UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/963,262	12/09/2015	Jing LIU	14291-322-999/150075US01	6573

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EXAMINER
BAINS, SARJIT S

ART UNIT	PAPER NUMBER
3624	

MAIL DATE	DELIVERY MODE
12/19/2019	PAPER

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

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

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	14/963,262	LIU et al.
Office Action Summary	Examiner	Art Unit	AIA (FITF) Status
	SARJIT S BAINS	3624	Yes

-- 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 02/25/2019.
  ☐ 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) 1-3,5-13 and 15-20 is/are pending in the application.

  5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1-3,5-13 and 15-20 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 <u>allowable</u>, 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)   3) ☐ Interview Summary (PTO-413)
                                                                Paper No(s)/Mail Date _____.
2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)   4) ☐ Other: _____.
  Paper No(s)/Mail Date _____.

Notice of Pre-AIA or AIA Status

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

Notice to Applicant

2.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/7/2019 has been entered.

3.   The following is a non-Final Office Action. In response to Examiner's Final Rejection of 01/07/2019, Applicant amended Claims 1, 5, 13, 18 and 19; and cancelled Claims 4 and 14. Claims 2-3, 6-12, 14-17 and 20 are as originally or previously presented, but are deemed amended since they depend from independent Claims 1, 5 and 18.

Claims 1-3, 5-13 and 15-20 are pending in this application and have been rejected below.

Response to Amendment

4.   Applicant's arguments and amendments are acknowledged.

5.   The 35 USC §101 rejection of Claims maintained despite Applicant's
amendments and arguments.   Examiner suggests that Applicant call to schedule an
interview to discuss further amendments relating to the rejection under 35 USC 101.

6.   The 35 USC §103 rejection withdrawn in light of Applicant's amendments.
Applicant has incorporated the limitation (equation) from previous Claim 4 into
independent Claims 1, 5 and 18; this limitation (equation) was deemed allowable over
the prior art in the prior Final Office Action dated 01/07/2019.

Claim Rejections - 35 USC § 101

7.   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.

8.   Claims 1-3, 5-13 and 15-20 rejected under 35 U.S.C. 101 because, although they are drawn to a statutory categories of system (machine), method (process) or medium (manufacture), they are also directed to a judicial exception (an abstract idea) without significantly more.

9.   Claim 1 recites receiving vehicle operation data from a region of interest; converting the vehicle operation data into trip data by segmenting the vehicle operation data into separate trips by using a passenger status in the vehicle operation data, wherein each of the separate trips includes an origin location, a destination location and a travel time duration; estimating, based at least in part on the trip data, vehicle demands for multiple tiles of the region of interest; determining, based at least in part on the trip data, mutual travel times between neighboring tiles within the region of interest, which is an abstract idea of Certain Methods of Organizing Human Activity, particularly commercial or legal interactions (including agreements in the form of contracts; legal obligations; marketing or sales activities or behaviors; business relations), because estimating passenger demand data is a marketing or sales activity. Claims 5 and 18 recite similar abstract ideas.

Claim 1 further recites determining, based on the mutual travel times and vehicle demands, a set of candidate tiles among the multiple tiles for allocating vehicle stations by performing affinity propagation; allocating an optimal number of vehicles to at least

one of the candidate tiles, and displaying the optimal number of vehicles on a map,
wherein performing the affinity propagation comprises using s_{ij} as input to the affinity
propagation, wherein s_{ij} is defined as follows:

$$s_{ij} = \begin{cases} -\dfrac{s^0_{ji}}{|d_i|} & i \neq j \\ \lambda \cdot d_j & i = j \end{cases}$$

wherein d_i is the demand estimated for the i-th tile, d_j is the demand estimated for the j-
th tile, s^0_{ji} is the travel time from tile j to tile i, and λ is an adjustable parameter, which is
an abstract idea of Mathematical Concepts (mathematical relationships, mathematical
formulas or equations, mathematical calculations), because the determination of
allocating vehicles to vehicle stations is carried out by mathematical calculations
involving a mathematical equation. Claims 5 and 18 recite similar abstract ideas.

The judicial exception is not integrated into a practical application because the claims,
including additional elements such as a non-transitory memory device for storing
computer-readable program code, a processor in communication with the memory
device, a computer system, data devices, A non-transitory computer-readable medium
having stored thereon program code, are not an improvement to a computer or a
technology, the claims do not apply the judicial exception with a particular machine, the
claims do not effect a transformation or reduction of a particular article to a different
state or thing, nor do the claims apply the judicial exception in some other meaningful
way beyond generally linking the use of the judicial exception to a particular field of use
or technological environment such that the claims as a whole are more than a drafting
effort designed to monopolize the exception. Adding the words "apply it" (or an
equivalent) with the judicial exception, or mere instructions to implement an abstract
idea on a computer, or merely using a computer as a tool to perform an abstract idea,
as in the instant claims, is not indicative of integration into a practical application - see
MPEP 2106.05(f).

The claims do not include additional elements that are sufficient to amount to
significantly more than the judicial exception (abstract idea), because these additional

elements such as those listed above, individually or in combination, do not recite anything that is beyond conventional and routine use of computers (as evidenced by paragraph 21 of the published Specification in the instant Application, and court decisions such as *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355, 112 USPQ2d 1093, 1096 (Fed. Cir. 2014) discussed at 2106.05(d) of the MPEP), do not effect a transformation or reduction of a particular article to a different state or thing, nor do they apply the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular field of use or technological environment. Adding the words "apply it" (or an equivalent) with the judicial exception, or mere instructions to implement an abstract idea on a computer, or merely using a computer as a tool to perform an abstract idea, as in the instant claims, is not indicative of an inventive concept ("significantly more") - see MPEP 2106.05(f).

Dependent Claims 2-3, 6-13, 15-17 and 19-20 also do not include additional elements that are sufficient to amount to significantly more than the judicial exception (abstract idea), because these additional elements, considered either individually or in combination, are merely extensions of the abstract idea, do not recite anything that is beyond conventional and routine use of computers (as evidenced by paragraph 21 of the published Specification in the instant Application, and court decisions such as *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355, 112 USPQ2d 1093, 1096 (Fed. Cir. 2014) discussed at 2106.05(d) of the MPEP), do not effect a transformation or reduction of a particular article to a different state or thing, or merely indicate a field of use or technological environment (see MPEP 2106.05(h)). The claims therefore fail to apply the judicial exception in a meaningful way that provides an inventive concept so as to transform the claims into patent-eligible subject matter.

Therefore, Claims 1, 5-6, 13, 17 and 21-35 are rejected under 35 U.S.C. 101 as being directed to non-eligible subject matter. See Alice Corp. v. CLS Bank International, 573___ U.S. 2014.

Response to Arguments

10.   Applicant's arguments filed 01/17/2019 have been fully considered, but they are not persuasive and/or are moot in view of the new rejections necessitated by the amendments.

11.   Applicant argues (at pp. 7-8) that "Such vehicle fleet management technologies do not fit within the three enumerated categories of mathematical concepts, certain methods of organizing human activity, nor mental processes" under the 2019 PEG.

Examiner respectfully disagrees. As explained at paragraph 9 above in this Office Action, under Broadest Reasonable Interpretation of the claim language the claims clearly recite an abstract idea of Certain Methods of Organizing Human Activity, particularly commercial or legal interactions (including agreements in the form of contracts; legal obligations; marketing or sales activities or behaviors; business relations), and also an abstract idea of Mathematical Concepts (mathematical relationships, mathematical formulas or equations, mathematical calculations), at Prong 1 of the analysis under the 2019 PEG, since the claims are directed to both a sales or marketing activity of determining vehicle demand for passengers, as well as a mathematical equation.

12.   Applicant's arguments with regard to the prior §103 rejections are moot, since the 35 U.S.C. 103 rejection has been withdrawn.

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Seally (US Patent Application Publication 20170300049 A1) describes a system for generating a route for a requested journey, determining the commencement time of the journey from the origin point such that a vehicle executes the journey free of collisions with other vehicles in a closed transport system.

Kislovskiy et al. (US Patent Application Publication 20180342034 A1) describes on-demand transportation management system that can receive transport requests in connection with an on-demand transportation service, each transport request indicating a start location and a destination. The system can determine a set of candidate vehicles to service each transport request, and can further determine a non-trip risk value for servicing the transport request.

Dickerson (US Patent Application Publication 20010037174 A1) describes an 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.

14.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARJIT S BAINS whose telephone number is 571 270 0317. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICIA MUNSON, can be reached on 571-270-5396.

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://portal.uspto.gov/external/portal. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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 .

/SARJIT S BAINS/
Examiner, Art Unit 3624

/PATRICIA H MUNSON/
Supervisory Patent Examiner, Art Unit 3624

Amendments to the Claims

The following listing of claims will replace all prior versions, and listings, of claims in this application:

1.   (Currently Amended) A system for optimal allocation, comprising:

a non-transitory memory device for storing computer-readable program code; and

a processor in communication with the memory device, the processor being operative with the computer-readable program code to perform the steps of

receiving vehicle operation data from one or more vehicle data devices that service a region of interest, <u>wherein the one or more vehicle data devices stream real-time vehicle operation data to a central computing system, wherein the vehicle operation data is stored in vehicle operation records which are instantly accessible in volatile memory of an in-memory database for high speed scanning,</u>

converting the vehicle operation data <u>records</u> into trip data by segmenting the vehicle operation data into separate trips by using a passenger status in the vehicle operation data, wherein each of the separate trips includes an origin location, a destination location and a travel time duration,

estimating, based at least in part on the trip data, vehicle demands for multiple tiles of the region of interest,

determining, based at least in part on the trip data, mutual travel times between neighboring tiles within the region of interest,

determining, based on the mutual travel times and vehicle demands, a set of candidate tiles among the multiple tiles for allocating vehicle stations by performing affinity propagation;

allocating an optimal number of vehicles to at least one of the candidate tiles, and

displaying, via a user interface, the optimal number of vehicles on a map:

wherein performing the affinity propagation comprises using s_{ij} as input to the affinity propagation, wherein s_{ij} is defined as follows:

$$s_{ij} = \begin{cases} -\dfrac{s_{ji}^{0}}{|d_i|} & i \neq j \\ \lambda \cdot d_j & i = j \end{cases}$$

wherein d_i is the demand estimated for the i-th tile, d_j is the demand estimated for the j-th tile, s_{ji}^{0} is the travel time from tile j to tile i, and λ is an adjustable parameter.

2.   (Original) The system of claim 1 wherein the vehicle operation data comprises taxi operation data.

3.   (Original) The system of claim 1 wherein the vehicle operation data comprises time ordered data records, wherein each of the time ordered data records stores location coordinates and a passenger status.

4.   (Canceled).

5.   (Currently Amended) A computer-implemented method, comprising:

receiving, by a computer system, vehicle operation data from one or more vehicle data devices servicing a region of interest, wherein the vehicle data devices stream real-time vehicle operation data to the computing system, wherein the vehicle operation data is stored in vehicle operation records which are instantly accessible in volatile memory of an in-memory database for high speed scanning;

converting, by the computer system, the vehicle operation data records into trip data by segmenting the vehicle operation data into separate trips by using a passenger status in the vehicle operation data, wherein each of the separate trips includes an origin location, a destination location and a travel time duration;

estimating, by the computer system based at least in part on the trip data, vehicle demands for multiple tiles of the region of interest;

determining, by the computer system based at least in part on the trip data, mutual travel times between neighboring tiles of the region of interest;

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determining, by the computer system based on the mutual travel times and the vehicle demands, at least one candidate tile among the multiple tiles for allocating a vehicle station by minimizing total travel time by performing affinity propagation; and

presenting, via a user interface, the candidate tile for allocating the vehicle station;

wherein performing the affinity propagation comprises using s_{ij} as input to the affinity propagation, wherein s_{ij} is defined as follows:

$$s_{ij} = \begin{cases} -\dfrac{s_{ji}^0}{|d_i|} & i \neq j \\ \lambda \cdot d_j & i = j \end{cases}$$

wherein d_i is the demand estimated for the i-th tile, d_j is the demand estimated for the j-th tile, s_{ji}^0 is the travel time from tile j to tile i, and λ is an adjustable parameter.

6.   (Original) The method of claim 5 wherein converting the vehicle operation data into the trip data comprises segmenting the vehicle operation data into separate trips by using a passenger status in the vehicle operation data, wherein each of the separate trips includes an origin location, a destination location and a travel time duration.

7.   (Original) The method of claim 5 further comprises dividing the region of interest into a grid of the multiple tiles, wherein the multiple tiles are square, triangular or hexagonal tiles.

8.   (Original) The method of claim 5 wherein estimating the vehicle demands comprises:

extracting, from the trip data, origin locations for all trips over the region of interest for a given time period; and

estimating at least one of the vehicle demands for at least one of the tiles by determining a number of trips with the origin locations situated within the tile.

9.   (Original) The method of claim 5 wherein estimating the vehicle demands comprises estimating at least one of the vehicle demands for at least one of the tiles by determining a logarithmic function of a number of getting-on events within the tile.

10.   (Original) The method of claim 9 further comprising determining the number of getting-on events from the trip data.

11.   (Original) The method of claim 9 further comprising determining the number of getting-on events from a user selection of a confidence value.

12.   (Original) The method of claim 5 wherein determining the mutual travel times between neighboring tiles comprises averaging travel times of vehicles traveling between two neighboring tiles over multiple trips with an active passenger status.

13.   (Previously Presented) The method of claim 5 wherein determining the set of candidate tiles further comprises performing a clustering technique.

14.   (Canceled).

15.   (Previously Presented) The method of claim 5 wherein determining the at least one candidate tile comprises determining different sets of candidate tiles according to an adjustable parameter.

16.   (Original) The method of claim 15 further comprises generating an allocation planning curve that represents the different sets of candidate tiles and quantifies trade-offs between number of candidate tiles and response time.

17.   (Original) The method of claim 15 further comprising determining an optimal number of vehicles to be distributed to at least one of the candidate tiles.

18.   (Currently Amended) A non-transitory computer-readable medium having stored thereon program code, the program code executable by a computer to:

extract trip data from vehicle operation data received from one or more vehicle data devices servicing a region of interest, wherein the one or more vehicle data devices stream real-time vehicle operation data to a central computing system, wherein the vehicle operation data is stored in vehicle operation records which are instantly accessible in volatile memory of an in-memory database for high speed scanning;

estimate, based at least in part on the trip data, vehicle demands for multiple tiles of the region of interest;

determine, based at least in part on the trip data, mutual travel times between neighboring tiles of the region of interest;

determine, based on the mutual travel times and the vehicle demands, a set of candidate tiles among the multiple tiles for allocating vehicle stations by minimizing total travel time by performing affinity propagation; and

present, via a user interface, the set of candidate tiles for allocating the vehicle stations;

wherein performing the affinity propagation comprises using s_{ij} as input to the affinity propagation, wherein s_{ij} is defined as follows:

$$s_{ij} = \begin{cases} -\dfrac{s_{ji}^0}{|d_i|} & i \neq j \\ \lambda \cdot d_j & i = j \end{cases}$$

wherein d_i is the demand estimated for the i-th tile, d_j is the demand estimated for the j-th tile, s_{ji}^0 is the travel time from tile j to tile i, and λ is an adjustable parameter.

19.   (Previously Presented) The non-transitory computer-readable medium of claim 18, wherein the program code is executable by the computer to further determine the set of candidate tiles by performing a clustering technique.

20.   (Original) The non-transitory computer-readable medium of claim 18, wherein the program code is executable by the computer to determine an optimal number of vehicles to be distributed to at least one of the candidate tiles.

REMARKS

Reconsideration and allowance of the current application are requested in light of the above-marked amendments and the foregoing remarks. No new matter has been added. **The Examiner is encouraged to contact the undersigned at +1.858.314.1178 or ckukkonen@jonesday.com to discuss how best to advance prosecution in light of this reply.**

Recognizing that Internet communications are not secure, the undersigned hereby authorizes the USPTO to communicate with the undersigned and practitioners of record in accordance with 37 CFR § 1.33 and 37 CFR § 1.34 concerning any subject matter of this application by video conferencing, instant messaging, or electronic mail. The undersigned acknowledges that a copy of any such communications will be made of record in the application file.

Rejections under 35 USC §101

The undersigned participated in a telephonic interview with Examiner Bains on January 8, 2020. During the interview, amendments similar to those presented herein were discussed. While no immediate agreement was reached regarding allowabilty, the undersigned gratefully acknowledges the guidance and participation of Examiner Bains.

Rejections under 35 USC §101

Claims 1-3, 5-13, and 15-20 stand rejected under 35 USC §101 as allegedly being directed to non-patentable subject matter. These rejections are respectfully traversed.

It is respectfully submitted that the pending claims should be deemed as eligible subject matter according to the criteria specified by the 2019 Revised Patent Subject Matter Eligibility Guidance ("2019 Revised Guidance") which took effect on January 7, 2019 and which was updated in October 2019 subsequent to the issuance of the current office action ("October Update" – see https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf). In determining whether claims are directed to patent eligible subject matter, Examiners are to continue following the 2014 Interim Guidance on Patent Subject Matter Eligibility ("Interim Guidance"). Under the Interim Guidance, Examiners are to apply a two-step approach, with the second step having two parts (i.e., 2A and 2B). Step 1 requires a determination of whether the claim is directed to a process, machine, or composition of matter. In response to step 1 being decided in the affirmative, step 2A requires a determination of whether the claims are directed to a law of nature, a natural phenomenon, or an abstract idea (judicial exceptions). In response to step 2A being decided in the affirmative, step 2B (part 2 of the Mayo test) requires a determination of whether the claims recite additional elements that amount to significantly more than the judicial exception. Should step 2B be decided in the affirmative, the claim qualifies as eligible subject matter under 35 U.S.C. § 101.

Under step 2A, the 2019 Revised Guidance created a new two-prong inquiry for determining whether a claim is "directed to" a judicial exception. Under prong one, it must be determined whether the claim recites an abstract idea defined by 2019 Patent Eligibility Groupings (2019 PEG), law of nature, or natural phenomenon. If the claim does not recite an

abstract idea, law of nature, or natural phenomenon, the claim is not directed to a judicial exception and qualifies as patent eligible subject matter under 35 U.S.C. § 101. Alternatively, if the claim does recite such subject matter, then analysis of the claim continues using prong two. Under prong two, it must be determined whether the claim recites additional elements that integrate the judicial exception into a practical application. If the claim does recite additional elements, then it is not directed to a judicial exception and qualifies as patent eligible subject matter under 35 U.S.C. § 101.

Relating to prong one, the 2019 PEG defines groupings of abstract ideas and the office action alleges that the recited subject matter is directed to both a method of organizing human activity as well as an mathematical concept.

Relating to prong two, an abstract idea integrated into a practical application is patent eligible. "Integration into a practical application" requires an additional element or a combination of additional elements in the claim to apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the exception. There are a number of examples of limitations that are indicative of integration into a practical application such as (i) effecting a transformation or reduction of a particular article to a different state or thing, as discussed in MPEP § 2106.05(c), (ii) and applying or using the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception, as discussed in MPEP § 2106.05(e) and the Vanda Memo issued in June 2018.

The current subject matter is directed to computer-implemented techniques that address

issues regarding the optimal allocation of transportation resources within a large geographic area using real-time data derived from vehicles. Such an arrangement is advantageous in that it not only can decrease waiting times for individuals seeking to access such vehicles, but it also reduces driver waiting time which, in turn, result in reduced consumption of resources (gasoline, battery, etc.) and reduce pollution. With the claim amendments which more clearly describe some of the real-time aspects of the various operations, the claimed subject matter should not be characterized as a manner of organizing human activity as none of the sub-groupings in the October Updated specify or otherwise are associated with transportation resource allocation. Moreover, it is submitted that the claims do not recite a mathematical concept as alleged as the claims merely are based on or involve a mathematical concept (as provided in the October Update) as part of an overall process. Therefore, the current subject matter fails to meet prong one of step A of the Patent Eligibility process diagram.

Notwithstanding, even if it is deemed that the subject matter meets prong one of Step A of the Patent Eligibility process diagram, such an alleged abstract idea is clearly integrated into a practical application. For example, streaming vehicle operation data in real-time to a central computing system in which such data is stored in vehicle operations records which are instantly accessible in volatile memory of an in-memory database for high speed scanning clearly constitute a combination of additional elements that impose a meaningful limitation on the alleged judicial exception thereby effecting a meaningful transformation (see page 15 of the October Update). Such a detailed and specific algorithm applies or otherwise uses the judicial exception in a meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that each claim as a whole is more than a drafting effort designed to monopolize the exception - see MPEP 2106.05(e) and Vanda Memo. This

position is further supported by Example 42 of the Guidelines in that, at a minimum, the additional elements added in the current amendment recite a specific improvement over prior art systems by allowing remote vehicle devices to share information in real time in a standardized format regardless of the format in which the information was streamed by such devices.

For at least these reasons, it is respectfully submitted that the claims are eligible and withdrawal of the rejections under 35 U.S.C. § 101 is requested.

Concluding Comments

On the basis of the foregoing amendments, the pending claims are in condition for allowance. It is believed that all of the pending claims have been addressed in this paper. However, failure to address a specific rejection, issue or comment, does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above are not intended to be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper.

Please treat this reply and any concurrent or future reply, requiring a petition for an extension of time under 37 CFR 1.136 for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. No fees are believed to be due for this submission. However, should any fee be required, please charge such fee to Jones Day Deposit Account No. 50-3013, referencing our number 530198-999322 and please credit any excess fees to such deposit account.

Respectfully submitted,

Date: January 10, 2020

/ck3/   42,773

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