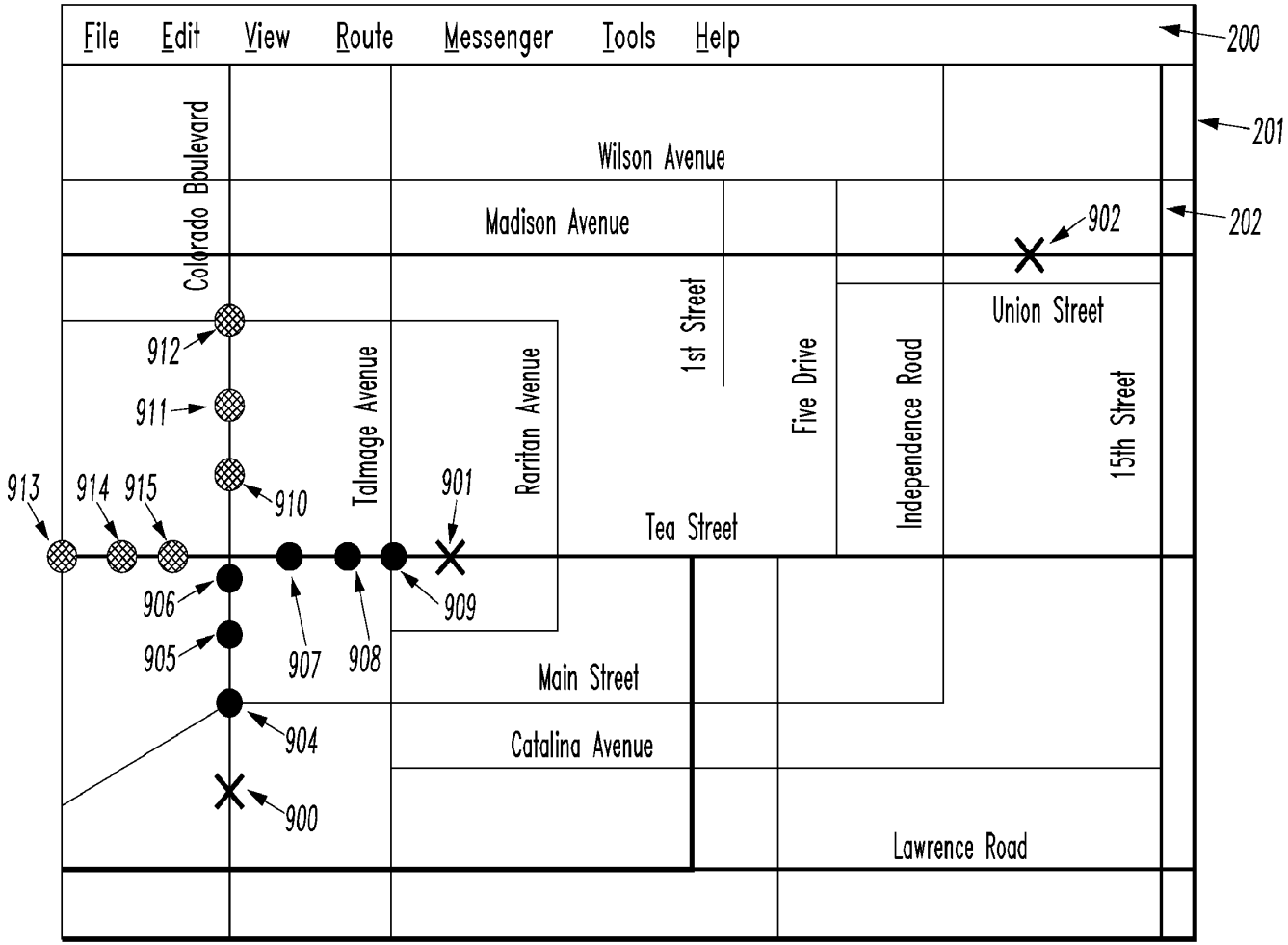
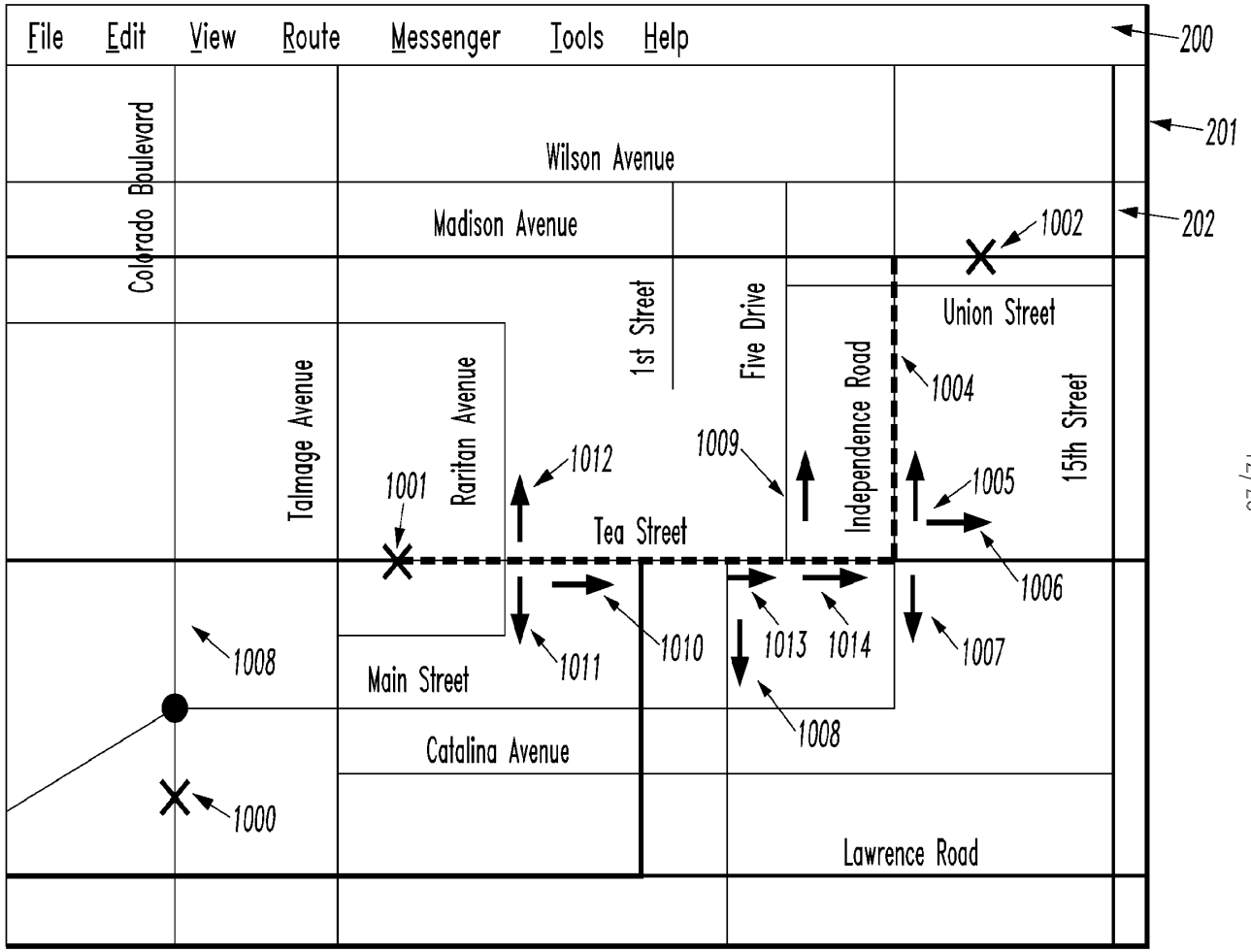

File
Edit
View
Route
Messenger
Tools
Help
200
201
202
Colorado Boulevard
Wilson Avenue
Madison Avenue
902
Union Street
1st Street
Five Drive
Independence Road
15th Street
912
911
910
Talmage Avenue
Raritan Avenue
901
913
914
915
Tea Street
906
909
905
907
908
Main Street
904
Catalina Avenue
900
Lawrence Road

FIG. 10


File
Edit
View
Route
Messenger
Tools
Help
200
201
202
Colorado Boulevard
Wilson Avenue
Madison Avenue
1002
Union Street
1st Street
Five Drive
Talmage Avenue
Raritan Avenue
Independence Road
15th Street
1004
1012
1009
1001
1005
Tea Street
1006
1008
1011
1010
1013
1014
1007
Main Street
1008
Catalina Avenue
1000
Lawrence Road

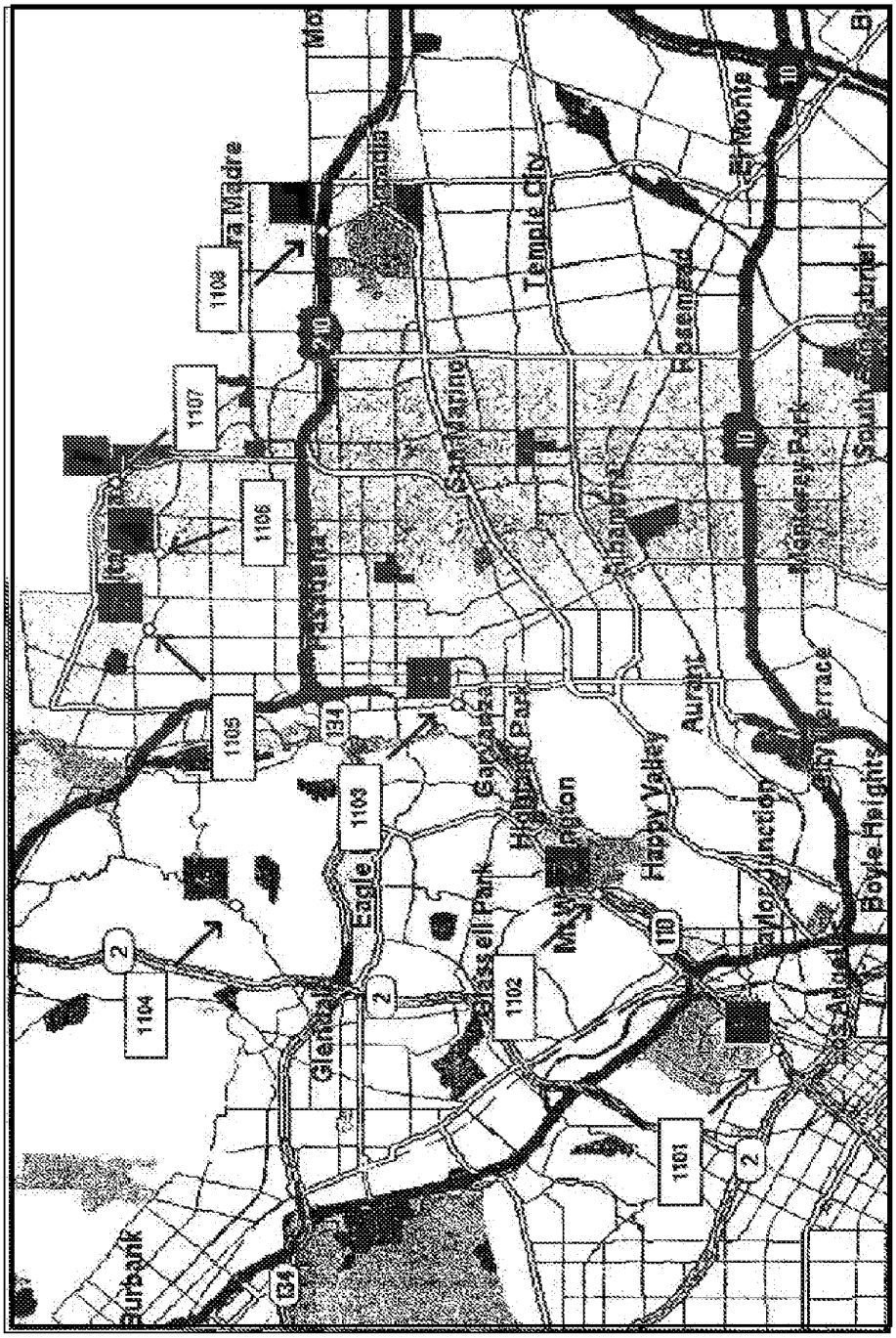

Burbank
Glendale
Eagle
Glassell Park
Highland Park
Mt. Washington
Happy Valley
Taylor Junction
Boyle Heights
Arroyo Terrace
Aurant
Monterey Park
South Pasadena
San Marino
Temple City
Rosemead
El Monte
Arcadia
Pasadena
Sierra Madre
1101
1102
1103
1104
1105
1106
1107
1108
2
10
110
134

FIG. 11

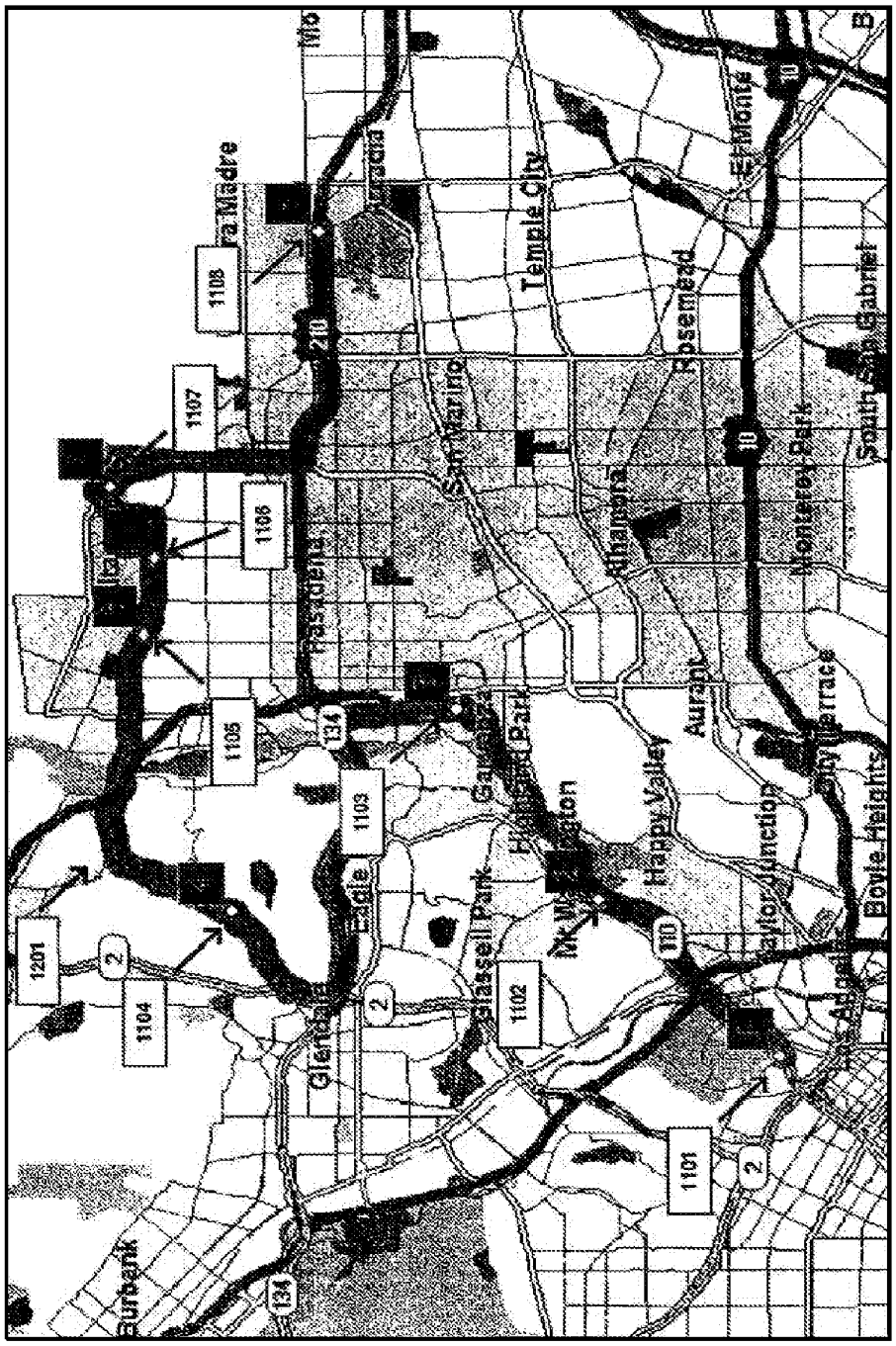

1201
1104
1105
1106
1107
1108
1103
1102
1101
Burbank
Glendale
Eagle
Glassell Park
Highland Park
Mt. Washington
Happy Valley
Taylor Junction
Boyle Heights
Aurant
Rosemead
Temple City
San Marino
Pasadena
Monterey Park
South San Gabriel
Alhambra
Arcadia
Sierra Madre
Edmonds
134
210
110
10
2

FIG. 12

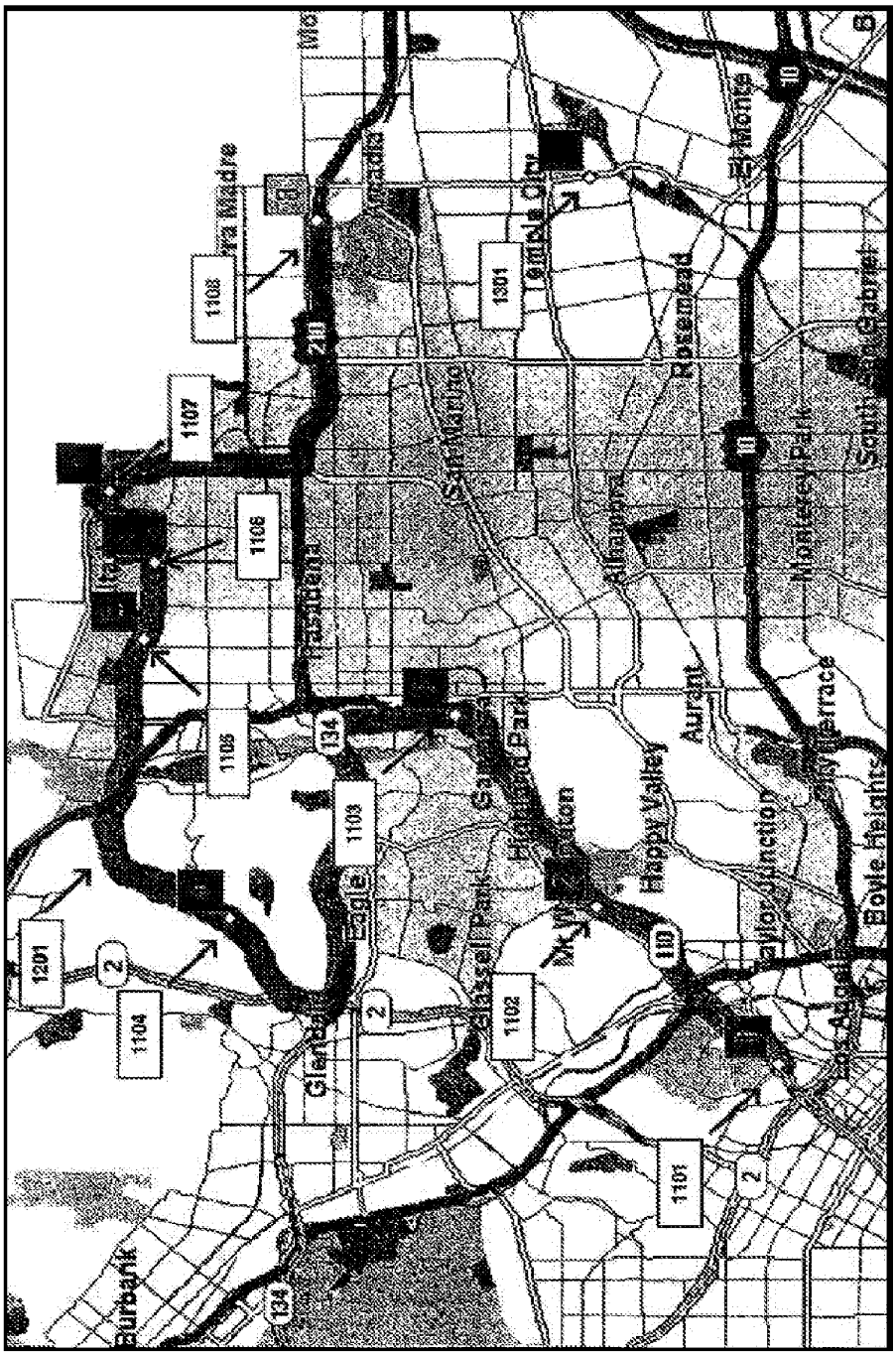

1108
1107
1106
1105
1103
1104
1201
1102
1101
1301
210
134
2
110
10
Burbank
Glendale
Eagle
Pasadena
Altadena
San Marino
Temple City
Rosemead
El Monte
Monterey Park
South San Gabriel
Happy Valley
Boyle Heights

FIG. 13

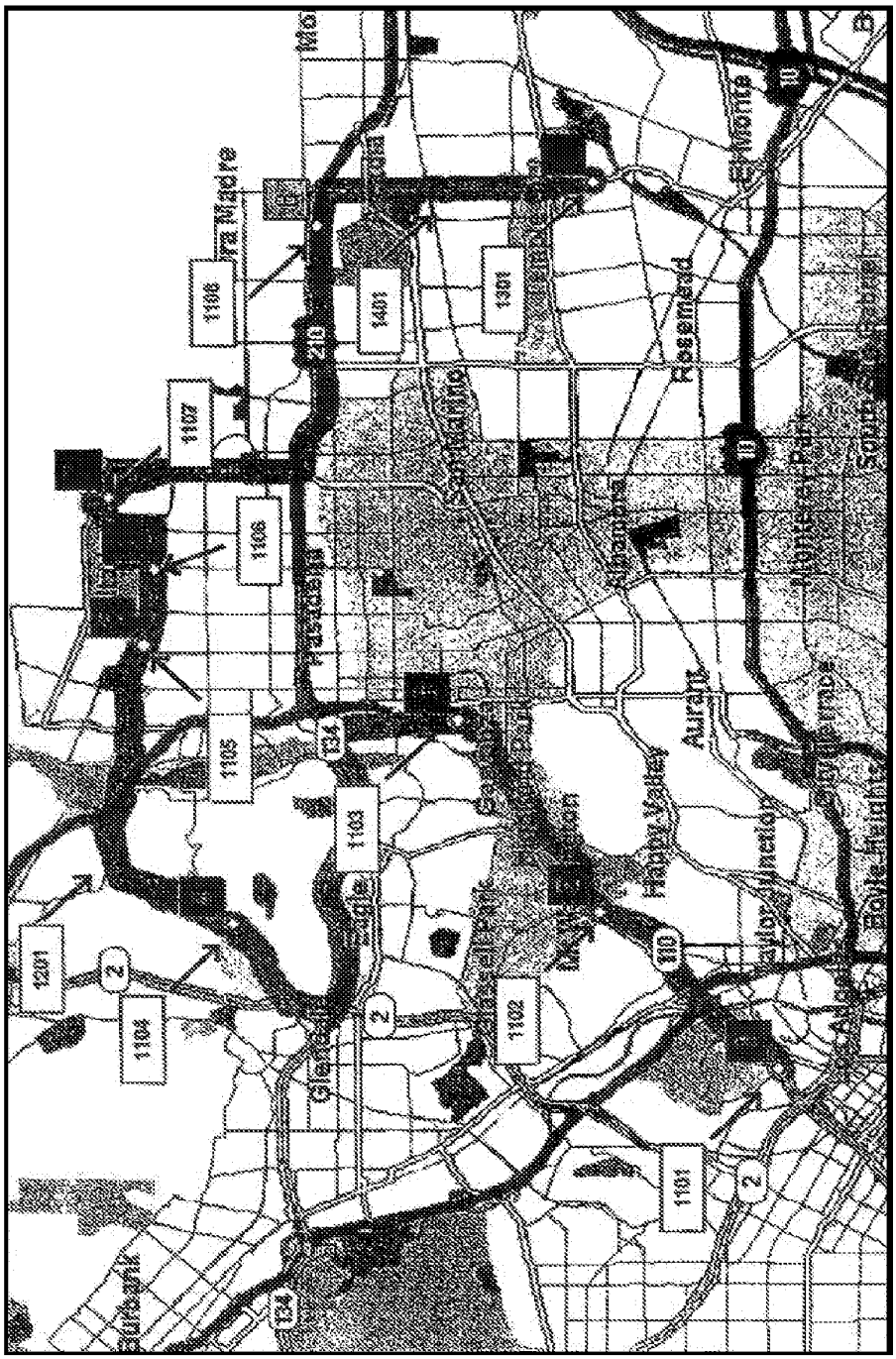

Monrovia
Arcadia
Sierra Madre
Rosemead
Temple City
Alhambra
Monterey Park
South San Gabriel
Aurant
Happy Valley
Glendale
Burbank
1101
1102
1103
1104
1105
1106
1107
1108
1201
1301
1401
210
134
110
2
5
10

FIG. 14

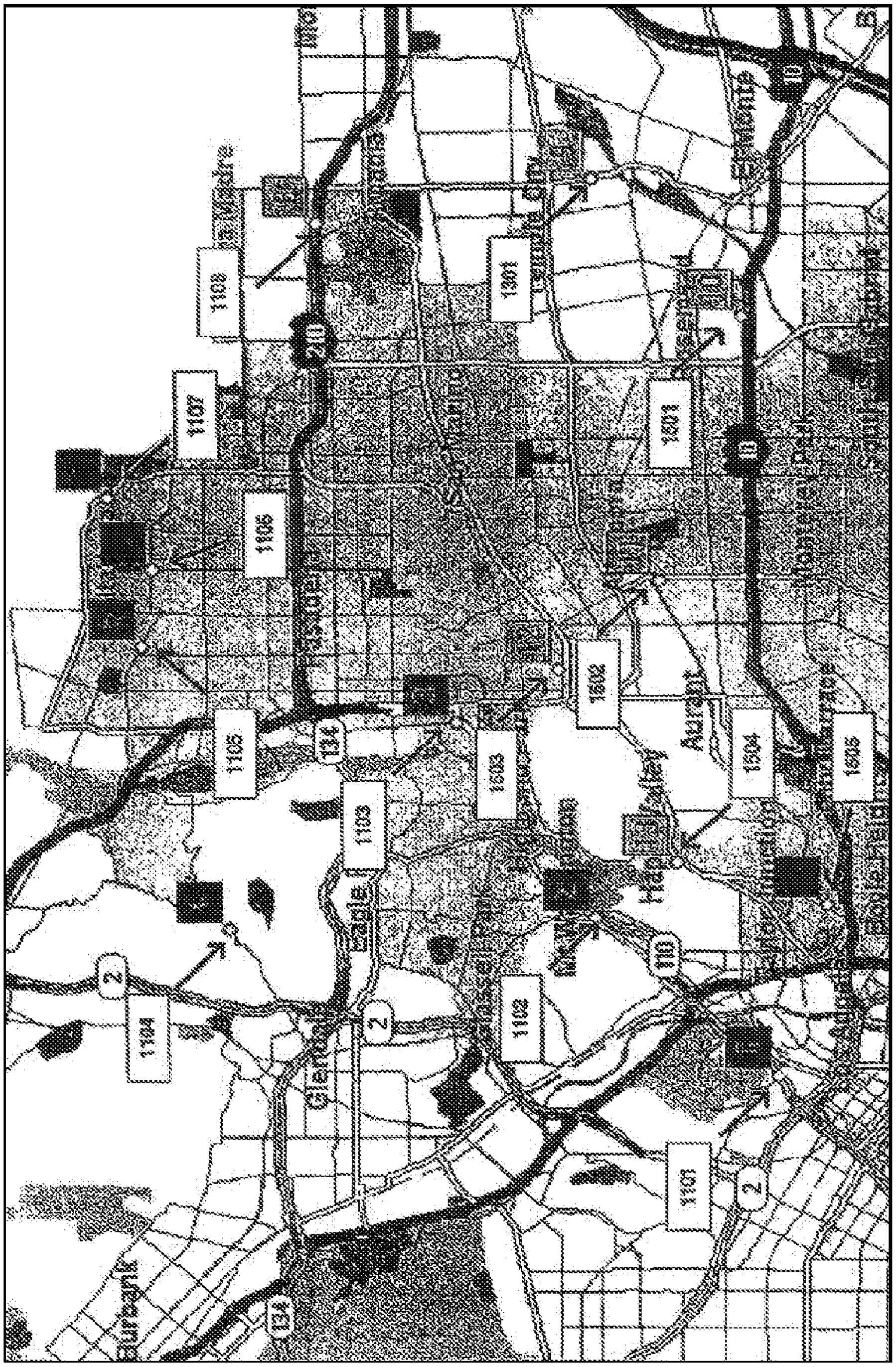

1101
1102
1103
1104
1105
1106
1107
1108
1502
1503
1504
1505
134
2
210
10
110

FIG. 15

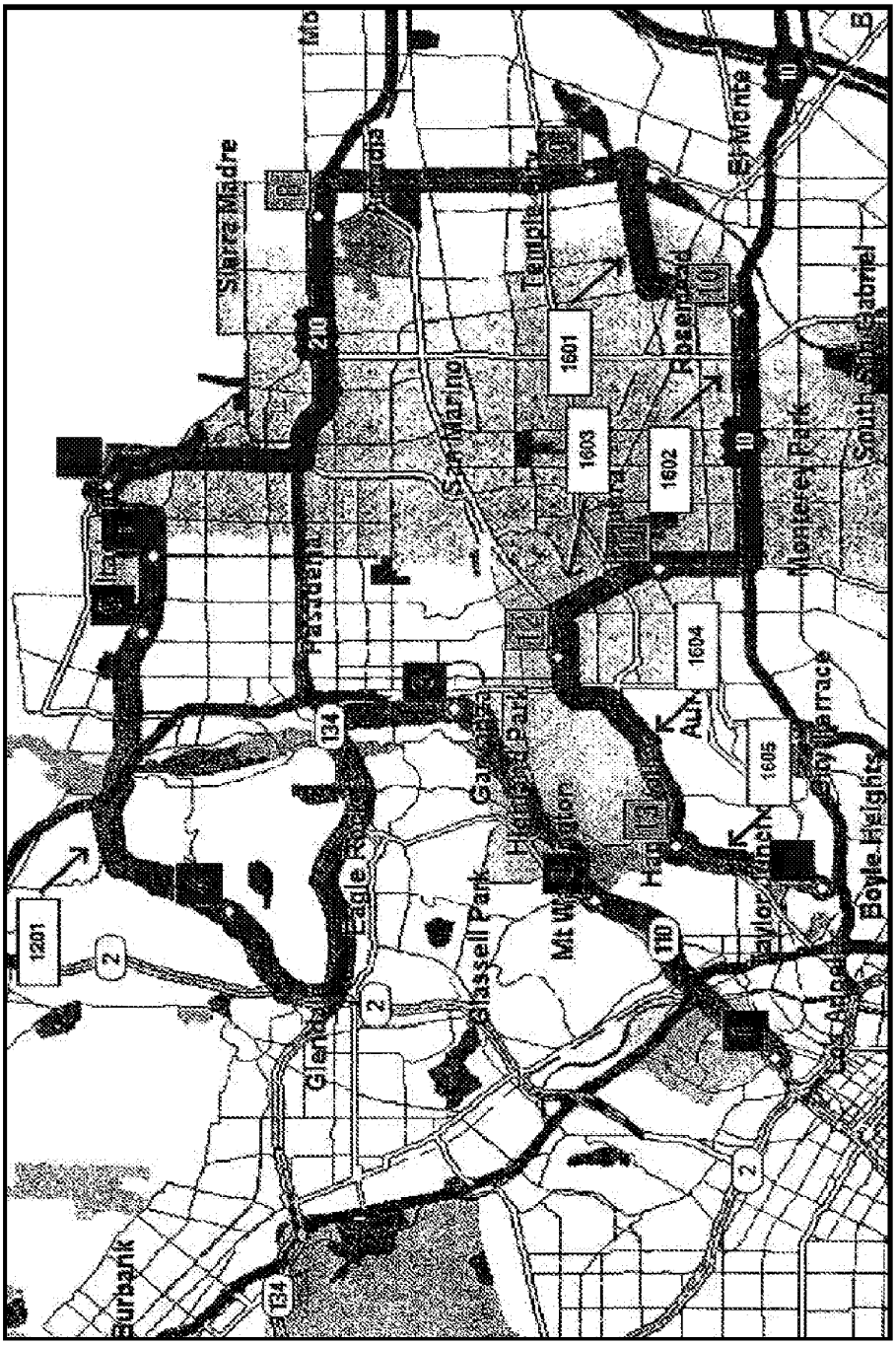

Sierra Madre
Pasadena
San Marino
Temple City
Rosemead
Monterey Park
South San Gabriel
Eagle Rock
Glassell Park
Mt Washington
Boyle Heights
Burbank
1601
1602
1603
1604
1605
210
134
110
10
605
2
1201

FIG. 16

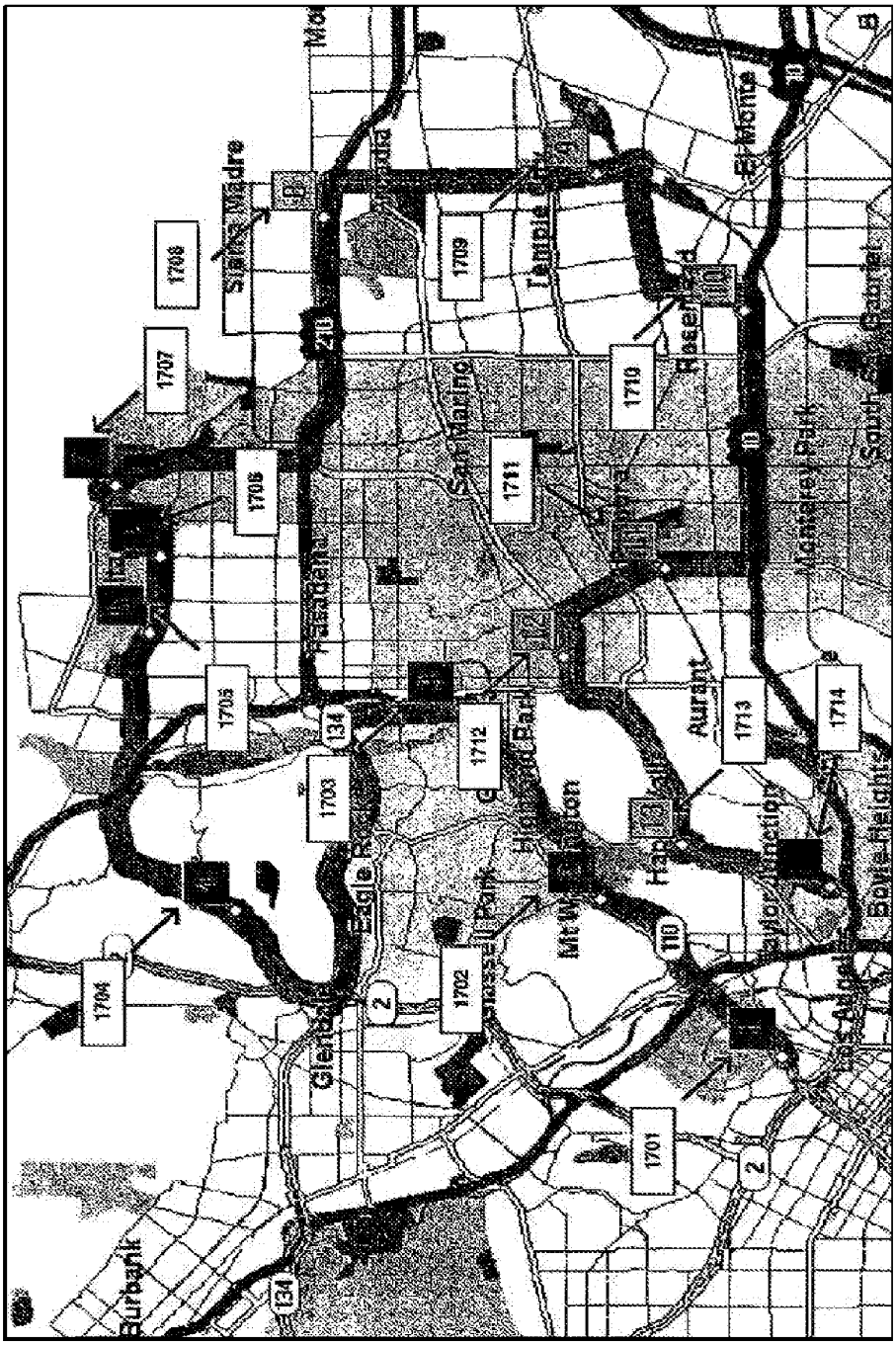

1701
1702
1703
1704
1705
1706
1707
1708
1709
1710
1711
1712
1713
1714
Burbank
Glendale
Eagle Rock
Pasadena
Sierra Madre
Arcadia
Temple City
San Marino
Alhambra
Rosemead
El Monte
Monterey Park
South El Monte
Mt Washington
Highland Park
Avocet Junction
Aurant
Boyle Heights
134
210
2
110
10
60
5
12

FIG. 17

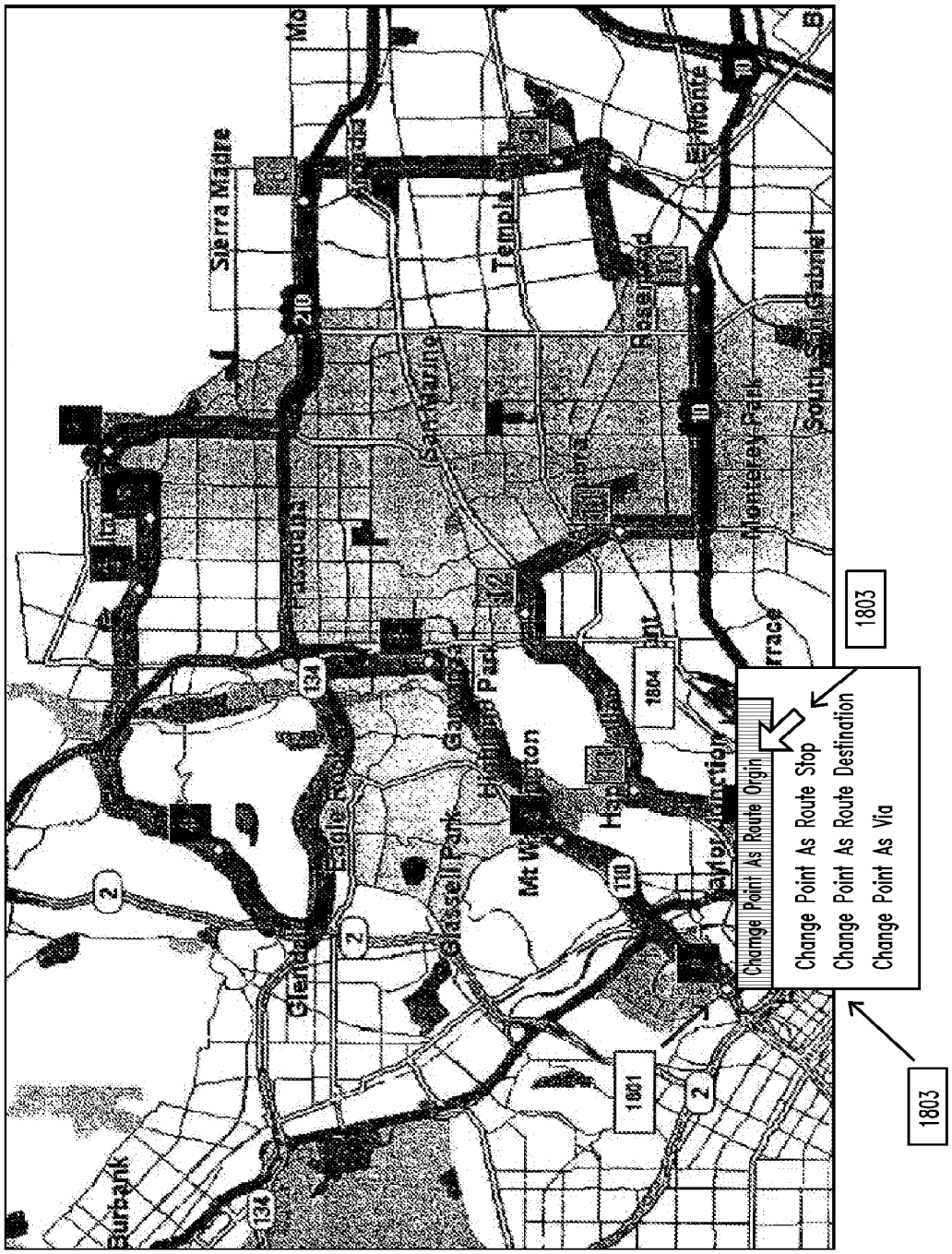

Sierra Madre
Temple City
El Monte
South San Gabriel
Monterey Park
Rosemead
San Marino
Glendale
Eagle Rock
Glassell Park
Mt Washington
Burbank
1801
1804
1803
1803
Change Point As Route Origin
Change Point As Route Stop
Change Point As Route Destination
Change Point As Via

FIG. 18

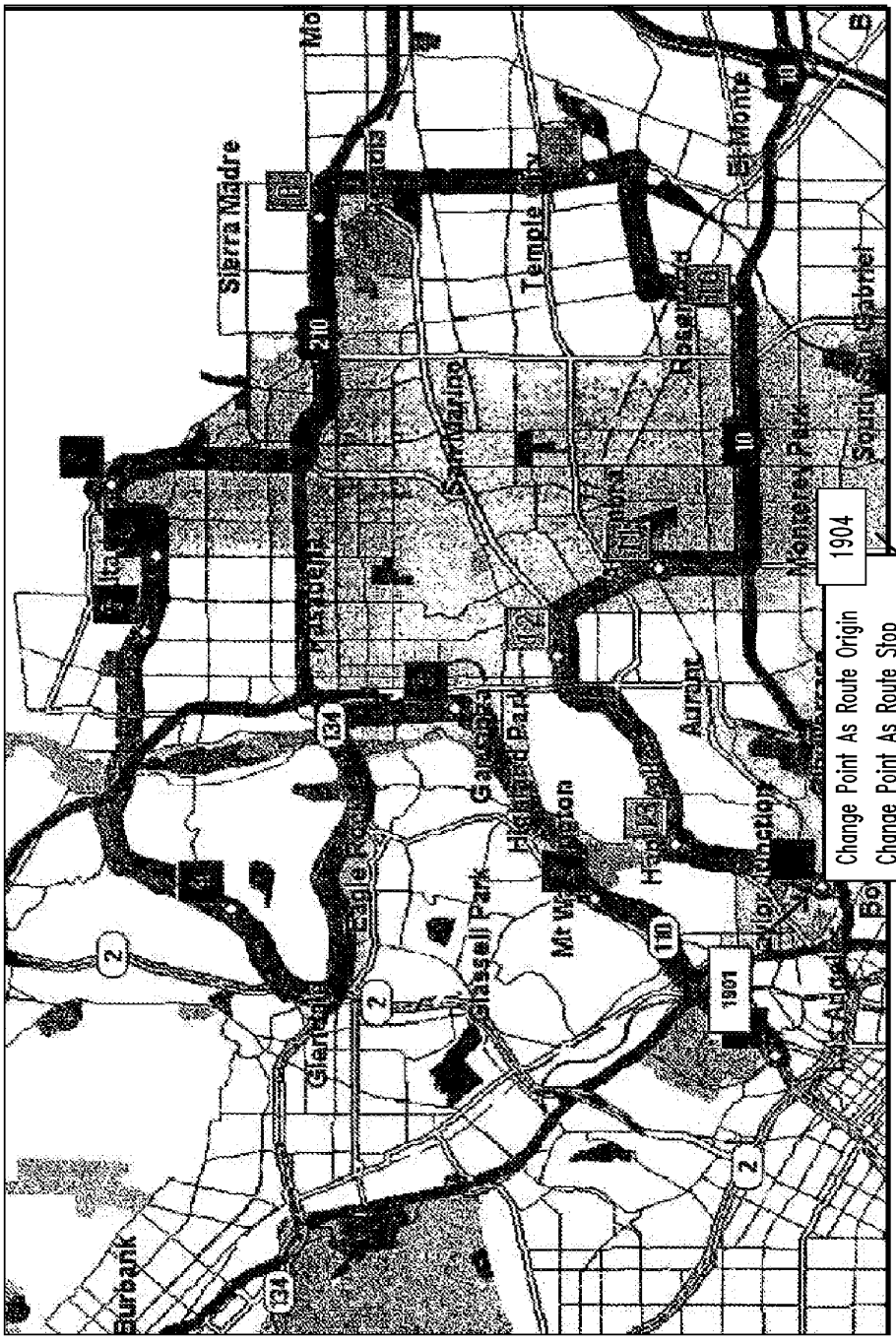

Sierra Madre
Temple City
Arcadia
Monterey Park
Alhambra
Glendale
Eagle Rock
Glassell Park
Highland Park
Mt Washington
Aurant
Burbank
210
134
2
110
10
1901
1902
1903
1904
Change Point As Route Origin
Change Point As Route Stop
Change Point As Route Destination
Change Point As Via

FIG. 19

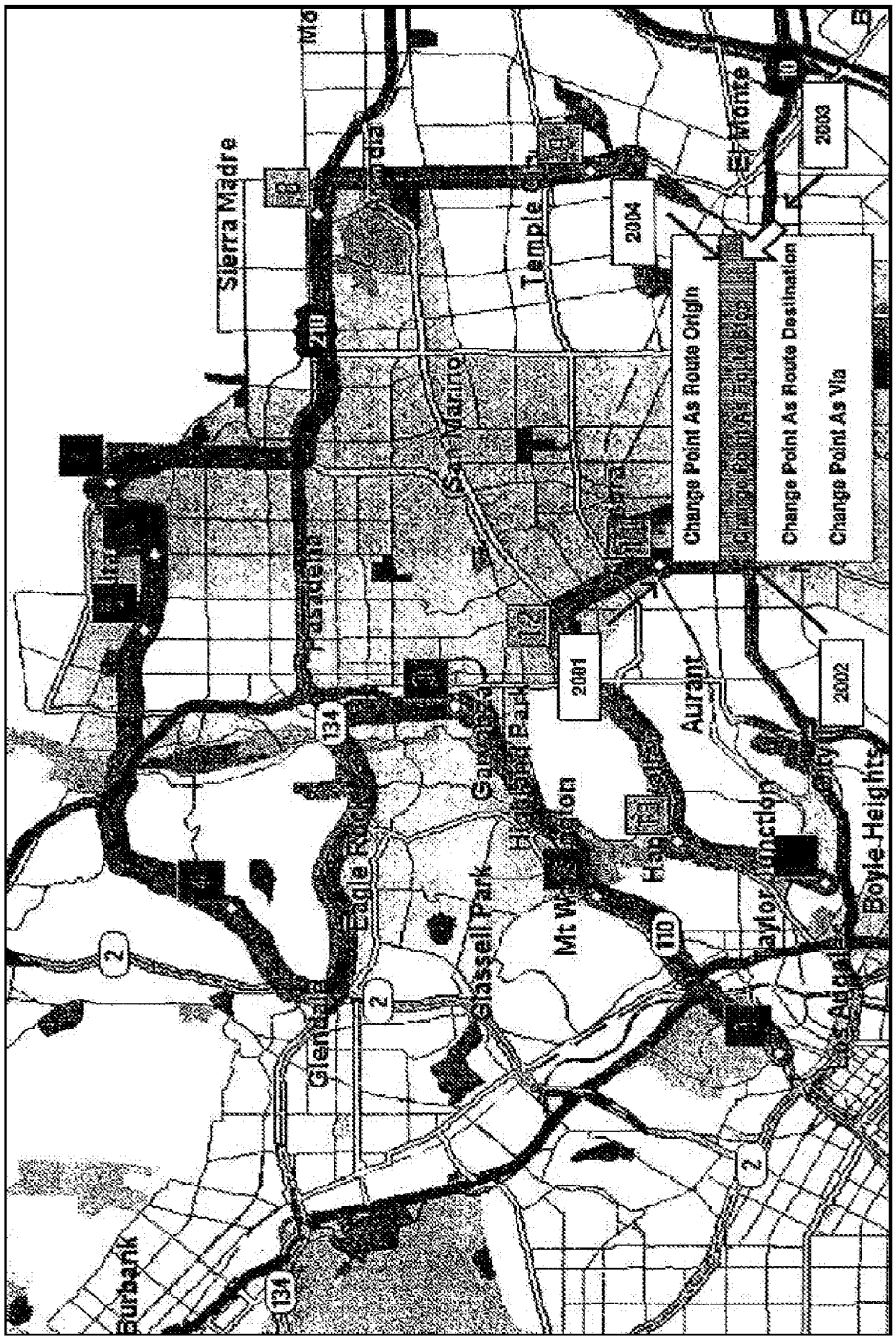

Sierra Madre
Temple
Change Point As Route Origin
Change Point As Route Destination
Change Point As Via
2001
2002
2003
2004
Aurant
Boyle Heights
Burbank
Glendale
Eagle Rock
Mt Washington
Highland Park
Pasadena
San Marino
El Monte
Monrovia
Arcadia
Alhambra
Hospital
Taylor Junction
Jail
210
134
110
2
605

FIG. 20

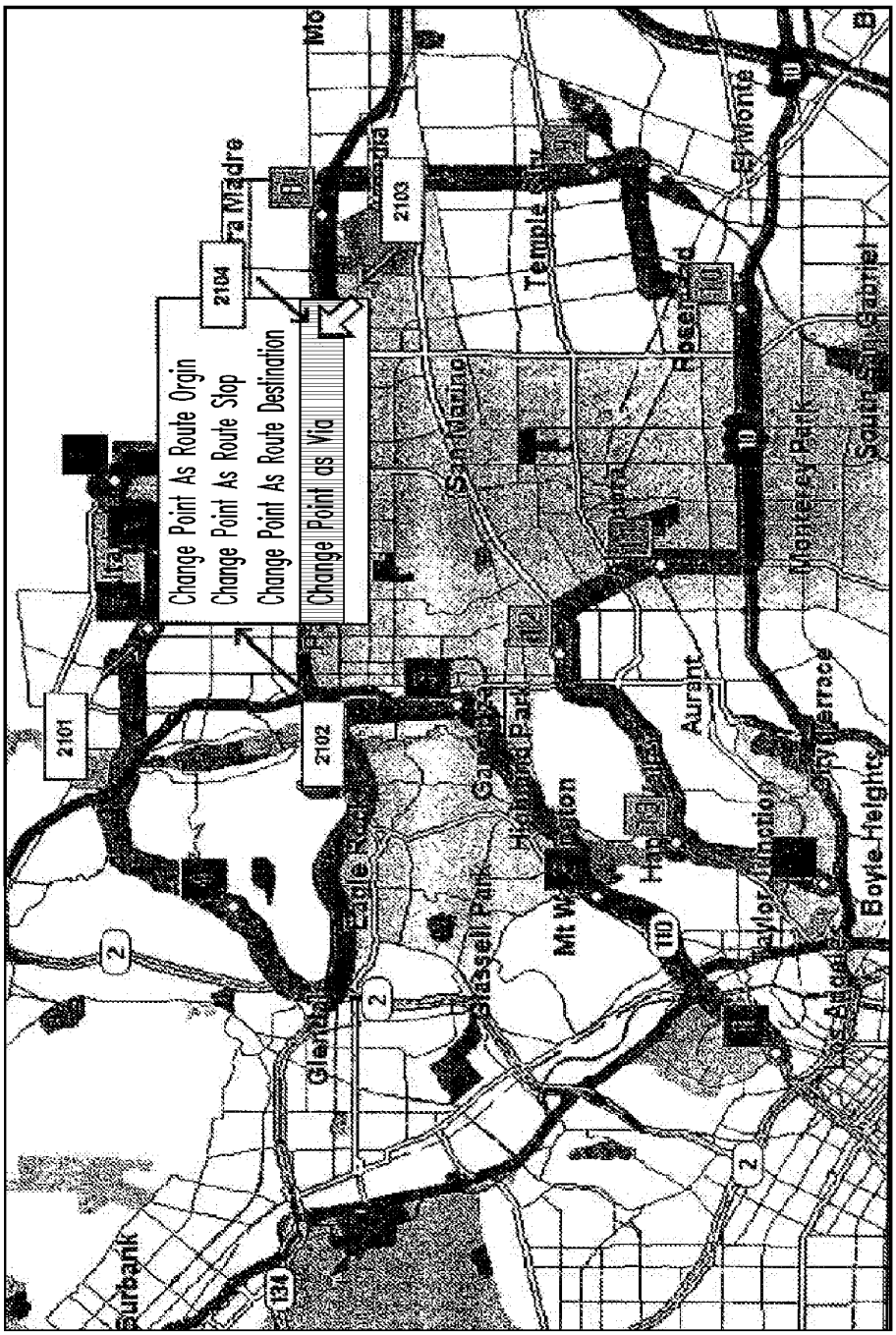

Change Point As Route Orgin
Change Point As Route Stop
Change Point As Route Destination
Change Point as Via
2101
2102
2103
2104
Burbank
Glendale
Eagle Rock
Glassell Park
Mt Washington
Highland Park
Pasadena
Temple City
San Marino
Arcadia
Monrovia
Duarte
Monterey Park
South San Gabriel
Aurant
Boyle Heights
Alhambra
134
2
10
110
710
605

FIG. 21

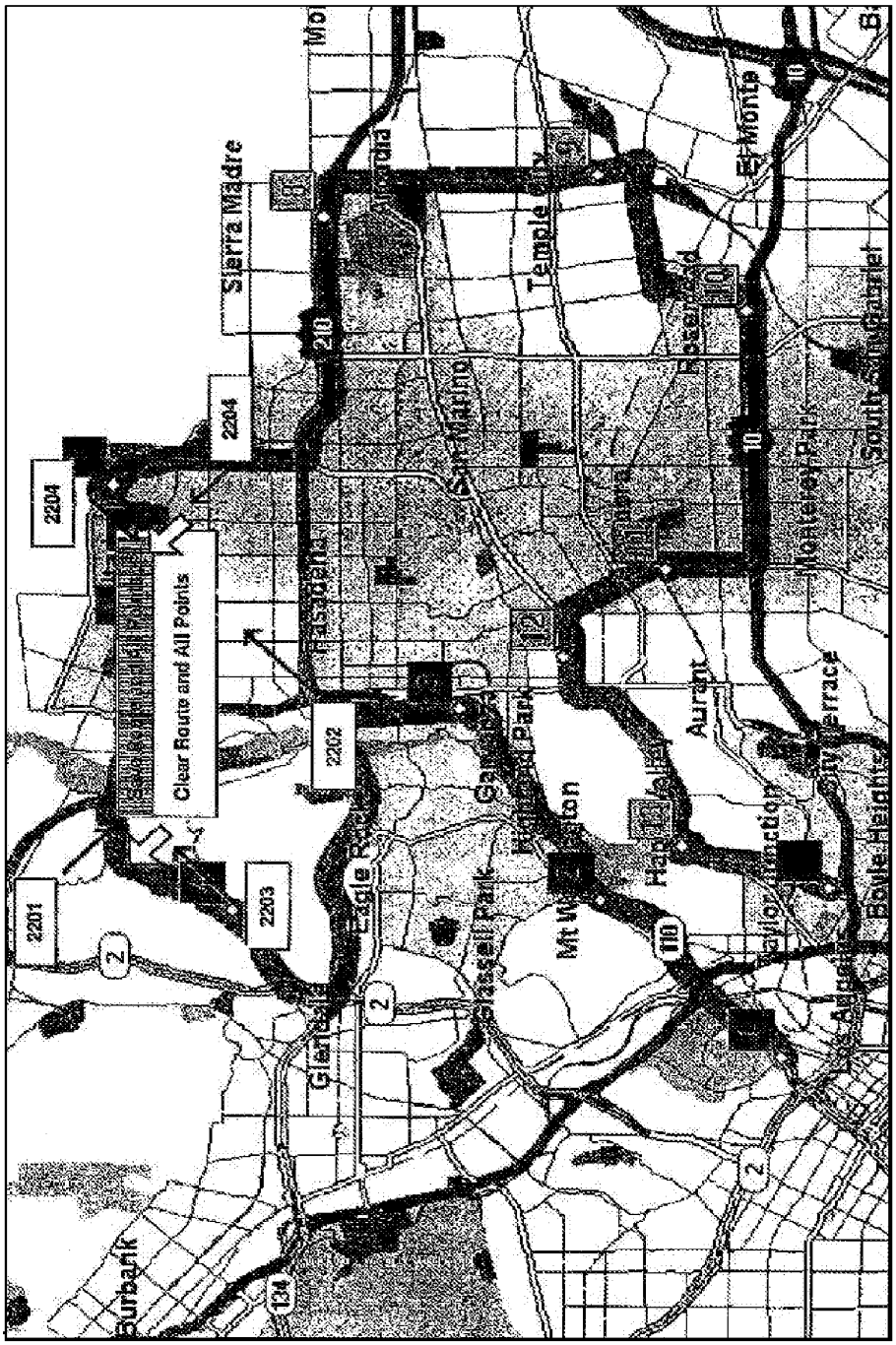

Clear Route and All Points
2201
2202
2203
2204
2204
Sierra Madre
Arcadia
Temple City
El Monte
South San Gabriel
San Marino
Pasadena
Monterey Park
Glendale
Eagle Rock
Glassell Park
Mt Washington
Hermon
Highland Park
Garvanza
Aurant
City Terrace
Boyle Heights
Burbank
134
2
2
2
10
10
110
210
12

FIG. 22

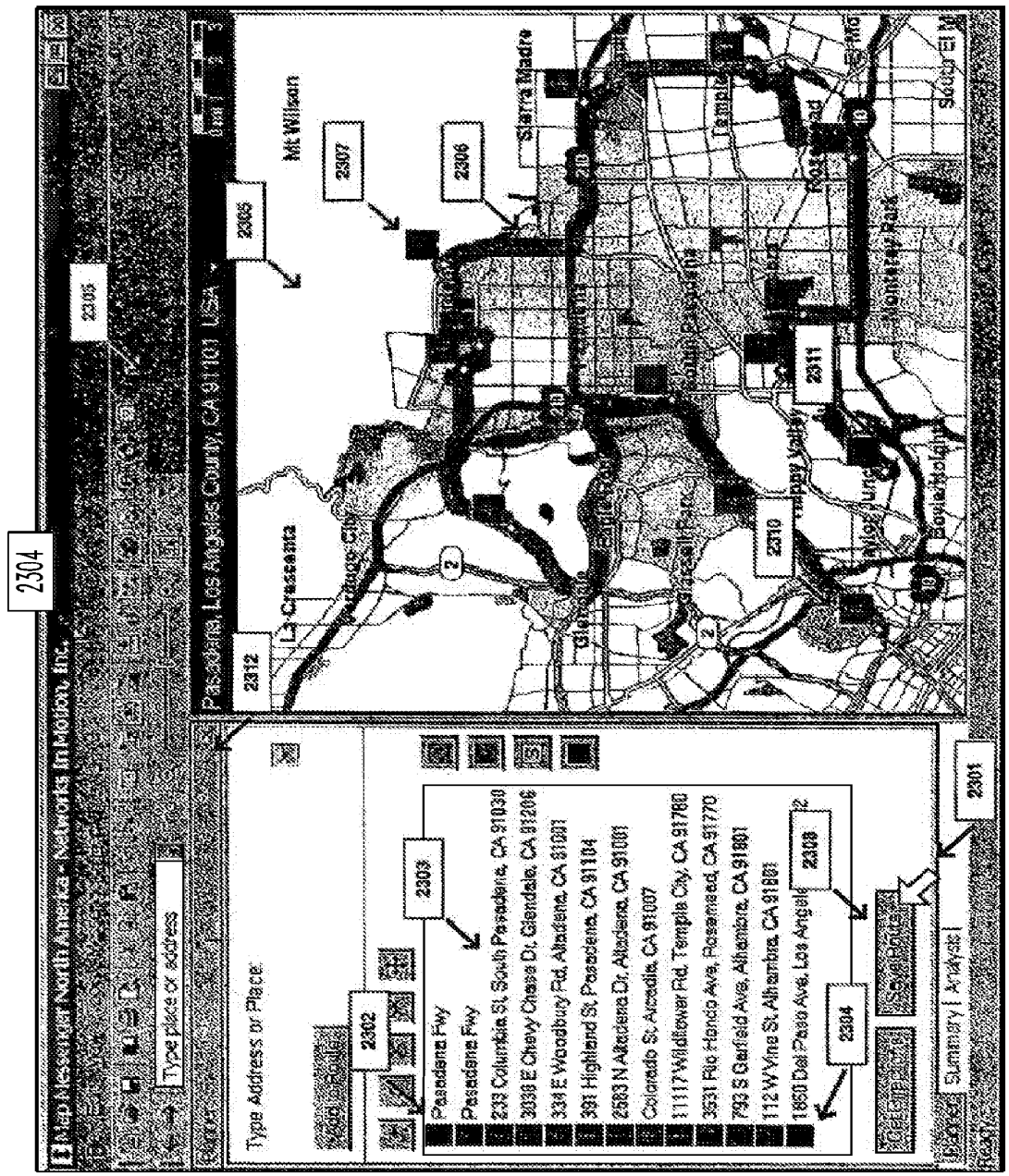

2304
2309
2312
2305
2307
2306
2310
2311
2302
2303
2308
2304
2301
Type Address or Place
Type place or address
Pasadena, Los Angeles County, CA 91101, USA
Mt Wilson
Sierra Madre
La Crescenta
Glendale
Eagle Rock
Pasadena Fwy
Pasadena Fwy
233 Columbia St, South Pasadena, CA 91030
3038 E Chevy Chase Dr, Glendale, CA 91206
334 E Woodbury Rd, Altadena, CA 91001
391 Highland St, Pasadena, CA 91104
2583 N Altadena Dr, Altadena, CA 91001
Colorado St, Arcadia, CA 91007
11117 Wildflower Rd, Temple City, CA 91780
3531 Rio Hondo Ave, Rosemead, CA 91770
793 S Garfield Ave, Alhambra, CA 91801
112 W Vine St, Alhambra, CA 91801
1850 Del Paso Ave, Los Angeles, CA 90032
Summary | Analysis

FIG. 23

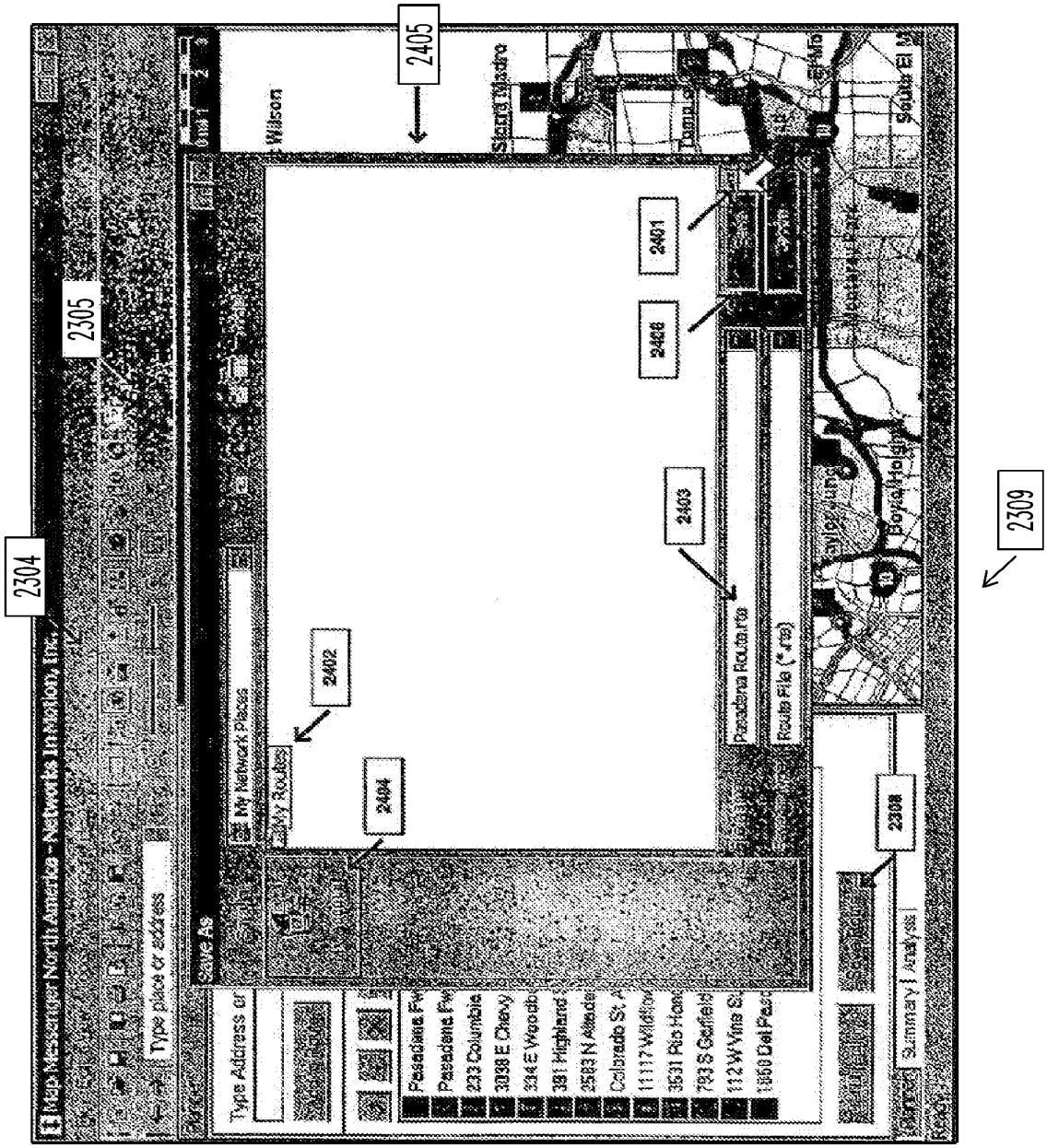

2304
2305
2309
2405
2401
2402
2403
2404
2406
2308
Wilson
Pasadena Restaurants
Route File (*.rte)
My Network Places
My Routes
Type Address or
Summary | Analysis

FIG. 24

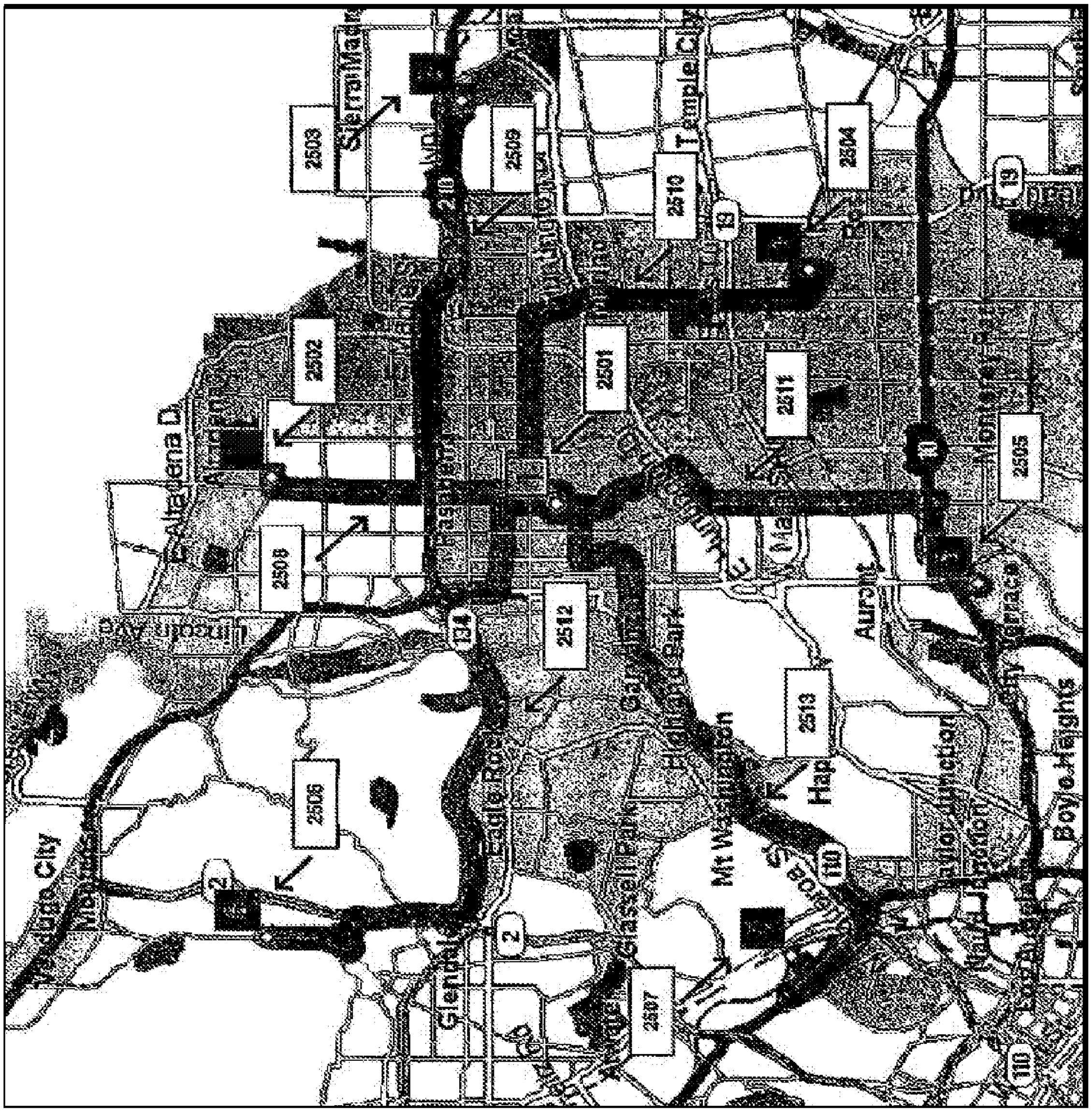

2501
2502
2503
2504
2505
2506
2507
2508
2509
2510
2511
2512
2513
Sierra Madre
Temple City
Lincoln Ave
Eagle Rock
Highland Park
Glassell Park
Mt Washington
Boyle Heights
Glendale
Monterey Park
210
134
110
19
2

FIG. 25

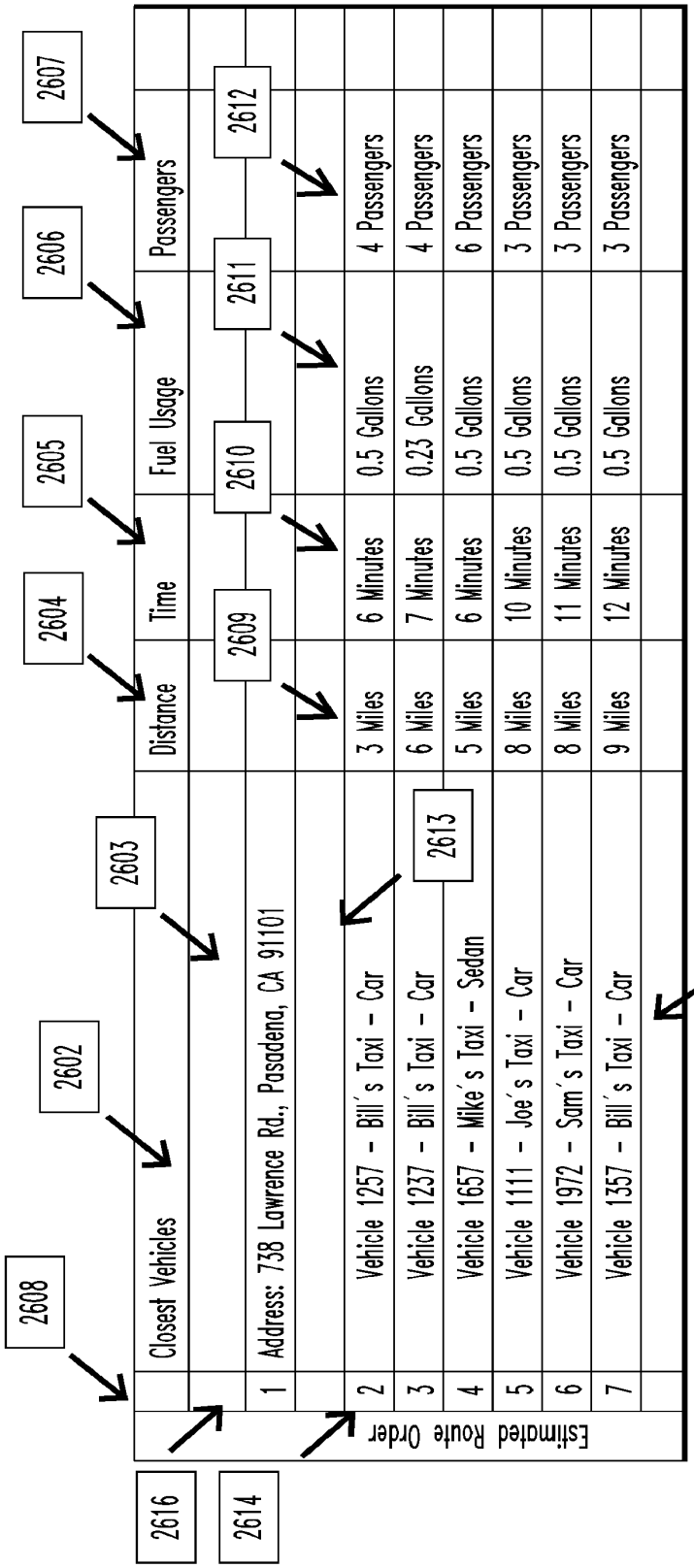

2608
2602
2603
2604
2605
2606
2607
2609
2610
2611
2612
2613
2615
2601
2616
2614
Estimated Route Order
Closest Vehicles
Distance
Time
Fuel Usage
Passengers
1 Address: 738 Lawrence Rd., Pasadena, CA 91101
2 Vehicle 1257 – Bill´s Taxi – Car 3 Miles 6 Minutes 0.5 Gallons 4 Passengers
3 Vehicle 1237 – Bill´s Taxi – Car 6 Miles 7 Minutes 0.23 Gallons 4 Passengers
4 Vehicle 1657 – Mike´s Taxi – Sedan 5 Miles 6 Minutes 0.5 Gallons 6 Passengers
5 Vehicle 1111 – Joe´s Taxi – Car 8 Miles 10 Minutes 0.5 Gallons 3 Passengers
6 Vehicle 1972 – Sam´s Taxi – Car 8 Miles 11 Minutes 0.5 Gallons 3 Passengers
7 Vehicle 1357 – Bill´s Taxi – Car 9 Miles 12 Minutes 0.5 Gallons 3 Passengers

FIG. 26

APPLICATION UNDER UNITED STATES PATENT LAWS

Invention: **METHOD AND SYSTEM FOR DYNAMIC ESTIMATION AND PREDICTIVE ROUTE GENERATION**

Inventor(s): Michael SHEHA; Angie SHEHA; Steven PETILLI; & Arun YARLAGADDA

This is a:

[ ] Provisional Application

[ ] Regular Utility Application

[X] Continuation Application

[ ] PCT National Phase Application

[ ] Design Application

[ ] Reissue Application

[ ] Plant Application

SPECIFICATION

METHOD AND SYSTEM FOR DYNAMIC ESTIMATION AND PREDICTIVE ROUTE GENERATION

Cross-Reference to Related Applications

This application is a division of U.S. patent application Serial No. 10/410,740, filed April 10, 2003, which claims priority from U.S. provisional patent application Serial No. 60/371,941 filed April 10, 2002.

BACKGROUND OF THE INVENTION

1. Field of Invention

The present invention is directed to systems and methods for dynamic route estimation and prediction using discrete sampled location updates from various mobile devices, and to also provide supplemental information such as route metrics, including without limitation traveled distance and elapsed time.

2. Description of the Related Art

Computerized mapping software is achieving widespread use today. Such mapping programs are commonly used to automate tasks of calculating routes, viewing location-specific geographical areas for their spatial content, such as addresses, roadways, rivers, etc., and for the purpose of being used with Global Positioning System (GPS) devices for various applications, such as a personal navigation application. Mapping software programs apply to a wide variety of uses, such as personal navigation, telematics, thematic mapping, resource planning, routing, fleet tracking, safety dispatching (i.e., Police, Fire, and Rescue organizations), and a wide variety of

specialized Geographic Information System (GIS) applications, all of which are well known to people skilled in the art.

Real-time communication networks today also provide the ability to transfer, in real-time, voice and data information from various mobile devices, such as wireless phones, telemetry devices, or the like, to a multitude of other devices, either mobile or stationary, all of which are well known to people that are skilled in the art. For example, GPS devices that are connected to a wireless MODEM are able to transfer their position coordinates, such as latitude and longitude, wirelessly to a computer or server for later retrieval or real-time viewing of said information. Current applications that integrate or combine mapping, real-time communication capabilities, and position devices, for various computing devices are well known to people skilled in the art. These applications are referred to by various terminologies, including, but not limited to Automatic Vehicle Location (AVL), Location-Based Services (LBS), Fleet Tracking Systems, etc., all of which are well known to people skilled in the art.

Conventional systems, such as AVL systems, typically involve a positioning device connected to a wireless MODEM sending location information, amongst other telemetry information, at discrete time intervals to a computer for the viewing of said information. This monitoring, or tracking, of real-time location information or of location-history information is sometimes referred to as the breadcrumb trail or history information of the mobile device, since it illustrates the current and/or previous locations that the mobile device is or has been in space and time. The problem with the conventional system is that the 'breadcrumb' trail does not provide the user with sufficient information about the mobile device's actual or estimated route during the

course of its travels, but only provides discrete location information over a specified period of time. How the mobile device traveled along the underling routable network infrastructure, such as roads, highways, exit ramps, etc., from point-to-point is not provided in prior art.

Conventional applications will sometimes associate the term 'route' with a breadcrumb trail that directly connects discrete points with straight lines, but this is not an accurate use of the term as known to people that are skilled in the art. For example, a route is typically defined as a road, course, or way for traveling from one place to another over a set of various defined paths, such as a route along a highway. True routing applications include a network of paths that are used in combination with destination points, where destination points can include both an origin and stop points, in order to determine a specific route along said network paths between each of the destination points.

Conventional systems widely use this method of connecting direct lines between location updates for illustrating the breadcrumb trail path and direction between location updated points. Some conventional systems further illustrate the order of the location updates that the mobile device traveled by chronologically numbering each of the location updates or by connecting a direct line from each point, or drawing an arrow at each point, with an arrow illustrating the mobile device's heading or pseudo heading. The problem with the conventional system is that these methods and systems do not provide the user with any actual or estimated route information derived from the location updates, specifically due to the discrete nature of the location data. As people skilled in the art will appreciate, a method and system that can create a dynamic estimated route between

various discrete locations would provide a number of improvements over existing prior art, such as providing a better illustration of the data, which has inherent limitations due to its being discrete location data, extrapolating total driving distance from a set of discrete location updates, and providing to the user an ability to save the calculated estimated route or plan new routes from the existing location information.

Thus, a need exits for a method and system that allows an application to dynamically generate estimated route information from location updates originally derived from a mobile positioning device. Until now, an adequate solution to these problems has eluded those skilled in the art. Thus, there exists a need to provide a solution that enables an application to dynamically generate, based on various route generation preferences, estimated and predictive routes using location information that was generated from a mobile positioning device sending discrete location updates of its position over various periods of time. This provides many important benefits for computing devices that receive discrete position updates for the purpose of monitoring, planning, and analysis of mobile devices' positional information.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a method and system for enabling dynamic estimated routing calculations between location points generated from a mobile device with access to its own location (i.e., position) information, and also displaying said calculated route on a map display of varying size and resolution. In one embodiment, a wireless mobile device transmits its location information by means of a centralized server where the location data is routed to the specific destination device, either stationary or mobile. The device initially displays the first location point on the map display that has either a visible or transparent underlying road network. The next location update that arrives from the mobile device, indicating its next position, is preferably displayed similarly to the first location update, and a dynamically estimated route is generated in real-time based on a set of route preferences and displayed on the map display between the two location points. In this embodiment, if the location updates do not intersect the pathways of the road network exactly, the points used in the route calculation are a result of the location points being snapped to the nearest road pathway or segment for the purpose of enabling the route calculation.

It is another object of the present invention to provide a method and system for enabling predictive dynamic routing calculations between location points in real-time as they arrive from a mobile device that has access to its own location information. Predictive routing provides the user or application with estimated predicted route calculation information between location updates based on various preferences, such as origin and destination information, map data information (e.g., road speed limits, one-way information, etc.), mobile device information (i.e., heading, speed, vehicle type,

etc.). Predictive routing is based on one or more known location updates and is calculated from the time an initial location update arrives to the time when the next location update arrives. Predictive routing is preferably further augmented when the destination information is known in advance, but the various points between the origin and destination are not known. In one embodiment, an initial location update is provided and the destination location is known in advance. Using the initial location update, and various other aiding information, such as vehicle vector information such as heading, speed, etc., an estimated route can be calculated in pseudo real-time using the vector information of the device along with some destination information. In another embodiment, when destination information is not provided, the predicted route is calculated and displayed in all possible directions that routes can exist.

It is another object of the present invention to provide a method and system for displaying the dynamic route calculated using discrete location update information on a mobile or stationary computing device. In one embodiment, a mobile device would send discrete location information in a peer-to-peer connection to another mobile device, such as an in-vehicle navigation device, for the display of the remote mobile device's location information and for real-time dynamic route calculation of the remote mobile device's travels or to the remote mobile device's current location. In another embodiment, the mobile device would send discrete location information by means of a distributed server system that routes the location information to a stationary dispatch computer or group of computers. In both cases, the display and calculation of dynamic route information is similarly performed.

It is another object of the present invention to provide a method and system for providing a set of route preferences for use in calculating dynamic route information. The route preferences can be specific to each device thus allowing a more precise approximation of the actual versus estimated route traveled by the mobile device. In one embodiment, route preferences, when using map data that consists of road networks for motor vehicles, includes various types of categories, such as Driving Speeds, Route Optimization Goals, Road Preferences, etc. For example, Driving Speeds illustrates average speeds the vehicle travels over various types of roads, such as Interstate Highways Average Speed, Other Highways Average Speed, Arterial Roads Average Speed, Surface Streets Average Speed, or the like. In this embodiment, Route Optimization Goals illustrates either the Fastest Route or the Shortest Route, while Road Preferences illustrates whether the motor vehicle typically avoids Highways, Arterial Roads, or Toll Roads. These and other preferences allow the dynamic route calculation to closer approximate the actual route most likely traveled by the vehicle.

It is another object of the present invention to provide a method and system for providing the route to be calculated from a known infrastructure of network paths, such as a road, highway, exit, ramp, etc., which is usually associated with the type of map data, such as road, nautical, aviation, topographical, or the like. In one embodiment, after two or more location updates are used to calculate a route, the system uses map data, such as road map data, to calculate an estimated or predictive route.

It is another object of the present invention to provide a method and system for providing the capability to correlate location information with a known set of network pathways associated with the particular map data for determining the point on the

network pathways nearest to the location information. This allows the route calculation to be the most accurate when using location updates that typically have some positional error associated with them, and when using map data that also has its own positional error. In one embodiment, a mobile device is attached to a positioning device, such as a GPS receiver, that has a positional error typically on the order of 2-15 meters. Map data consists of various segments of roadways, each of which typically has it own positional error, sometimes on the order of 2-50 meters. Since both the mobile device and the map data typically have some positional error, and it is necessary to calculate a route using the map data, the map data is preferably used as the datum, and the mobile device's location information is "snapped-to" the nearest point or segment on the map data. That is, the location used for route calculation is preferably the point on the network pathways of the map data nearest to the actual mobile device's location. This allows the dynamic route calculation to be as accurate as possible relative to the map data and location updates from the mobile device.

It is yet another object of the present invention to provide a method and system for enabling the mobile device to send location updates to a receiving device or devices (i.e., broadcast) directly, in a peer-to-peer configuration, where the receiving device or devices can be client-type devices, either mobile or stationary, or server-type devices. In one embodiment, a mobile device is connected to a GPS receiver that transmits its location information, via a wireless communication network and the Internet, preferably at a frequency of one update per second (i.e., 1 Hz) to another mobile device connected to a different wireless communication network and is connected to the Internet. In another embodiment, a mobile device sends its updated position information intermittently and

directly (i.e., peer-to-peer) to an online server-computing device via a wireless communications network and the Internet.

It is yet another object of the present invention to provide a method and system for enabling the mobile device to send location updates to a receiving computing device, either a client or server, by means of a server, such as a centralized or distributed server system, that acts as a router and directs the location updates to the specific receiving computing and/or server device or devices (i.e., broadcast), which are either mobile or stationary. In one embodiment, a mobile device is connected to a GPS receiver that transmits its location information, via a wireless connection and the Internet, preferably at a frequency of one update every half a second (i.e., 2 Hz) to a centralized server that is connected to the Internet and routes the location information to a stationary computing device by means of an Internet connection.

In an alternative embodiment, a mobile device transmits its position information periodically to a server that routes the location packet updates to another server component or system for storage and real-time or future dynamic estimated route calculation, performed at the server component or system and then delivered to the stationary or mobile computing device. In this embodiment, the location packet updates can be directly delivered to the stationary or mobile computing device, in real-time or from storage on the server, and the estimated route calculation would be performed at the stationary or mobile computing device. In yet another embodiment, the estimated route calculation can be preformed on the server, and then delivered to the stationary or mobile computing device.

It is yet another object of the present invention to provide a method and system for enabling the mobile device to store location updates to a local storage medium, such as a hard disk drive or flash memory, on the mobile device at various or specific intervals. The mobile device can then calculate and display the estimated route information of the mobile devices' journey locally. Additionally, the mobile device can transfer the location information to a remote client directly (i.e., peer-to-peer) or to a server (i.e., peer-to-server), which can then deliver the location information to a client (i.e., server-to-peer), which may include the estimated route already calculated. The transfer to the remote client and/or server can occur using various transfer methods, such as wireless (e.g., Bluetooth, 802.11, etc.), infrared, wired (i.e., USB cable, etc.), or storage transfer (i.e., floppy disk, etc.). In one embodiment, a mobile device stores location information over a period of time, and then, using a wireless connection, transmits its location information to an in-vehicle navigation system, which calculates estimated route information using the discrete location updates that the mobile device recorded. Additionally, the transfer to the in-vehicle navigation system could consist of using a floppy disk drive to transfer said location update information.

It is yet another object of the present invention to provide a method and system for calculating estimated and predicted route information using various map data sets and location update information either on the end client application, such as a graphical user interface (GUI) local application, or on a server application. The end client and server applications can calculate the route estimation and prediction information in real-time, or can store the location information (i.e., location history information) and calculate the route estimation at a later time for delivery to the end user or client. Specifically, the

server application can calculate, in real-time or on demand (using stored location history), the estimated route information for delivery to the end client (i.e., mobile or stationary computing device), either through a web interface (i.e., Web Browser), web service, or other communication protocol and interface. The server application can also calculate the route estimate information and store the results on the server for future deliver to the end client. The end client can also calculate the route estimation and prediction information in real-time or store the location history information for post-processing the route estimation information after it has been stored locally, such as in memory or in the local computing device's hard disk drive, optical disk drive, etc.

In one embodiment, a wireless mobile device sends its location information to an online server, via a wireless communication network and the Internet, every 60 seconds. The server routes the location information to an end client that dynamically, and in real-time, calculates and displays the estimated route information of the mobile wireless device as the location updates arrive at the end client through the Internet connection to the online server. In another embodiment, a wireless mobile device sends its location information to an online server, via a wireless communication network and the Internet, every period of predetermined time interval. The server stores the location history information into an online server database. At a later time, and using a web browser, the user of the mobile wireless device preferably logs onto the online server and request to see the location history information of their trek, including the estimated route information. A server application component uses, from the database, the stored location history records for the mobile device for the time past and pre-defined general route preferences to calculate the estimated route information for the specific mobile device's

journey on a known map data set. In this embodiment, the location information points and estimated route information are displayed to the mobile device's user via a web browser end client.

It is still another object of the present invention to provide a method and system for sending an information packet, accompanied with every discrete location packet, that provides additional information about the location point. In the event when a location update was not scheduled to be transmitted and an information packet is transmitted, depending on the type of location packet type, an ad-hoc location update can also be transmitted accompanying the information packet. The additional information contained in this information packet consists of various location-related information, such as stop information (e.g., origin, stop, via, destination), waypoint information (e.g., personal notes, etc.), PIM (Personal Information Management) information, Point of Interest (POI) information (e.g., restaurants, gas stations, etc.), or the like. In one embodiment, such as a dispatch application, a user of a wireless mobile device, such as a wireless phone, arrives at a customer's location and enters the location and other appropriate information about the customer into an application on the wireless mobile device. The wireless mobile device then either locally stores the location and additional information, or remotely transmits the information to the remote client or online server.

It is still another object of the present invention to provide a method and system for providing the capability of adding the location update information (i.e., position information, such as GPS, etc.) and/or location information generated by a mobile device (i.e., POI, waypoint, etc.) to a route planner for the purpose of modifying the collection of discrete location history information. In one embodiment, location updates periodically

arrive to a dispatch client from a mobile wireless device. The location updates can then be transferred to a route planner application that allows the modification of the location update points prior to calculating the estimated route information. For instance, if a location update illustrates a point on a specific highway, but the mobile device should have been traveling on a different highway, then that point can be moved to the appropriate highway prior to the calculation of the estimated route. Additionally, the estimated route can be calculated prior to modifying the location history update information or in real-time as the location updates arrive, since the estimated route information provides graphical information that would aid the user in modifying the location history information. In another embodiment, as location updates arrive to a dispatch client, the location update points are typically defined as via points, but the via points can be changed to other destination points, such as a stop, origin, or destination end point, thus providing route planning capabilities on the discrete location updates. Additionally, these destination points can be accompanied by additional information, such as notes, start/departure time, stop duration, etc.

It is still another object of the present invention to provide a method and system for saving, either on a server or locally, the calculated estimated route information and/or the location history information including the specific route preferences used to calculate the route. The estimated route information range (i.e., date, time, position, etc.) can be selected to indicate the starting and ending point boundaries for the route and/or location history information to be saved. In one embodiment, location updates periodically are received via the Internet and are displayed on a map display. With every location update received, an estimated route is calculated based on various route preferences. The user

can select the displayed location history information with estimated route information and save it locally or to a remote server. Additionally, the user can select a subset of the entire estimated route and/or location history information and save only that portion to the local hard disk drive or flash memory, or to the online server for retrieval from other networked devices.

It is still another object of the present invention to provide a method and system for calculating estimated route information, such as driving distance, using discrete sampled location update information and based on various user or device-defined route preferences. In one embodiment, using location history information, an estimated route is calculated based on a set of user route preferences (e.g., shortest time, etc.). After an estimated route has been created based on the location history information and various route preferences, the total driving distance can then be computed. A subset of information can also be illustrated, such as driving instructions (i.e., Turn Right onto Lawrence Road, etc.), heading, distance, and elapsed time for each portion of the estimated route, including summary information for the estimated route, such as total driving distance traveled.

It is still another object of the present invention to provide a method and system for calculating an estimated route for multiple location-relevant 'satellite' points, such as a mobile device, to or from a 'central' destination or origin location point, where the estimated route is calculated relative to a known set, or sets, of map data, and the resulting estimated routes are ordered according to various metrics. These ordering calculation metrics may include preferences such as shortest time, shortest distance, most use of highways, most use of surface streets, least amount of traffic, least amount of cost,

such as fuel usage for each mobile satellite and/or central point (which in this case can be considered to be a mobile motor vehicle), or the like. The central satellite destination or origin point can be a place, such as a POI (i.e., address, house, landmark, etc.), or a stationary or mobile device, where the mobile device's location is provided in real-time or from a cached location either locally, where the estimate route is calculated, or on the server system. The estimated route is based on various route preferences such as Driving Speeds, Route Optimization Goals, Road Preferences, etc., where each of the satellite points and/or central point can have estimated routes based on individual route preferences for each mobile or stationary point. The satellite points or central point can include real-time location updates from mobile devices, and known position points, such as POIs (i.e., stationary points), or the like. In one embodiment, an application defines an entered address as the central point, which is, for this embodiment, a stationary point.

Using the location updates from the mobile devices surrounding the general area of the address, the application calculates in real-time an estimated route from each of the satellite mobile devices to the central address. The application then uses the total travel distance of the estimated route from each of the mobile devices to the central address location and calculates the estimated travel time for each mobile device to travel from their current location to the central address location. This time calculation is based on various route preferences and map data for each of the satellite mobile devices, such as the posted driving speed of the roads, number of stop lights required and the typical time spent at each stop light, etc. After calculating the estimated distance and time for each satellite mobile device (i.e., satellite implies surrounding the central address point), the mobile devices are preferably ranked or sorted based on various metrics, such as distance,

time, fuel usage, etc. In another embodiment, the central point is another mobile device, and using real-time location updates, the estimated routes are dynamically calculated, in real-time, for a mobile device when an update on its location is received.

Details of the various embodiments of the present invention will be further explained below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a network system for providing a communication channel between various different computing devices;

FIG. 2 illustrates an aspect of the present invention showing a real-time communications program with an integrated mapping environment that graphically displays various location-relevant objects on a map;

FIG. 3 illustrates another aspect of the present invention for graphically displaying a road network of streets in a map display;

FIG. 4 illustrates another aspect of the present invention for dynamically plotting various location update points on a map display that originated from a mobile device;

FIG. 4A illustrates another aspect of the present invention for using a snap-to algorithm for determining the line segment of the map data that is nearest to location updates from a mobile device;

FIG. 4B is a pictorial example of how location update information can arrive both asynchronously and synchronously from a mobile device;

FIG. 5 illustrates another aspect of the present invention for graphically displaying various possible routes between two points in space that are correlated against map data;

FIG. 6 illustrates another aspect of the present invention for providing the most accurate estimated route between two location update points in real-time using various route preferences;

FIG. 7 illustrates another aspect of the present invention for providing an additional estimated route between two location update points in real-time;

FIG. 8 illustrates another aspect of the present invention for graphically displaying the start of a predictive route calculation;

FIG. 9 illustrates yet another aspect of the present invention for graphically displaying all of the possible predictive route calculations at a fork or juncture of the map data;

FIG. 10 illustrates yet another aspect of the present invention for graphically displaying all of the possible predictive route calculations between an origin point and a destination point along a route resulting from a set of route preferences;

FIG. 11 illustrates yet another aspect of the present invention for graphically displaying a prior art location history trail of location points on a map display;

FIG. 12 illustrates yet another aspect of the present invention for graphically displaying the estimated route based on a set of location history points;

FIG. 13 illustrates yet another aspect of the present invention for graphically displaying a real-time location update point in addition to the previous estimated route calculation;

FIG. 14 illustrates yet another aspect of the present invention for graphically displaying a real-time route calculation based on tracking the mobile device that is periodically sending its location updates;

FIG. 15 illustrates yet another aspect of the present invention for graphically displaying the entire location history trail in addition to the real-time tracked location updates;

FIG. 16 illustrates yet another aspect of the present invention for graphically displaying an entire estimated route specifically illustrating the updated real-time estimated route calculations for the most recent location update points;

FIG. 17 illustrates still another aspect of the present invention for graphically displaying the entire estimated route based on a set of location history points;

FIG. 18 illustrates still another aspect of the present invention for graphically changing a location update point to a Route Origin point;

FIG. 19 illustrates still another aspect of the present invention for graphically changing a location update point to a Route Destination point;

FIG. 20 illustrates still another aspect of the present invention for graphically changing a location update point to a Route Stop point;

FIG. 21 illustrates still another aspect of the present invention for graphically changing a location update point to a Route Via point;

FIG. 22 illustrates still another aspect of the present invention for graphically saving an estimated route to a route planner and illustrating the capability to clear the current estimated route and location points;

FIG. 23 illustrates still another aspect of the present invention for graphically displaying the location update points added to a route planner window for modifying and/or saving the estimated route;

FIG. 24 illustrates still another aspect of the present invention for graphically saving a calculated route after it has been added to the route planner window.

FIG. 25 illustrates still another aspect of the present invention for graphically displaying the estimated route calculations from various mobile devices to a centralized stationary position or other mobile device; and

FIG. 26 illustrates still another aspect of the present invention for graphically displaying the sorting order of the previous figure's estimated route calculation.

DETAILED DESCRIPTION OF THE EMBODIMENT

The various embodiments of the present invention will now be described with references to Figures 1-26.

The present invention provides a method and system for creating, storing, and displaying dynamic route prediction and estimation using discrete sampled location update information. The dynamic route prediction and estimation can be further augmented using additional information pertaining to the location points, such as stop or waypoint information. Additional route information can be obtained from this method and system including various route metrics, such as total elapsed distance, etc. The present invention may be embodied within or along with a mapping and real-time communication application.

FIG. 1 illustrates a high-level diagram of an environment in which the invention may be implemented. The embodiment of the present invention will be described in the general context of an application that executes on an operating system in conjunction with a personal computer or server, but those skilled in the art will realize that this invention may also be implemented in combination with other program modules. Furthermore, this invention is not limited to a typical personal computer, but may also be utilized with other computing systems, such as handheld devices, mobile laptop computers, wireless phones, in-vehicle navigation systems, programmable consumer electronics, mainframe computers, distributed computer systems, etc., and the like.

FIG. 1 illustrates a network server and client system for sending and receiving packets of data information, such as location updates, and includes a typical mobile positioning device, such as a wireless device, but those skilled in the art will appreciate

that this may also include an optical or wired mobile device. The mobile device 100 includes or is attached via a connection interface 101, to a positioning device 102, such as a GPS receiver. In one embodiment, the position device can receive position-aiding information by mean of a wireless connection, either a separate wireless connection 105 or by means of the primary wireless connection 103 that the wireless device uses to send data wirelessly to the wireless base station 104. The wireless base station 104 provides the interface, typically a connection 110 to the Internet, Intranet, or Extranet 111, but those skilled in the art will appreciate that the connection may include a wireless communication network, such as a telephone network. Additionally, other mobile computing devices 107 can also be supported by the wireless base station 104 through various types of connections 106, such as a TDMA, CDMA, or the like, connection. In one embodiment, there are preferably five primary architectures of routing location updates, amongst other location-relevant information, to the local or to other computing devices, which may be either a stationary 108 or mobile computing device 107, or a server system 125, or the like. In this embodiment, a server system preferably includes a XML router 115 for routing the location update packets, a position device server gateway 113 that connects to various mobile devices, a database 124 for storing the location information, a web page server client 118 for calculating on the server the estimated route information, and a web server 121 for delivering the location information or estimated route information to the end client. The various primary architectures for routing location updates preferably include:

1. Local Display, No Routing of Location Updates.
2. Peer-to-Peer

3. Peer-to-Server, then Server-to-Peer

4. Peer-to-Local Storage Device, then Local Storage Device (i.e., Peer)-to-Peer

5. Peer-to-Local Storage Device, then Local Storage Device (i.e., Peer)-to-Server, then to Peer

The first architecture does not route its location updates, but only displays them on the mobile computing device's 100 local display.

The second routing architecture is a peer-to-peer (P2P) model. In this embodiment, a P2P architecture includes a mobile wireless device 100 that obtains its position updates through various interfaces 101 or positioning devices 102, all which are known to those skilled in the art. The location update is routed from the mobile wireless device 100, through the wireless connection 103 to the wireless base station 104. The wireless base station 104 then routes, typically using an IP (i.e., TCP or UDP) protocol, to the appropriate other device, which is either a mobile device 107 connected 106 using the same or different wireless base station 104, or is a stationary computing device 108, which is typically connected 109 to the Internet, or the like. The remote peer can also be a server system 125 that would receive, calculate, and display the route information (i.e., estimated route information, predictive route information, total distance traveled, etc.).

A third route architecture is a peer-to-server (P2S), then a server-to-peer (S2P) model. In one embodiment, a P2S architecture is similar to the P2P architecture, except that the end device is a server. In this embodiment, the wireless mobile device 100 obtains its location information from a positioning device 102. The discrete location update information is then transmitted 103 to the wireless base station 104 that is

connected 110 to the Internet 111. The server system's 125 positioning device gateway 113 is also connected 112 to the Internet 111, and is capable of receiving location update packets from the mobile wireless device sending said packets. Thus the mobile wireless device 100 is capable of transmitting its discrete location update information to the server system (i.e., P2S). The same, or another client, such as a stationary computing device 108 (i.e., a personal computer) is also connected 109 to the Internet 111. The stationary computing device 108 has a connection to the server system 125 preferably by means of the XML Router 115, that is also connected to the Internet 111. If the discrete location packets are sent by the mobile wireless device 100, they arrive at the server system's 125 positioning device gateway, and are then preferably routed 114 to the XML Router 115 which then forwards the location packets to the stationary computing device 108 via the Internet 111 and the XML Router's Internet connection 120. The discrete location packets are then sent to the stationary computing device 108 preferably by means of a dedicated Internet connection 109, which is the S2P part of the third routing architecture. In another embodiment, the peer device in the S2P portion of the model could be a different mobile device 107, or even the same mobile device 100 that is transmitting the location updates.

It should be noted that the location information could also be obtained by means of a server connected to the mobile wireless device 100 at its location, thus sending the location update information directly to the Internet 111, or the like, and to the server system 125. This scenario also applies for all of the other architectures of routing location update information. As it will be appreciated to those skilled in the art, the position information obtained for calculating the discrete location information can vary across

networks that use various technology implementations, such as E-OTD, TOA, AOA, gpsOne from Qualcomm, SnapTrack Servers, Assisted-GPS, etc., which are known to those skilled in the art.

A fourth architecture includes a mobile device (i.e., where the mobile device does not need to be a wireless device, such as a non-wireless Personal Digital Assistant (PDA)) that captures the location information from a positioning device and stores it locally, such as in its hard disk drive, optical drive, local memory (i.e., Flash, SDRAM, etc.), floppy disk drive, etc. The mobile device can then transfer its stored discrete location information to another computing device, either stationary or mobile, using various methods. These transfer methods include, but are not limited to, the use of an infrared connection, floppy disk, Bluetooth connection, removable hard drive, or the like. This architecture is denoted as a peer-to-peer local (i.e., storage device) transfer, followed by a peer-to-peer transfer (P2L-P2P).

A fifth architecture includes a mobile device that captures location history and stores it locally as previously mentioned. At a later point in time, the location history information is transferred to the online server system 125 through the previously mentioned methods, or the like. Once the data is stored on the server, the S2P model can be used to retrieve the store information. Location history information can be stored completely on the server and, by request, be transferred to an end peer client, such as a stationary computing device 108 or a mobile computing device 107 using either a wireless 106 or dedicated landline connection, such as an Ethernet cable.

As illustrated in FIG. 1, the end clients, such as the stationary computing device 108 or mobile computing device 107, can directly interact with each other through the

provided system, or directly with the server systems 125. For instance, a personal computer 108 can request to view estimated route information through a web server application 118 that interfaces to the server system's 125 database 124. The web server application 118 can display the estimated route information to the stationary computing device 108 using its interface 123 to the web server 121, the web server's connection 122 to the Internet 111, and a dedicated connection 109 from the Internet 111 to the stationary computing device 108. The estimated route information, in this embodiment, is calculated on the server system 125 in the web server application 118 and displayed to the end client 108 using the web server 121.

In another embodiment, the discrete location history information is transferred from the server system 125 to the end client 108 by the primary means of the Internet 111 and the direct connections that interface 120, 122 to the Internet with the end client 108 and XML Router 115. The XML Router 115 routes the location history information to the end client 108 from its storage place in the database 124 contained in the online server system 125. The estimated route information is then preferably calculated and displayed on the end client 108. The online server system 125 is displayed as a centralized server system, but can also embody a distributed server system, which is well known to those skilled in the art.

FIG. 2 illustrates an application screen display of the Real-Time Communication and Mapping Program (RTCMP) 201 with a map display of several geographical objects in a map window 202 below a menu bar 200. The map display 202 contains a route estimate 207 starting with an initial point 204 (i.e., origin), an intermediate point 205 (i.e., via or stop), and an end point 206 (i.e., destination). A typical graphical users

interface (GUI) program (i.e., RTCMP) 201 is best utilized with an icon pointer 203, typically known as a mouse icon pointer to those skilled in the art. A route 207 preferably includes an origin 204 and one or more destination points 205 & 206, which can each be considered a "link". The route is illustrated as a series of links, such as link between the origin point 204 and the first destination point 205. It should be noted and appreciated to those skilled in the art that a link is not typically a straight line as illustrated in the sample map, but rather follows the topography of the roadways calculated between two route points, such as an origin 204 and destination 205 point. However, for simplicity, all links are illustrated as straight lines.

FIG. 3 illustrates a map display 202 that shows a network of streets, such as Colorado Boulevard 300, Lawrence Road 302, Madison Avenue 303, and Tea Street 301, amongst other surface streets. FIG. 4 illustrates a series of location updates, such as Point T1 400 (Colorado Blvd.), Point T2 401 (Madison Ave.), and Point T3 402 (NIM Rd.). These location updates illustrate the course of a mobile vehicle's path versus time, as illustrated in FIG. 4B. Note in FIG. 4B that the location updates can arrive asynchronously and independently of each other relative to the other location updates (i.e., they are mutually exclusive). For instance, Point T1 423 arrives at an initial time, while Point T2 424 arrives at a significantly later time compared to the time difference between Points T2 424 and T3 425.

It should be noted and appreciated to those skilled in the art that location update points, such as Point T1 400 of FIG. 4, have a positional error associated with it, typically referred to as a circular error probability or error radius. This error radius is due to the original calculation of the position coordinates on the device or by using the device's

characteristics (e.g., Time-of-Arrival (TOA) Location Estimation), and is typically due to the datum used, GPS satellite orbit error, multipath, or the like. Additionally, map data also has its own inherent positional error typically associated with every element, such as a highway or surface street. The goal for calculating the estimated route, as people skilled in the art will appreciate, is to correlate the location update position of the mobile device with the most likely position on the map data. Once a point in the map data has been chosen, or Snapped-To, estimated and/or predicted routes can be calculated with greater efficiency and accuracy.

FIG. 4A illustrates several location updates 404, 403, 406, & 405 each with its own positional accuracy superimposed on the map data's positional accuracy of roads, such as 9th Street 421, 10th Street 420, and Bear Road 419 & 422. Using the map data as the current datum, it is necessary to "snap" the location update information to the most likely road position on the map data that a location update point actually represents. This is a moot point if, for example, the location update information is accompanied with other location-relevant information, such as an address. If this is the case, then the point on the street can be GEO-Coded, which allows the address information to be compared against an additional file, typically contained in the map data, where the file provides the latitude and longitude position of the device in the map data, such as on 9th Street 416. GEO-Coding is a term widely known to people skilled in the art.

If location update information (i.e., latitude, longitude, altitude, etc.) is the only information provided, then the actual positions of the location updates on the map data roads must be determined. For example, Point-1 404 appears to be either on 9th Street 416 or Bear Road 422. The preferred method used to calculate the most probable map data

point for Point-1 404, considering the error probability of Point-1 404, would be the point on a road nearest to the location update point, as described by the following method: 1) Extend an error radius 408 that creates a circle 412 from the center of the location update 404; and 2) as the circle radius 408 is increased, determine the road segment from the map data that first intersects the newly created circle 412.

As shown in FIG. 4A, that point is illustrated 416 on 9th Street 421. As people skilled in the art will appreciate, this point 416 also has a street address, but it is omitted in this example. This same approach is applied to all location update points shown in FIG. 4A, such as Point-1 404, Point-2 403, Point-3 406, and Point-4 405. Each location update point is snapped-to the nearest road segment, such as 416, 415, 418, & 417, using the same circle test 412, 411, 414, & 413 and circle radius 408, 407, 410, & 409 illustrated in FIG. 4A.

As shown in FIG. 5, there are various pathways that can result from a route computation between Points T1 400 and T2 401, a subset of which are illustrated in FIG. 5. For instance, the possible routes from Point T1 400 and Point T2 illustrated include, but are not limited to 500, 501, 502, 503, 504, 505, 506, 507, 508, and 509. As an example, route 500 travels north on Colorado Boulevard 300 and then East on Madison Avenue 303 until Point T2 401 is reached. The estimated route, from Point T1 400 to Point T2 401, is based on various general route preferences, and can be greatly improved when the route preferences are tailored to the specific mobile device, such as in the case of a truck which would only be allowed to travel on major roads, while a car can transverse major and minor road networks. These route preferences can include various categories, such as Driving Speeds, Route Optimization Goal, Road Preferences, etc. For

example, Driving Speeds illustrates various types of average speeds the specific motor vehicle travels over various type of roads, such as Interstate Highways Average Speed, Other Highways Average Speed, Arterial Roads Average Speed, Surface Streets Average Speed, or the like. In this embodiment, Route Optimization Goal represents either the Fastest Route or the Shortest Route, while Road Preferences illustrates whether the motor vehicle typically avoids Highways, Arterial Roads, or Toll Roads. These and other preferences allow the route estimation to more closely approximate the actual route most likely traveled by the motor vehicle when it provided the discrete location update information.

Using the provided route preferences, the most probable route 600 that the mobile device traveled between Point T1 400 and Point T2 401 is illustrated in FIG. 6. This route includes the shortest distance and fastest time route between the two points. The route information includes driving directions, such as "North on Colorado Blvd for 0.2 miles, Right onto Tea Street heading East for 0.4 miles, Left onto Independence Road heading North for 0.35 miles, Right onto Madison Avenue heading East for 120 yards, Arrive at Destination". In this embodiment, this route is dynamically created upon the receipt of Point T2 401, given that Point T1 400 has already been received and displayed on the application.

The process is completed when Point T3 402 is received from the mobile device and a new route is estimated and displayed, as shown in FIG. 7. As people skilled in the art will appreciate, this process provides significantly more information to the user and application compared to having only the points displayed on the map, straight lines

between the points, or arrows at the points indicating the heading of the device at that specific point.

Also contained in this invention is the process of calculating predictive routes. An estimated route is computed upon the arrival of each location update, and at least 2 location updates are needed to compute an estimated route. A predictive route graphically illustrates the mobile device's location when a location update is received, and a predicted estimate of its current location, based on metrics such as speed, heading, etc., until the next location update arrives. In one embodiment, as shown in FIG. 8, if an origin point 800 and destination point 801 are known, and the origin update arrives at a given time, using either the road speed limit or the mobile device's typical speed (i.e., motor vehicle, bicycle, runner, etc.), a predictive route can be calculated. For example, given that point 800 is the starting point, and using the expected velocity and system time, it is possible to compute the average distance traveled as a factor of time (Distance = F(t) = Velocity * Time) and display that information without requiring the known or expected position of the next or destination point 801. At a time of 2 seconds later, a scalar distance 807 is computed and displayed as a highlighted partial route up to the point 802. At a time of 3 seconds later, a scalar distance 806 is computed and displayed as a highlighted partial route up to the point 803. At a time of 4 seconds later, a scalar distance 805 is computed and displayed as a highlighted partial route up to the point 804. This process is continued until a fork in the road is encountered. This is further illustrated by FIG. 9.

In another example, once a fork in the road is encountered, as shown in FIG. 9, the previous points 900, 904, 905, 906 are already drawn. The possible pathways the

vehicle can continue moving along are: 1). The same road (North), 2). Turn Left (West), or 3). Turn Right (East). If the system did not know a priori the destination point 902, then the predicted route would display all possible routes. For example, after point 906 is received from the mobile device, and 1 second later, routes to points 907, 910, and 915 would be calculated and displayed. At a time of 2 seconds later, routes to points 908, 911, and 914 would be drawn. At a time of 3 seconds later, routes to points 909, 912, and 913 would be calculated and displayed. In this embodiment, once the next location update 901arrives, the other route legs that do not lead towards the new point 901 (i.e., 915, 914, 913, and 910, 911, and 912) would be erased and the route from point 900 to 901 would be displayed.

As illustrated in FIG. 10, this same process would be completed for all known forks in the road. For example, having the route 1003 drawn from point 1000 to 1001 and continuing at various time intervals based on the expected speed of the mobile device, all possible forks 1012, 1010, 1011, 1013, 1008, 1009, 1014, 1007, 1006, 1005 can be drawn until the next location update is provided 1002. Using the last known position 1001 with the expected destination 1002 to calculate the best estimated route between the 2 points can narrow down the possible routes and further mitigate excessive drawing.

Illustrating a breadcrumb history with only points and/or direct lines has significant limitations. As people skilled in the art will appreciate, computing a dynamic estimated route, based on various route preferences, provides a significant benefit over prior art. FIG. 11 illustrates a typical breadcrumb history trail. The trail consists of points 1101, 1102, 1103, 1104, 1105, 1106, 1107, and 1108, all in chronological order of the mobile devices path. The problem is that the user does not know looking at this location

history information where the device actually traveled. Since the location history information is discrete in nature, it is impossible to derive the actual route traveled by the mobile device without additional information and/or providing location history information at a significantly higher frequency.

Calculating an estimated route 1201, as illustrated in FIG. 12, provides the breadcrumb history trail with significantly more visual information and metric information, such as total driving distance, or the like. The estimated route provides a much closer approximation to the actual driven route that the mobile device traveled. The estimated route calculation can be tailored using extensive route (e.g., driving) preferences that are specific to the mobile device.

FIG. 13 illustrates a new location update 1301 which arrives in real-time and is displayed on the map display.

FIG. 14 illustrates the new estimated route leg 1401 calculated between Point-8 1108 and Point-9 1301. As people skilled in the art will appreciate, it is not necessary to compute an entire new route for the entire breadcrumb trail, but only the portion of the estimated route that needs to be calculated. As shown in FIG. 14, the original estimated route 1201 does not need to be recalculated, but only the new additional estimated route segment 1401 needs to be calculated.

The present invention can also allow a user to pull the entire location history information from a server or the mobile device in a number of ways, such as wirelessly, over the Internet, through a floppy disk, etc. As shown in FIG. 15, the entire location history trail was pulled from a server. The trail includes the previously noted points 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1301, as well as the new additional points 1501,

1502, 1503, 1504, and 1505 that are added in real-time from the mobile device. These location history points are preferably numbered in their chronological order according to the time that the mobile device recorded them. As illustrated in FIG. 16, an estimated route 1201 is preferably displayed for the previous location history points, and the newly updated real-time estimated routes are preferably displayed as each new location update arrives, either via a server (P2S-S2P) or directly from the device (P2P). The new estimated routes, calculated in real-time as the location updates arrive to the application, are illustrated as 1601, 1602, 1603, 1604, and 1605. Shown in FIG. 17 are the entire location history trail points as they were captured from the mobile device. Each one of these points 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, and 1714 are considered "via" points (i.e., a pass through point).

Another embodiment of the present invention also allows the capability to change the individual location update points, such as in a route planner or directly on the map display. As illustrated in FIG. 18, using an icon pointer 1803 and selecting the desired point 1801, it is possible to change the point 1801 to a different type of destination point, such as an origin, via, stop, or destination point (by default, all points are vias). For example, selecting the desired location point 1801 using the icon pointer 1803 and selecting the focus on the map of the desired location point 1801, a pop-up window 1802 will open illustrating the various destination point types that the current location point type can be changed to. Using the icon pointer 1803 and selecting 1804 the desired destination type, in this case a route origin, it is possible to change the route point attributes.

As illustrated in FIG. 19, the route Point-14 1901 can be selected using an icon pointer causing a pop-up window 1902 to appear. The selected 1904 destination point is changed using the icon pointer 1903 to the desired type, a route destination. As illustrated in FIG. 20, the route Point-11 2001 can also be selected using an icon pointer causing a pop-up window 2002 to appear. The selected 2004 destination point is changed using the icon pointer 2003 to select the desired type, a route stop. In FIG. 21, the route Point-5 2101 is again selected using an icon pointer 2003 causing a pop-up window 2102 to appear. The selected 2103 destination point is changed using the icon pointer 2103 to select the desired type, a route via.

It should be noted that the entire estimated route could be saved or cleared. In one embodiment, illustrated in FIG. 22, selecting the entire route 2201 with the icon pointer 2203 causes a pop-up window 2202 to appear where the desired action can be selected 2204 using the icon pointer 2204. Additionally, as people skilled in the art will appreciate, individual points can be modified, moved or deleted, and new points can be added to the route. This is possible by adding the highlighted estimated route or location history points into a route planner where all of these modifications can be implemented either in the planner or on the map display.

Illustrated in FIG. 23 is the Map Messenger™ program 2309. The program 2309 contains a menu bar 2304, a tool bar 2305, a map display 2305, and a route planner window 2301. The location history trail with its estimated route 2306 calculated using the aforementioned method and system consists of 14 route points. After adding the points to the route planner window 2301, in this embodiment, the first 2310 and last 2311 points of the estimated route 2306 are changed to an origin 2302 and destination 2304 route point,

respectively. Each of the other individual route points 2307 are also added to the route planner window 2301, and in the same order are displayed on the map display 2305. The route planner window 2301 illustrates all of the location points and the addresses 2303 of the location points. Using the route planner window 2301, it is possible to modify the route completely by adding points, deleting points, moving points, or the like. As people skilled in the art will appreciate, the route planner window 2310 gives the user complete control over the location history trail and estimated route 2306, in the event that they want to modify it at anytime. Also illustrated in FIG. 23, is the capability to save a route 2308. After a route is in the route planner window 2301, all of the specific information can be saved, either locally or on the server system 125.

FIG. 24 illustrates the window 2405 for saving a route, which includes a place to enter a file name 2403 and a mechanism for selecting the directory 2402 to save the route within and the account 2404 to save the route to. To save the final route, the icon pointer 2401 is preferably used to select the save button 2406. The route is then stored either locally or on the server system 125, which is then available for later retrieval.

In another embodiment, a user wishing to calculate which mobile device is closest to a particular single location, or single mobile device, when using real-time location updates from each of the mobile devices can significantly improving the sorting calculation and decision process when compared to Line-Of-Sight (LOS) distance calculations which are currently used in the prior art. As people skilled in the art will appreciate, calculating the estimated route in real-time, or based on the current position information for each mobile device, will significantly improve the decision making process in determining which mobile device is closest to the central point. For example,

as illustrated in FIG. 25 showing a map display with various location points 2501, 2502, 2503, 2504, 2505, 2506, & 2507, which each represent the location of either a mobile device 2502, 2503, 2504, 2505, 2506, & 2507, and the location of a house (i.e., POI) 2501. The location of the house 2501 represents the pick-up location, as in a dispatching software application, where the person at the house wants to receive transportation to the airport from a cab. The requirements for this customer are that they need a vehicle with a capacity to hold 3 passengers to pick them up at the house in 15 minutes. The local dispatch application computes the vehicle best suited to meet the customer's needs by first performing a search for vehicles in the area that can support 3 or more passengers, and then calculating the estimated route for each of the mobile vehicles from their current location to the pick-up location.

The estimated route preferably uses the provided map data to calculate the route, and is based on various vehicle-specific route preferences and map data information, such as one-way streets, posted road speeds, turn restrictions, etc. As illustrated in FIG. 25, there are specific estimated routes 2508, 2509, 2510, 2511, 2512, & 2513 for each of the mobile vehicles' current locations 2502, 2503, 2504, 2505, 2506, & 2507, respectively. Each of the estimated routes is relative to the map data's road network. The sort order of the mobile vehicles is further illustrated by the numbering of each vehicle's position 2502, 2503, 2504, 2505, 2506, & 2507, where the lower the number is (i.e., two (2) is the closet), the closer to the pick-up location 2501 the vehicle is. The pick-up location is shown as the numeral one (1) in FIG. 25.

FIG. 26 illustrates an accompanying window 2601 for the map display of FIG. 25 and shows the various metrics, such as distance 2604, time 2605, fuel usage 2606, and

number of passengers 2607, that the dispatch application user can use to determine the 'closest' 2602 mobile vehicle relative to the pick-up location 2501, according to the calculation of each mobile vehicle's estimated route to the customer's location 2501. The sorting order of the illustrated mobile vehicles 2502, 2503, 2504, 2505, 2506, & 2507, is based on, in this embodiment, the time 2605 and distance 2604 required to arrive at the customer's address 2603 location 2501. Each vehicle is sorted based on 1). its being the closest (i.e., distance 2604) to the customer's 2501 address 2603, and 2). it requiring the least amount of travel time 2605 from each mobile vehicle's current location 2502, 2503, 2504, 2505, 2506, & 2507, to the customer's pick-up location 2501, which was originally derived from the customer's address 2603 information. The mobile vehicle that is 'closest' 2602 to the pick-up location 2051 is illustrated as "Vehicle 1257 – Bill's Taxi – Car" 2613, along side other information such as the driver's name and the type of taxi (i.e., a car). The sorting order indicates that this vehicle 2613 is the closest vehicle to the pick-up location 2501, since it is numbered as two (2) 2614 (i.e., the closest number to the address location, numbered (1) 2616) on the current sort display 2601. The "Estimated Route Order" display 2601 also illustrates various driving metrics to the pick-up location, such as distance (i.e., 3 miles 2609), time 2605 (i.e., 5 minutes 2610), fuel usage 2610 (i.e., 0.5 gallons 2611), and information about its vehicle, such as the number of passengers 2607 (i.e., 4 passengers 2612). The fuel usage field 2606 is preferably calculated based on the specific vehicle's fuel compensation and the total travel distance and time.

It should be noted that the present invention may be embodied in forms other than the preferred embodiments described above without departing from the spirit or essential

characteristics thereof. The specification contained herein provides sufficient disclosure for one skilled in the art to implement the various embodiments of the present invention, including the preferred embodiment, which should be considered in all aspect as illustrative and not restrictive; all changes or alternatives that fall within the meaning and range or equivalency of the claim are intended to be embraced within.

ABSTRACT

The preferred embodiments of the present invention are directed to methods and systems for dynamic route estimation and prediction using discrete sampled location updates from various mobile devices for the purpose of providing a graphical representation of a mobile device's route along a known network path of map data. The embodiments also provide supplemental route metrics, such as traveled distance, elapsed time, etc., and the capability to assign destination points for the purpose of providing the ability to modify location update points in an application, such as a route planner, and/or to store the dynamically generated route based on various preferences for later retrieval.

IN THE SPECIFICATION:

Page 1, line 5, kindly amend the paragraph:

This application is a continuation of U.S. Patent Application No. 17/246,628, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on May 1, 2021, which is a continuation of U.S. Patent Application No. 16/862,168, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on April 29, 2020, now U.S. Patent No. 10,996,071, which is a continuation of U.S. Patent Application No. 16/747,460, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on January 20, 2020, now U.S. Patent No. 10,677,608, which is a continuation of U.S. Patent Application No. 16/517,566, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on July 20, 2019, now U.S. Patent No. 10,551,208; which is continuation of U.S. Patent Application No. 16/377,228, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on April 7, 2019, now U.S. Patent No. 10,502,583; which is a continuation of U.S. Patent Application No. 15/887,989, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on February 3, 2018, now U.S. Patent No. 10,274,337; which is a continuation of U.S. Patent Application No. 15/657,141, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on July 22, 2017, now U.S. Patent No. 9,921,077; which is a continuation of U.S. Patent Application No. 15/435,283, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on February 16, 2017, now U.S. Patent No. 9,746,341; which is a continuation of U.S. Patent Application No. 14/997,521, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on January 16, 2016, now U.S. Patent No. 9,607,346; which is a continuation of U.S. Patent Application No. 14/067,415, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on October 30, 2013, now U.S. Patent No. 9,354,069; which is a continuation of U.S. Patent Application No. 13/346,265, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed on January 9, 2012, now U.S. Patent No. 8,577,390; which is a continuation of U.S. Patent Application No.12/929,458, entitled "Method and System for Dynamic Estimation and Predictive Route Generation", filed January 26, 2011, now U.S. Patent No. 8,095,152; which in turn is a continuation of U.S. Patent Application No. 12/484,091, entitled "Method and System for Dynamic Estimation and Predictive Route Generation," filed June 12, 2009, now U.S. Patent No. 7,881,730; which is a division of U.S. patent application ~~Serial~~ No. 10/410,740, entitled "Method and System for Dynamic Estimation and Predictive Route Generation," filed April 10, 2003, now U.S. Patent 7,565, 155; which claims priority from U.S. provisional patent application ~~Serial~~ No. 60/371,941 filed April 10, 2002; the entirety of all of which are expressly incorporated herein by reference.