

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UBER TECHNOLOGIES, INC and UBER FREIGHT US LLC,
Petitioners

v.

CARMA TECHNOLOGY, LTD.,
Patent Owner

IPR2026-00309

Patent No. 10,741,071

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 10,741,071**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	MANDATORY NOTICES	1
III.	PAYMENT OF FEES	2
IV.	GROUND FOR STANDING.....	2
V.	PRECISE RELIEF REQUESTED AND GROUNDS RAISED.....	2
VI.	LEVEL OF ORDINARY SKILL	3
VII.	OVERVIEW OF THE '071 PATENT	4
VIII.	CLAIM CONSTRUCTION	6
	A. Shared Transport System	7
	B. Transport Provider.....	12
	C. Pick-Up Location	13
IX.	DETAILED EXPLANATION OF GROUNDS.....	14
	A. Ground 1: Olmi in View of Paul and Jarvinen Renders Claims 1, 2, 10-15, and 17-20 Obvious.....	14
	1. Overview of Olmi (EX1005)	14
	2. Overview of Paul (EX1006)	17
	3. Overview of Jarvinen (EX1007).....	19
	4. Claim 1	21
	5. Claim 2.....	59
	6. Claim 10.....	59
	7. Claim 11	63
	8. Claim 12.....	64
	9. Claim 13.....	64
	10. Claim 14.....	65
	11. Claim 15.....	70
	12. Claim 17.....	70
	13. Claim 18.....	70

14.	Claim 19.....	70
15.	Claim 20.....	71
X.	CONCLUSION.....	73
XI.	APPENDIX A (CLAIM LISTING)	74

LIST OF EXHIBITS

EX1001	U.S. Patent No. 10,741,071 (“the ’071 patent”)
EX1002	Declaration of Dr. Petros Ioannou, Ph.D.
EX1003	Curriculum Vitae of Dr. Petros Ioannou, Ph.D.
EX1004	Prosecution History of U.S. Patent App. No. 16/698,401
EX1005	UK Patent Application No. GB2397683A to Olmi (“Olmi”)
EX1006	International Patent Publication No. WO 02/06994 A2 to Paul (“Paul”)
EX1007	International Patent Publication No. WO 00/76231 A1 to Jarvinen et al. (“Jarvinen”)
EX1008	Joint P.R. 4-3 Statement (Dkt. Nos. 95, 95-1, 95-2) in <i>Carma Technology, Corp. v. Uber Technologies, Inc.</i> , Case No. 2:25-cv-00029 (E.D. Tex. Feb. 10, 2026)
EX1009	RESERVED
EX1010	U.S. Patent Application Publication No. 2003/0040944 to Hileman (“Hileman”)
EX1011	International Patent Publication No. WO 2004/081833 A1 to Poykko (“Poykko”)
EX1012	Japanese Patent Pub. No. 2003281692 to Takahiro et al. (“Takahiro”) and Certified Translation of Takahiro with Certification of Translation
EX1013- EX1014	RESERVED
EX1015	Prosecution History of U.S. Patent App. No. 12/069,656
EX1016- EX1029	RESERVED

Petition for *Inter Partes* Review
Patent No. 10,741,071

EX1030	U.S. Patent Application Publication No. 2001/0037174 to Dickerson (“Dickerson”)
EX1031	U.S. Patent Application Publication No. 2003/0036935 to Nel (“Nel”)
EX1032	International Patent Publication No. WO 2005/104059 A2 to Bhushan (“Bhushan”)
EX1033	U.S. Patent No. 5,799,263 to Culbertson (“Culbertson”)
EX1034	“A distributed geographic information system for the daily car pooling problem,” Roberto Wolfler Calvo et al. <i>Computers & Operations Research</i> 31 (2004) 2263-2278 (“Calvo”)
EX1035	U.S. Patent No. 10,520,325 to Lewinson (“Lewinson”)
EX1036	Prosecution History of European Patent App. No. EP08725447A

I. INTRODUCTION

Uber Technologies, Inc. and Uber Freight US LLC (“Petitioners”) request *inter partes* review of claims 1, 2, 10-15, and 17-20 (“the challenged claims”) of U.S. Patent No. 10,741,071 (“the ’071 patent”) (EX1001), which, according to PTO records, is assigned to Carma Technology, Ltd. (“PO”).

II. MANDATORY NOTICES

Real Parties-in-Interest: Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioners identify Uber Technologies, Inc., Uber Freight US LLC, and Uber Freight Holding Corporation as the real parties-in-interest.

Related Matters: The ’071 patent is asserted by PO against Petitioners in *Carma Technology, Corp. v. Uber Technologies, Inc.*, Case No. 2:25-cv-00029 (E.D. Tex.) (“Carma Litigation”). Uber was served with the complaint on March 20, 2025. Thus, this petition is timely under 35 U.S.C. § 315(b).

Petitioners are submitting petitions for *inter partes* review of U.S. Patent Nos. 7,840,427 (“’427 patent”), 11,164,456, 11,017,668, and 10,916,138, which are also asserted by PO in the Carma Litigation.

Counsel and Service Information: Lead counsel: Naveen Modi (Reg. No. 46,224). Backup counsel: (1) Joseph E. Palys (Reg. No. 46,508), (2) Phillip W. Citroën (Reg. No. 66,541), (3) Alexa Lowman (*pro hac vice* to be filed), and (4) Maksim Mints (Reg. No. 78,507).

Service information is Paul Hastings LLP, 2050 M St., N.W., Washington, DC 20036, Tel.: 202.551.1700, Fax: 202.551.1705, email: PH-Uber-Carma-IPR@paulhastings.com. Petitioners consent to electronic service.

III. PAYMENT OF FEES

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. 50-2613.

IV. GROUNDS FOR STANDING

Petitioners certify under 37 C.F.R. § 42.104(a) that the '071 patent is available for review and Petitioners are not barred/estopped from requesting review on the identified grounds.

V. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

The challenged claims should be canceled as unpatentable based on the following grounds:

Ground 1: Claims 1, 2, 10-15, and 17-20 are unpatentable under pre-AIA 35 U.S.C. § 103 as being obvious over UK Patent Application No. GB2397683A to Olmi (“Olmi”) (EX1005) in view of International Patent Publication No. WO 02/06994 A2 to Paul (“Paul”) (EX1006) and International Patent Publication No. WO 00/76231 A1 to Jarvinen (“Jarvinen”) (EX1007).

For purposes of this proceeding only, Petitioners assume that the earliest effective filing date of the '071 patent is February 12, 2007, the filing date of U.S.

Provisional Application No. 60/900,808, to which the '071 patent claims priority, without conceding the '071 patent is entitled to such date.

Olmi published on July 28, 2004, and thus qualifies as prior art at least under pre-AIA 35 U.S.C. §§ 102(a) and (b).

Paul published on January 24, 2002, and thus qualifies as prior art at least under pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

Jarvinen published on December 14, 2000, and thus qualifies as prior art at least under pre-AIA 35 U.S.C. §§ 102(a), (b), and (e).

VI. LEVEL OF ORDINARY SKILL

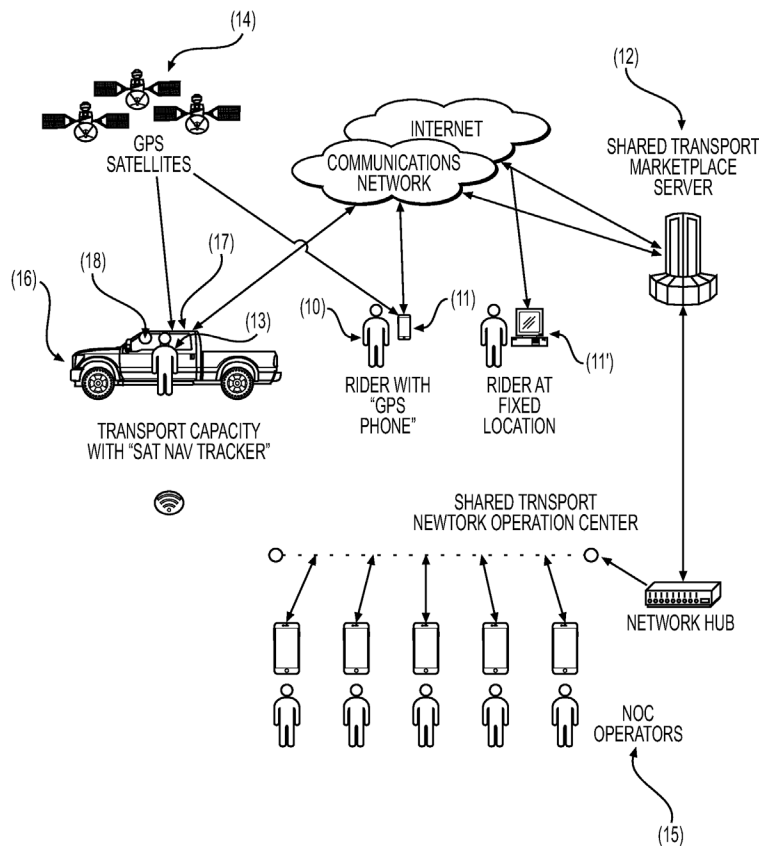
A person of ordinary skill in the art at the time of the alleged invention of the '071 patent (“POSITA”) would have had at least a bachelor’s degree in computer science, computer engineering, software engineering, electrical engineering, or the equivalent and at least two years of experience in technologies relevant to or utilized in transportation systems. (EX1002, ¶¶15-17.)¹ More education can substitute for practical experience and vice versa.

¹ Petitioners submit the declaration of Dr. Ioannou (EX1002), an expert in the field of the '071 patent. (EX1002, ¶¶3-14; EX1003.)

VII. OVERVIEW OF THE '071 PATENT

The '071 patent “relates to a ground transportation network” that, e.g., “match[es]” individuals with transport capacity on a supply and demand basis. (EX1001, 1:20-23; EX1002, ¶¶24-29.) The '071 patent discusses its shared transport system in the context of Figure 1 (below), which purportedly “enabl[es] private transport vehicles to serve as an extension of the mass transit system” by matching potential riders with potential drivers. (EX1001, 3:46-50; *see also id.*, 2:64-5:14, FIG. 1.)

FIGURE 1. SHARED TRANSPORT NETWORK SYSTEM



(*Id.*, FIG. 1.) Consistent with Petitioners’ constructions below, the specification repeatedly frames matching as being performed against transport-provider-declared/registered supply routes, with riders selecting pick-up/drop-off nodes along (or near) those routes, rather than requiring providers to generate a door-to-door route in response to each rider request. (*See id.*, 5:25-37, 14:32-36, 14:61-66, 16:41-65, FIGS. 5a-5b, 6a, 14a.)

Beyond other conventional features (*see* §IX), the ’071 patent discusses a rider/driver proxy messaging features aimed at allowing a rider and driver to contact each other via messages (e.g., SMS, email) in certain cases, such as in the event of a lost item in the vehicle or if the users need to arrange transport details before the ride, while still keeping contact details and identity information private. (*Id.*, 13:15-24, 13:51-54.) For example, “if a Driver 13 identifies lost items left in their vehicle, they could choose a function on the in-vehicle device (or via a web page), to send a message to the Rider 10.” (*Id.*, 13:32-35.) “The system 12 would then receive this message 131, evaluate the content for appropriate content 132, and if it could automatically determine this, would redirect the message 134 on to the Rider 10, coding the message with a unique identifier so that it would know to respond to the Driver 13 if the Rider 10 responds.” (*Id.*, 13:35-40.) The ’071 patent also describes how “[i]f the system could not automatically approve the content,” an operator may review the content to determine if the content is appropriate and the message should

be passed on, or if the content is inappropriate and the message should be rejected and/or the driver should be blacklisted, have their message capabilities restricted, or have a rating adjustment made because of misuse of the system. (*Id.*, 13:40-50.)

The claims of the '071 patent were allowed (and subsequently issued) after minimal examination, where the Office did not apply any prior art rejections, instead only raising enablement issues. (EX1004, 12-14, 25-37, 39-43; EX1002, ¶28.)

As demonstrated below, the features described and claimed in the '071 patent were known in the prior art before the earliest effective filing date of the '071 patent. (*Infra* §IX; *see also* EX1010, EX1030-EX1035; EX1002, ¶¶18-23 §§VIII-IX.)

VIII. CLAIM CONSTRUCTION

The Board only construes the claims when necessary to resolve the controversy. *Toyota Motor Corp. v. Cellport Sys., Inc.*, IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015). Petitioners believe that the following claim terms of the '071 patent should be construed as indicated in the table below. These constructions are consistent with Petitioners' claim construction positions taken in the Carma Litigation. To the extent these constructions are found not to apply, Section IX shows how the '071 patent claims are disclosed and/or rendered obvious if no express constructions are applied. (EX1002, ¶¶30-31.)

'071 Patent Term	Petitioners' Construction
"shared transport system" (claims 1, 14, 20)	"A server system that matches transport users with transport providers traveling an existing route defined before demand for transport and independently of a transport user's door-to-door trip."
"transport provider" (claims 1, 14, 20)	"A driver offering transport along an existing route defined before demand for transport and independently of a transport user's door-to-door trip."
"pick-up location" (claims 1, 14, 20)	"A node along an existing route defined before demand for transport and independently of a transport user's door-to-door trip."

A. Shared Transport System

A POSITA would have understood that a "shared transport system,"² as used in the '071 Patent, refers to "a server system that matches transport users with

² Claim language is underlined throughout this Petition.

transport providers traveling an existing route defined before demand for transport and independently of a transport user's door-to-door trip.”

The first portion of the proposed construction (that the shared transport system is a server system that matches transport users with transport providers) derives directly from the specification. The specification states that “the invention provides a **network system** that matches the supply and demand of transportation services” and defines “the network system” as the “Shared Transport System.” (EX1001, 3:9-15, 3:28-39.) (“The network system (‘Shared Transport System’)...”). The specification further confirms that the supply of transportation services comes from providers within the shared transport system. (*Id.*, 3:5-8.) (“It is another object of the invention to provide riders and transport providers with information services and content that adequately enable the use and expansion of such a system.”).

The remainder of the construction (that the match is with transport providers traveling an existing route defined before demand for transport and independently of a transport user's door-to-door trip) is consistent with the specification and express admissions made by PO during prosecution of the '427 patent, which is an indirect parent of the '071 patent and shares the same specification as the '071 patent. For example, Figure 6a shows a flowchart of “the experiences of a Driver in using the network system.” (*Id.*, 22:6-9.) In Figure 6a, a Driver defines a “Supply Route” along which to travel independent of and before receiving any notice of an available

rider. An example of how the system will match riders to these pre-existing supply routes is shown in Figure 14a, which shows a transport user 1401 who wants to go from departure point 1406 to arrival location 1409. (*Id.*, 16:41-43.) Two transport capacity (1402 and 1403, *i.e.*, vehicles) both pass through 1406—the requested pick-up location of transport user 1401—along their “declar[ed] . . . routes.” (*Id.*, 16:43-45.) But only one of those vehicles—1403—also has registered a route going through 1409, the requested arrival location of transport user 1401. (*Id.*, 16:45-51.) “All other considerations being equal,” the matching engine would match transport user 1401 to vehicle 1403, which is the vehicle whose declared route passes through both the pick-up and drop-off locations. (*Id.*) Thus, the transport user 1401 would travel along the route vehicle 1403 had defined before the transport user demanded a ride, which route vehicle 1403 had defined independently of the user’s door-to-door trip.

Further confirming this interpretation, the specification explains what would happen if transport capacity 1403 refused to match with transport user 1401: the system could determine that transport capacity 1402 has a route that passes through the user’s pick-up location 1406 and also goes through a location (1408), which is near the requested drop-off location (1409). (*Id.*, FIG. 14a, 16:60-65.) Transport user 1401 would be alerted of this option that gets them near their ultimate destination and could agree to be matched with transport capacity 1402. (*Id.*, 16:60-

65; *id.*, 17:5–10.) In this case, transport user 1401 would walk from 1408 to 1409, without redefining transport capacity 1402’s route, which, again, was defined independently of the user’s door-to-door trip. (*Id.*)

This understanding is consistent with and further supported by statements made by patent owner during prosecution of the parent ’427 patent. See One-E-Way, Inc. v. Int’l Trade Comm’n, 859 F.3d 1059, 1064 n.3 (Fed. Cir. 2017) (“[T]he meaning of claim terms in one patent can be informed by statements made during prosecution of other patents in the same family.”); *Comput. Docking Station Corp. v. Dell, Inc.*, 519 F.3d 1366, 1374 (Fed. Cir. 2008) (holding that a patentee can disavow claim scope “by clearly characterizing the invention in a way to try to overcome rejections based on prior art”). Specifically, to overcome a rejection over prior art reference Lecouturier, Applicant distinguished Lecouturier as describing a “‘door to door’ approach [that] requires segment by segment direction to a driver, who **may have to divert from his natural route** to reach the pick-up or drop-off point.” (EX1015, 53-54.) Applicant explained that, by contrast, the alleged invention “provided specific pick-up and drop-off locations [nodes] that do not require a driver to divert.” (*Id.*) During an examiner interview conducted in the ’427 prosecution, the “Applicant asserted that the ‘abstracting’ step was different than the prior art in that an existing route is checked versus the plurality of pickup/dropoff nodes.” (*Id.*, 23.) In that interview, the examiner agreed with the

Applicant and characterized the “transport vehicle journey” as “predetermined.” (*Id.*) And in the ’427 examiner’s “statement of reasons for allowance,” the examiner stated that “Lecouturier fails to disclose abstracting a predetermined route by calculating places where the route intersects the nodes and representing the journey as a set of nodes.”³ (*Id.*, 30.)

This requirement of a predetermined or existing route is further confirmed as applicable to the scope of any claimed system arising out of the shared specification of the ’427 and ’071 patents. Applicant described *dynamic systems that tracked and matched drivers and riders based on their live locations as “computationally unsolvable,”* and prohibitively expensive because cars would have to communicate their “positional information constantly.” (EX1015, 87–88.). See *Techtronic Indus. Co. v. Int’l Trade Comm’n*, 944 F.3d 901, 909 (Fed. Cir. 2019) (statements disavowing embodiments recognized as “infeasible” or “impossible”); *AstraZeneca*

³ The ’427 patent claims themselves do not recite a “shared transport system.” For that patent, the applicant tied this fundamental statement of the scope of the invention to the “predetermined transport vehicle journey” claim limitation. (EX1015, 23.) Thereafter, when prosecuting subsequent applications, including the ’071 patent, the applicant added the “shared transport system” limitation to capture this concept. (*Compare, e.g.,* ’427 patent at claim 1, *with* ’071 patent at claim 1.)

AB v. Mylan Pharms. Inc., 19 F.4th 1325, 1335 (Fed. Cir. 2021) (statements in prosecution history that “capture the scope of the actual invention” inform claim construction).

Applicant’s statements are consistent with the specification: the transport provider follows his existing route without diverting. Thus, a POSITA would have understood that the patent’s shared transport system would match a transport provider with a transport request that would allow the transport provider to stay along his existing route that he had defined independent of the transport user’s pickup and drop-off locations.

B. Transport Provider

A POSITA would have understood that a “transport provider,” as used in the ’071 patent, refers to “a driver offering transport along an existing route defined before demand for transport and independently of a transport user’s door-to-door trip.”

This construction follows from the same intrinsic evidence cited above, including the prosecution history and specification. In particular, a POSITA would have understood that the claimed system would not direct a transport provider to divert from his “natural route” to pick up or drop-off a transport user according to his door-to-door trip, as Lecouturier required. (EX1015, 53-54.) Instead, according to the patent, the shared transport system would only match a transport provider with

pick-up and drop-off locations “that would not require a driver to divert.” (*Id.*) The specification gives detailed disclosures of this, describing how a transport provider “declare[s] . . . their Supply Route” as going through a series of defined nodes (e.g., vehicle 1402 travels through nodes 1405, 1406, 1407, and 1408), and matches occur based on a transport user requesting pick-up and drop-off locations along, or sufficiently close to, a declared supply route. (EX1001, FIG. 14a & 16:41-65.) Accordingly, a POSITA would recognize that a transport provider would only offer transport along this existing route defined before any demand for transport.

C. Pick-Up Location

A POSITA would have understood that a “pick-up location,” as used in the ’071 patent, refers to “a node along an existing route defined before demand for transport and independently of a transport user’s door-to-door trip.”

The specification expressly equates “nodes” and “pick-up locations,” stating: “the System maintains a matrix of journey time and cost estimates for the nodes (pick-up and drop-off points). Next available capacity, and estimated travel time between each of these nodes is maintained.” (EX1001, 14:32-36.) The specification repeats this concept and further confirms that nodes are established prior to any particular trip. (*Id.*, 14:61-66 (“[F]or the purposes of establishing a shared transport network, it is useful to establish a network of pick-up and drop-off points (nodes), so that Riders and Drivers can be guided to places that are safe and convenient and

comfortable for both the Riders and Drivers.”).) During prosecution of the ’427 patent, Applicant gave a substantively identical definition of a pick-up location as a node. (EX1015, 53-54.) (describing the alleged invention as “providing specific pick-up and drop-off locations [nodes] that do not require a driver to divert”) (brackets in original).

In short, because the patent’s alleged invention does not require a transport provider to divert from his natural route to reach pick-up or drop-off locations, a POSITA would have understood that a pick-up location could only be a node along the transport provider’s existing, natural route that is defined before demand for transport and independently of a transport user’s door-to-door trip.

IX. DETAILED EXPLANATION OF GROUNDS

A. Ground 1: Olmi in View of Paul and Jarvinen Renders Claims 1, 2, 10-15, and 17-20 Obvious

1. Overview of Olmi (EX1005)

This Petition relies on Olmi as the primary reference. Although Olmi was not considered during prosecution of the ’071 patent, it was a principal reference in an earlier European Patent Office’s examination of counterpart application EP08725447A, where the EPO relied on Olmi to reject the claims. (EX1036, 217-22, 251-58.) The applicant ultimately abandoned that EP application without overcoming Olmi. (*Id.*, 263-67.) As demonstrated below, the challenged claims are

unpatentable in view of Olmi together with the additional prior art relied on in this Petition.

Olmi discloses a method/system that, like the '071 patent, leverages existing features/concepts from public transport and individual transport applications to address transportation problems. (EX1005, 8-9 (§5.1).)⁴ Olmi teaches a transportation sharing process where a central computer system analyzes “submitted itinerary requirements that it receives, and then intelligently groups travellers with compatible itineraries onto the same...transit vehicle” (*id.*, Abstract) to address problems with inefficient use of transportation services, among other things, in existing transportation networks (*id.*, 2-7, 4-7 (§§4.1-4.4); EX1002, ¶32).

One configuration that Olmi describes relates to “car pooling transport” (EX1005, 8) that matches prospective passengers with carpool drivers having compatible itineraries involving fixed journeys (*id.*, 7-11, 21, 23). An “itinerary” is a “data structure” that specifies a “travel plan” (e.g., embarkation and disembarkation points, but can include multiple destination points, routing requirements, etc.). (*Id.*, 11-12, 32-35; EX1002, ¶33.)

⁴ Citations to EX1005 herein are to the underlying document page number(s) or section number(s).

Olmi explains that both carpool drivers with personal fixed itineraries and potential passengers are each considered a “traveller,” i.e., a person with a journey itinerary. (EX1005, 11.) Travellers (both drivers and passengers) submit their predetermined personal itineraries to the central computer system by submitting a “journey request,” which is a “data structure or a computer data format which includes a specification of a traveller or passenger itinerary,” as well as “other travel requirements relating to this itinerary.” (*Id.*, 12.) Prospective travellers define their predetermined personal itineraries by using a communicator device to send their journey requests to a central controlling computer system, which stores journey requests in a “journey requests database.” (*Id.*, 32; EX1002, ¶34.)

Olmi also describes “intelligent grouping” processes that match vehicles/drivers having a predetermined vehicle journey with a traveller having a compatible journey itinerary and facilitating the transportation of the traveller along the vehicle’s journey route. (EX1005, 15-20 (§§5.5-5.6), 21-27 (§5.7), 35-39.) For example, Olmi describes matching prospective travellers/passengers from the “journey requests database” with available carpool drivers from the “transit vehicle current itineraries database.” (*Id.*, 35-39.) Olmi also describes other features/components, including a digitised street layout map, communicator devices, controlling computer, positions/navigation systems, and a data transmission system.

(*Id.*, 12-15 (§§5.3-5.4); EX1002, ¶¶35-37.) Additional details of Olmi are discussed below.

2. Overview of Paul (EX1006)

Paul discloses a system and method for providing transportation services, including proxy messaging, over a data communications network. To achieve those objectives, Paul describes a computer-implemented method for determining an efficient transportation route comprising “compiling travel data over one or more travel segments, the travel data transmitted from one or more transportation vehicles traveling over the travel segments; receiving positional data associated with a transportation request, the positional data including an origin and a destination; and providing a driver of a vehicle with a first efficient route from the origin to the destination using the travel data, the first efficient route including one or more of the travel segments.” (EX1006, 2; EX1002, ¶¶38-40.)

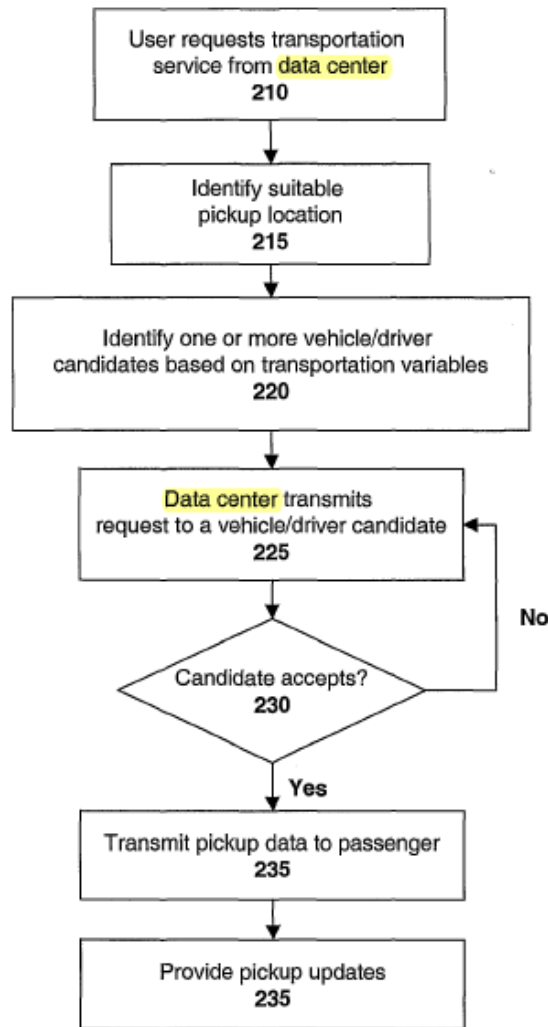


FIG. 2

(EX1006, FIG. 2 (annotated).)

As seen in annotated figure 2 above, the network/data center servers connect potential passengers and drivers by receiving transportation requests from potential passengers, matching the passenger to a potential driver, and transmitting the request to that driver. (*Id.*, FIG. 2, 7-8.) Users (e.g., potential passengers and drivers) can communicate using their wireless devices (e.g., mobile phones) through

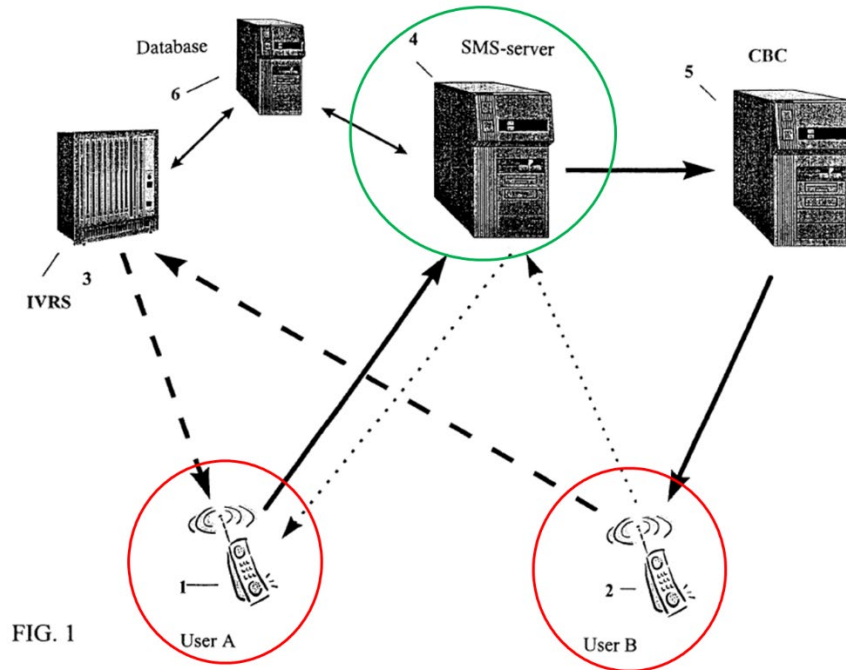
network/data center servers while keeping phone numbers and other information confidential. (*Id.*, 3-4, 9, FIG. 1; EX1002, ¶¶41-44.)

Accordingly, Paul discloses a system and method for determining an efficient transportation route, consistent with the features recited in the challenged claims.

3. Overview of Jarvinen (EX1007)

Jarvinen discloses a “method for transmitting a message in a communications service operating through a mobile telephone network” by implementing a proxy messaging system. (EX1007, Abstract.) In Jarvinen’s system, customers address a message to at least one other customer, with the message being routed through an SMS server before eventually reaching the intended customer. Jarvinen’s method and system are implemented via a CHAT2000 program that operates on a conventional mobile telephone to aid in “concealing the real identity of the customer.” (*Id.*, Abstract, 3:1-3; EX1002, ¶¶44-45.)

Jarvinen explains that “[u]sers can communicate with others who are logged on as users of the system, whenever their terminal device is in the operating area of the mobile telephone network.” (EX1007, 2:17-18.) As seen below in annotated Figure 1, the communication between users’ mobile devices is routed through the SMS server. (EX1002, ¶46.)



(EX1007, FIG. 1 (annotated).)

Accordingly, Jarvinen discloses a method of implementing a proxy messaging system, consistent with the features recited in the challenged claims. (EX1002, ¶47.)

4. Claim 1⁵

i) [1.pre]

To the extent the preamble of claim 1 is limiting, Olmi in view of Paul discloses/suggests the limitations therein. (EX1002, ¶¶48-72; *see also id.*, ¶¶32-47.)⁶

⁵ See Appendix A for claim language. (§XI.)

⁶ Olmi discloses two configurations—taxibus and carpooling—and explains that the invention may run either configuration separately or both simultaneously. To the extent any features relied on in Ground 1 are deemed attributable solely to the taxibus configuration, a POSITA would have found it obvious to incorporate those features into the carpooling configuration because both configurations address similar problems using similar hardware and system architectures. Olmi’s preferred embodiment likewise integrates features of both configurations, confirming their compatibility and interchangeability. A POSITA would have recognized that incorporating taxibus features into the carpooling configuration involved only routine engineering choices and would predictably yield the same functional benefits described in Olmi. Accordingly, any taxibus-specific features would have been obvious to implement in the carpooling configuration. (EX1005, 5, 8, 9, 11-14, 30, 40, 59, 66, 70, 78; EX1002, ¶48.)

Olmi discloses “entities of a shared transport system.” (*Id.*, ¶50.) Olmi discloses a method and system that, like the ’071 patent, looks to leverage existing features/concepts from public transport and individual transport applications to address transportation problems. (EX1005, 8-9 (§5.1).) Olmi teaches a transportation sharing process where a central computer system analyzes “submitted itinerary requirements that it receives, and then intelligently groups travellers with compatible itineraries onto the same...transit vehicle” (*id.*, Abstract) to address problems with inefficient use of transportation services, among other things, in existing transportation networks (*id.*, 2-7, *e.g.*, 3, 4-7 (§§4.1-4.4)).

One configuration that Olmi describes relates to “car pooling transport.” (*Id.*, 8.) The carpooling configuration matches prospective passengers with carpool drivers having compatible itineraries involving fixed journeys. (*Id.*) Olmi explains that both carpool drivers with personal fixed itineraries and potential passengers are considered travellers, *i.e.*, a person with a journey itinerary. (*Id.*, 11.) An itinerary is a data structure that specifies a travel plan (*e.g.*, embarkation and disembarkation points, but can include multiple destination points, routing requirements, etc.) (*Id.*, 11-12, 32-35.) Olmi also explains that a vehicle can have a vehicle itinerary, which is a data structure that specifies the travel plan of the vehicle and comprises a “set of prescribed geographic points or addresses to which the vehicle must navigate in a prescribed order” and may include a “specification of the road route that will enable

the vehicle to reach the said geographic points or addresses.” (*Id.*, 11-12.) As discussed for limitation [1.a.i], both the drivers and passengers submit journey requests to the central computer system, which define their predetermined personal itineraries. (*Id.*, 12, 15, 18, 32; *see also infra* Section IX.A.4.ii.(1).) As further discussed for limitation [1.a.ii], a carpool driver’s intended personal itinerary forms part of the itinerary commitments of the driver’s vehicle, and so Olmi’s central computer system stores a relational link between these itineraries. (EX1005, 35; *see also infra* Section IX.A.4.ii.(2).) Olmi also describes intelligent grouping processes that match vehicles/drivers having a predetermined vehicle journey with a passenger having a compatible journey itinerary and facilitating the transportation along the vehicle’s journey route. (EX1005, 15-20 (§§5.5-5.6), 21-27 (§5.7), 35-39; EX1002, ¶¶51-56.)

Olmi’s Figure 4 (below) uses a “central controlling computer system 15 [that] has, by means of the data transmission system 16, a two-way communications connection with the communicator devices 17 and 18 of the prospective travellers 19, and a two-way communications connection with the communicator devices 20 of the transit vehicles 21.” (EX1005, 29; EX1002, ¶57.)

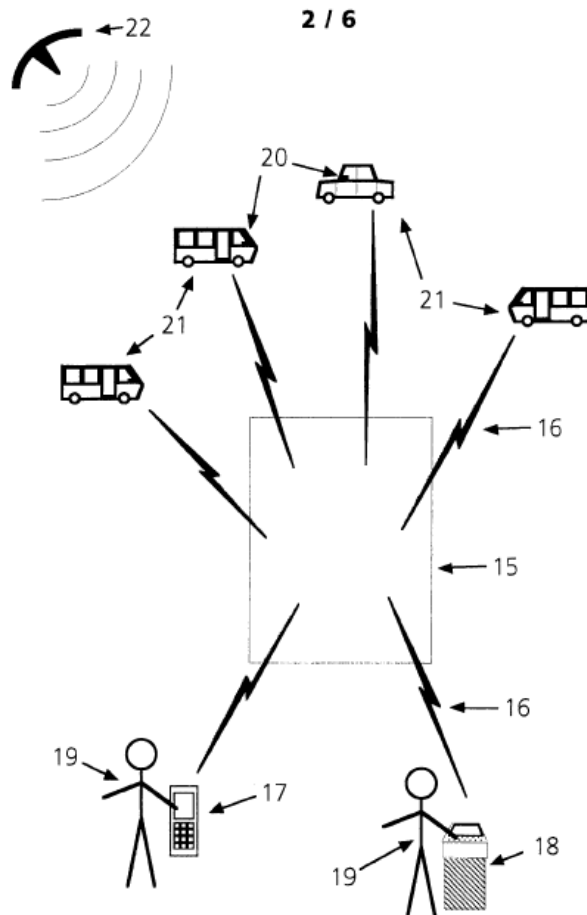


Figure 4

(*Id.*, FIG. 4.) The “single central controlling computer system 15 orchestrates all transit vehicles 21 and travellers 19.” (*Id.*, 31.) Olmi explains that each passenger and driver has a “communicator device” that allows them to “interact[] with this transportation invention...to send and/or receive data over the data transmission system (typically to the controlling computer system).” (*Id.*, 14.) “Examples of communicator devices include the telephone, the cellular telephone, the wireless

PDA (Personal Digital Assistant), and an Internet-connected personal computer.”
(*Id.*, 14; EX1002, ¶58.)

Olmi’s central controlling computer system is itself a “data-processing system” that may “compris[e] one or more mainframe computer data-processing installations, or compris[e] a set of distributed...computer processors.” (EX1005, 13.) “A data transmission system 16 comprising land lines, cellular telephone networks, and Internet transmission is used to provide a two-way data exchange between this centralized controlling computer system 15 and the communicator devices 17 and 20 (of the travellers 19 and transit vehicles 21 respectively).” (*Id.*, 31.) “[T]he data transmitted over the data transmission system 16 will consist of such information as journey requests detailing the itinerary requirements of travellers, the controlling computer system’s responses to these journey requests sent back to travellers, and other categories of information.” (*Id.*, 30.) Olmi explains that its transportation sharing features (e.g., for matching drivers and passengers) may be enabled by using an “electronic positioning system...such as the American GPS (Global Positioning System), the broadcast positioning signal of which is received by GPS receivers contained in the vehicle communicator devices (and optionally in passenger communicator devices).” (*Id.*, 31.) Olmi explains that the Figure 4 system is “capable of running the invention’s two main transport modes,” including the carpooling mode. (*Id.*, 30; EX1002, ¶59.)

In addition to enabling carpool transport via the central computer system and data transmission system described above, Olmi explains that “the invention can also work with existing public transport such as buses, trains or trams, if they are fitted with communicator devices and computer processors.” (EX1005, 70). “When a prospective passenger broadcasts his journey request (over the data transmission system), fixed-route transport vehicles in the vicinity of the passenger will receive his broadcast journey request, and their computer processors will calculate whether the passenger’s journey request is compatible with the itinerary of the transport vehicle.” (*Id.*) Thus, rather than match with a carpool driver with a fixed personal itinerary, a passenger may alternatively match with a public transport vehicle driver operating a fixed route vehicle itinerary. (*Id.*; EX1002, ¶60.)

Accordingly, Olmi discloses a method of sharing transportation (e.g., by carpooling or existing public transport), where communication between passengers and drivers (e.g., to arrange rides) is performed through a central computer system (“shared transport system”) using mobile communicator devices operated by the passenger and driver (in the transit vehicle) (“entities of a shared transport system”). (EX1002, ¶61.)

Olmi’s system, as discussed above, constitutes a “shared transport system” under Petitioners’ proposed construction because it discloses:

- “A server system”: Olmi describes a “single central controlling computer system” (which may be distributed processors) connected via a data transmission system. (EX1005, 13, 29-31.)
- “that matches transport users with transport providers”: The controlling computer system “scans”/processes journey requests and selects transit vehicles/drivers to convey travelers. (*Id.*, Abstract; 15-18; 35-38.)
- “traveling an existing route”: In the carpool configuration, drivers submit their intended itinerary/vehicle itinerary, and (alternatively) fixed-route public transport vehicles have fixed vehicle itineraries. (*Id.*, 8, 11-12, 35, 70.)
- “defined before demand for transport”: The driver/vehicle itinerary information is submitted/stored in the system databases prior to matching and dispatch for a particular passenger request. (*Id.*, 32-36.)
- “independently of a transport user’s door-to-door trip”: The provider vehicle itinerary exists as provider-submitted itinerary commitments (or fixed vehicle itinerary) and is evaluated for compatibility with passenger requests rather than being created solely from the passenger’s request. (*Id.*, 11-12, 35-36, 70.)

(*See supra* Section VIII; *see also infra* Section IX.A.4.ii (discussing Petitioners’ proposed construction of “transport provider”); EX1002, ¶62.)⁷

Olmi suggests exchanging messages between the passenger and driver’s communicator devices. (EX1002, ¶63.) For example, Olmi explains that the communicator devices are “capable of two-way transmission of information (able to send data and receive data via the data transmission system).” (EX1005, 17; *see also id.*, 40.) Olmi also explains that “[i]f the passenger uses his cellular telephone as a communicator device, then it would be possible for the car pool driver to telephone the passenger in cases when the driver and passenger are unable to spot each other.” (*Id.*, 44; *see also id.*, FIG. 7, 68-69 (describing a distributed embodiment where traveller communicator device 17 communicates with transit vehicle communicator devices 20, which confirms that the communicator devices in the central computer system arrangement (e.g., FIG. 6) are capable of sending and receiving communications between each other).) Despite these disclosures

⁷ In district court, PO disagrees with Petitioners’ proposed construction of the claimed “shared transport system.” (*See* EX1008, 7, 13.) However, Olmi (including as modified herein) discloses a “shared transport system” under any reasonable construction of the term, for the same reasons explained in this ground. (EX1002, ¶62; *see also infra* Section IX.A.4.ii (“transport provider”).)

regarding communications, Olmi does not explicitly disclose a “method of exchanging messages between entities of a shared transport system.” *A POSITA, however, would have found it obvious to implement such a feature in a system/method like that described in Olmi in view of Paul.* (EX1002, ¶¶63-64.)

Like Olmi, Paul relates to a method of arranging rideshares between passengers and drivers through a central computer system. (*Id.*, ¶64.) Paul discloses a “computer-implemented method for providing transportation services” by matching a passenger’s transportation request with a pickup vehicle. (EX1006, 2-3.) Paul’s transportation ecosystem encompasses a “wireless communication network” that enables two or more users (e.g., potential passengers and drivers) to communicate using their wireless devices (e.g., mobile phones) through network/data center servers. (*Id.*, 3-4, FIG. 1.) The network/data center servers may encompass the servers of the wireless communication network, as well as the servers of a larger network (e.g., the Internet) that may be linked to the wireless communication network. (*Id.*, 3-5.) Paul further discloses that the network/data center servers act as a central computer system that connects potential passengers and drivers by receiving transportation requests from potential passengers, matching the passenger to a potential driver, and transmitting the request to that driver. (*Id.*, FIG. 2, 5, 7-8.) Thus, Paul is similar to Olmi, which as discussed above, also discloses a transportation ecosystem for arranging rides between drivers and

passengers by implementing a central computer system (similar to Paul's network/data center servers) that enables communication between the mobile devices of the passenger and driver. (EX1002, ¶65.) A POSITA would have therefore had good reason to consider the teachings of Paul when implementing the Olmi system/method. (*Id.*)

Paul discloses a “method of exchanging messages” between the devices of a matched passenger and driver (“entities”). Paul discloses that, once a driver accepts a pickup, **“a message is transmitted to the user/passenger 170 confirming pickup location, time, a quoted price and/or the confirmation code for the driver.”** (EX1006, 8.)⁸ In one embodiment, the passenger's and driver's cell phone numbers may be transmitted so “the two can communicate directly over the wireless network 120.” (*Id.*) In another embodiment, however, “the passenger's and driver's cell phone numbers (and any other potentially confidential data) are kept only at the data center and communications coordinated through the data center,” and “the driver and passenger are each given a unique identifier separate from their cell phone number or other wireless access device.” (*Id.*, 9.) Thus, Paul discloses exchanging messages between matched passenger and driver devices while keeping personal

⁸ Emphasis added herein unless stated otherwise.

contact information confidential, akin to Olmi’s central computer system, i.e., the “shared transport system.” (EX1002, ¶¶66-67.)

Paul further explains that, “[a]s the driver continues on her way, she may update the passenger 170 of any changes to the arrival time estimate including, for example, the fact that she has arrived at the pickup point.” (EX1006, 9.) Similarly, the passenger may provide updates relating to cancellation, pickup time/location, or other itinerary changes. (*Id.*, 10.) Paul discloses that the updates may be, for example, SMS (i.e., Short Message Service) messages (“messages”) exchanged between passenger and driver wireless devices (“exchanging messages between entities”) through the network/data center servers (“shared transport system”). (*Id.*, 9.) Accordingly, Paul discloses “[a] method of exchanging messages between entities of a shared transport system.” (EX1002, ¶¶68-72; *see also infra* §§IX.A.4.ii-IX.A.4.iii.)

ii) [1.a]⁹

Olmi discloses this limitation. (EX1002, ¶¶73-74.) As explained above for limitation [1.pre] (§IX.A.4.i) and further below for limitations [1.a.i]-[1.a.ii] (§§IX.A.4.ii.(1)-IX.A.4.ii.(2)), Olmi discloses that the central computer system

⁹ For purposes of this Petition, Petitioners assume the “share transport system” in limitation [1.a] refers to the “shared transport system” recited in limitation [1.pre].

(“share[d] transport system”) identifies a potential passenger (“transport user”) based on receipt of a journey request (“identifying, by the share[d] transport system, a transport user”) and then identifies a driver (“transport provider”) to comply with the journey request (“identifying, by the share[d] transport system,..., a transport provider”) based on criteria such as the proximity of the vehicle to the passenger, the seats available and number of passengers requesting rides, and the type of transit vehicle. (EX1005, 15, 18, 32; EX1002, ¶73.)

Olmi discloses that the driver is a “transport provider” under Petitioners’ proposed construction, i.e., “a driver offering transport along an existing route defined before demand for transport and independently of a transport user’s door-to-door trip.” (See *supra* Section VIII.) As discussed above for limitation [1.pre], a potential driver (“[a] driver”) offers transport along a predetermined route (“offering transport along an existing route”) that a driver has submitted to the central computer system before being matched with a potential passenger (“defined before demand for transport”) and independently of any potential passenger’s

submitted journey itinerary (“independently of a transport user’s door-to-door trip”).
(*See supra* Section IX.A.4.i; EX1002, ¶74; EX1005, 8, 11-12, 32-36, 70.)¹⁰

(1) [1.a.i]

Olmi, including as modified above, discloses this limitation. (EX1002, ¶¶75-79.) Olmi discloses that the controlling computer system receives (“receiving, by the shared transport system”) a journey request (“a transport request”) from a potential passenger’s mobile communicator device (“from a transport user device of a transport user”). (EX1005, 15, 18, 32.) Olmi explains that a “journey request is defined as a data structure or a computer data format which includes a specification of a traveller or passenger itinerary.” (*Id.*, 12; EX1002, ¶75.)

As shown in Figure 8 below, the journey request includes traveller itinerary information, such as “From” and “To” information corresponding to the traveller’s requested trip. Olmi explains that the data in an incoming journey request is stored as a journey request record having six data fields, including “[t]he specification of

¹⁰ In district court, PO disagrees with Petitioners’ proposed construction of the claimed “transport provider.” (*See* EX1008, 7, 14.) However, Olmi (including as modified herein) discloses a “transport provider” under any reasonable construction of the term, for the same reasons explained in this ground. (EX1002, ¶74; *see also supra* Section IX.A.4.i.)

the itinerary of the traveller,” which “will include the current location or desired pick-up point for the traveller” (“wherein the transport request includes a pick-up location”). (EX1005, 32; *see also id.*, 29, 43.) Olmi explains that “preferably this invention will operate using pre-defined passenger pick-up (and optionally set down) points, each with a unique pick-up point reference code, in order to eliminate passenger pick-up point ambiguity.” (*Id.*, 17.)

<u>Traveller Journey Request</u>
From: 263 Kensington High Street
To: 116 Upper Street N1 1AE
Transit Vehicle: Taxibus or Car Pool
Passengers: 1
Departure Time: Immediate
Prioritise: Speed of Response

(*Id.*, FIG. 8 (excerpted and annotated); *see also id.*, 29 (“Figure 8 shows part of the sequence of user-interface events on the text display screen of a communicator device when a passenger submits a journey request to the controlling computer system....”), 32, 43 (“For passengers using communicator devices that have built-in electronic positioning functionality, the controlling computer system can automatically determine their current location address. However, passengers using communicator devices that do not have built-in electronic positioning functionality must manually specify their current location address.”); EX1002, ¶¶76-77.)

Thus, Olmi discloses “receiving, by the shared transport system, a transport request from a transport user device of a transport user, wherein the transport request includes a pick-up location.” (EX1002, ¶78.)

*Olmi discloses that a predefined passenger pick-up point included in a passenger’s journey request is a “pick-up location” under Petitioners’ proposed construction, i.e., “[a] node along an existing route defined before demand for transport and independently of a transport user’s door-to-door trip.”*¹¹ (See *supra* Section VIII; EX1002, ¶79.) As discussed above, a passenger’s journey request includes the passenger’s itinerary, which includes the desired pick-up point of the passenger. (EX1005, 32.) Olmi discloses that “using the terminology of graph theory, most traveller or passenger itineraries can be encoded as a directed graph whose vertices are the embarkation and disembarkation points of the itinerary, and whose directed edges indicate the direction of travel.” (*Id.*, 11.) A POSITA would

¹¹ In district court, PO disagrees with Petitioners’ proposed construction of the claimed “pick-up location.” (See EX1008, 7, 13.) However, Olmi (including as modified herein) discloses a “pick-up location” under any reasonable construction of the term, for the same reasons explained in this ground. (EX1002, ¶79; *see also supra* Section IX.A.4.)

have understood that each of these vertices, including the pick-up point, is a “node” along a route. (EX1002, ¶79.)

Moreover, this pick-up/embarkation point may be along a carpool or public transport driver’s predetermined/fixed route. (*Id.*) For example, Olmi explains that “travellers [passengers or carpool drivers] that have identical pick-up or drop-off points” can be “plac[ed]...on the same transit vehicle.” (EX1005, 74.) Thus, in the carpool context, a potential passenger’s pick-up point may be a node along a predetermined route of a carpool driver. (EX1002, ¶79.) Similarly, in the public transport context, Olmi explains that a passenger’s pick-up point may be an “embarkation point such as a bus stop” along the public transport fixed route. (EX1005, 70.) As described for limitation [1.pre], each of these predetermined/fixed routes is “an existing route defined before demand for transport and independently of a transport user’s door-to-door trip.” (*See supra* Section IX.A.4.i; EX1002, ¶79.) Accordingly, Olmi discloses the claimed “pick-up location” under Petitioners’ proposed construction. (*See supra* Section VIII.)

(2) [1.a.ii]

Olmi, including as modified above, discloses/suggests this limitation. (EX1002, ¶¶80-86.)

As discussed above for limitation [1.a.i], a potential passenger uses their mobile communicator device to submit a journey request (“transport request”) to the

controlling computer system, where the journey request is a data structure that indicates the pick-up location of the passenger (“pick-up location received in the transport request”). (See §IX.A.4.ii.(1).) “The data in each such incoming journey request is stored as a journey request record in the journey requests database” of the controlling computer system. (EX1005, 32.) “In addition to the journey requests database, the controlling computer system also maintains a transit vehicle current itineraries database.” (*Id.*, 34.) This database “contains a data record, which we shall call the transit vehicle record, for each currently operational transit vehicle,” i.e., “a vehicle that is currently conveying travellers, or a vehicle that is currently empty but is ready to convey travellers.” (*Id.*) “The format of the transit vehicle record includes” data fields such as “[t]he current geographic position of the transit vehicle” and “[t]he current vehicle itinerary of the transit vehicle.” (*Id.*) “When a driver of a car pool vehicle wants to make himself available for car pooling, he will use the communicator device in his vehicle to submit his car pool intended itinerary specification, via the data transmission system 16, to the controlling computer system 15, and these details are stored in the transit vehicle current itineraries database” and also “entered in the journey request database as a journey request record, with a relational link set up from this transit vehicle record to this journey request record...because [the carpool driver] is also a traveller, and his personal itinerary forms part of the itinerary commitments of his vehicle.” (*Id.*, 35; *see also*

id., 15, 32.) This “vehicle itinerary will comprise a set of prescribed geographic points or addresses to which the vehicle must navigate in a prescribed order.” (*Id.*, 11-12; *see also id.*, 16; EX1002, ¶81.)

Olmi discloses that the controlling computer system includes an “intelligent grouping module,” which is a data-processing module used to intelligently group passengers with drivers in transit vehicles. (EX1005, 13-14.) Olmi describes a process by which the intelligent grouping module groups passengers with drivers using criteria such as the **“transit vehicle [being] within the vicinity of the traveller’s current location or embarkation pick-up point as specified in the journey request record”** (“transport provider in proximity to the pick-up location received in the transport request”), the “transit vehicle [having] a sufficient quantity of available passenger places for the number of travellers specified in his journey request,” and the “transit vehicle is of the type specified in this journey request,” among other criteria. (*Id.*, 35-36; EX1002, ¶82.) “Preferably the intelligent grouping module will take into account **transit vehicle proximity to the prospective traveller**” (“transport provider in proximity to the pick-up location received in the transport request”). (EX1005, 18.) “[T]his means that when trying to place a new traveller into a transit vehicle, not only will the intelligent grouping module seek a vehicle with a good itinerary compatibility to the traveller, **the module will also try to find a transit vehicle that is currently located in the**

vicinity of that traveller, enabling the transit vehicle to get to the traveller's pick-up point quickly.” (*Id.*; *see also id.*, 15, 43, 70; EX1002, ¶83.)

When one or more suitable transit vehicles are identified, the central computer system sends details of the transit vehicle(s) to the passenger's communicator device. (EX1005, 37-38, 43.) “The passenger then simply selects any vehicle from the list in order to proceed with the car pool trip.” (*Id.*, 43.) “As soon as the passenger selects a car pool vehicle from the list, the controlling computer system will send a message to that vehicle's communicator device, requesting the driver to convey this passenger.” (*Id.*) Upon receiving the passenger's selection, the controlling computer system identifies the selected vehicle's in-vehicle communicator device (“the transport provider device”) and transmits the request to that device. (EX1005, 43; *see also id.*, 37-38.) Once the central computer system has determined which suitable vehicle and corresponding driver has been selected (“determining, by the shared transport system, a transport provider device of a transport provider”) and sent the message to the driver's in-vehicle communicator device, “[t]he driver can accept this journey by pressing the appropriate key or button on his communicator device.” (*Id.*; EX1002, ¶84)

Accordingly, Olmi discloses that the intelligent grouping module is used to determine an appropriate transport vehicle (which contains a communicator device (*see* §IX.A.4.i)) for a passenger (“determining, by the shared transport system, a

transport provider device of a transport provider”) based on the proximity of the transit vehicle/included communicator device to the pick-up location received in the passenger’s journey request (“in proximity to the pick-up location received in the transport request”). (EX1002, ¶¶85-86.)

iii) [1.b]

The Olmi-Paul combination discloses/suggests this limitation. (EX1002, ¶¶87-89.) As explained for limitation [1.pre] (§IX.A.4.i) and further below for limitations [1.b.i]-[1.b.iii] (§§IX.A.4.iii.(1)-IX.A.4.iii.(3)), the Olmi-Paul system/method incorporates a messaging system in which a passenger and driver can communicate with each other to provide, e.g., updates on pickup/arrival times, at a time after the passenger and driver have already been matched by the central computer system (consisting of network/data center servers) (“upon identifying, by the shared transport system, the transport user and the transport provider”), but before the transport journey begins (“and at a time before...transport of the transport user by the transport provider”). (EX1006, 8, 9, 10.)

(1) [1.b.i]

The Olmi-Paul combination discloses/suggests this limitation. (EX1002, ¶¶90-99.)

First, further to the discussion above (§IX.A.4.iii), the Olmi-Paul combination discloses/suggests “a first message from a sender device of a sender,

wherein the sender is one of the transport user and the transport provider.” (EX1002, ¶91.) As discussed for limitation [1.pre] (§IX.A.4.i), the Olmi-Paul method/system allows for communication between the passenger and driver, where either user (“wherein the sender is one of the transport user and the transport provider”) may send a message (e.g., via SMS) (“a first message”) from the user’s wireless device (“from a sender device of a sender”) to provide updates on arrival/pickup time, location, cancellations, or other itinerary changes. (EX1006, 8-10; EX1002, ¶91.)

Second, a POSITA would have found it obvious to implement the Olmi-Paul combination for “receiving, by a proxy messaging system” (EX1006, 8-10) the first message discussed above, where “the proxy messaging system is part of the shared transport system” (EX1006, 4-5, 9; EX1005, 13-15, 31, 43-44, 87; *see also supra* §§IX.A.4.i, IX.A.4.iii)), based on the teachings of Paul. (EX1002, ¶92.) ***A POSITA would have had good reason, and found it obvious, to include features similar to those disclosed by Paul when implementing the Olmi system/method*** in order to provide a proxy messaging communication system that allows for more robust, direct, and secure communication between a passenger and driver, beyond the sending and receipt of transportation requests. (EX1002, ¶92.) Paul teaches that rider-driver communications may be coordinated through the data center, with confidential contact information kept only at the data center and updates conveyed through server-mediated push/pull communications. (EX1006, 8-10.) In the Olmi-

Paul combination, the central computer system (consisting of network/data center servers) (“shared transport system”) employs a communication system (“proxy messaging system”) that allows for a passenger and driver’s phone numbers (and other confidential information) to be kept confidential by storing the contact/confidential information only at the data center, assigning each user a separate unique identifier, and coordinating communications through the central computer system (“proxy messaging system is part of the shared transport system”). (EX1005, 13-15, 31, 43-44, 87; EX1006, 8-10; EX1002, ¶92.)

Olmi discloses that there are several instances where a passenger and driver may need to communicate directly with each other, including a “car pool driver...telephon[ing] the passenger in cases when the driver and passenger are unable to spot each other” at pick-up (EX1005, 44), or “[i]n the case of lost property left in a car pool vehicle,” a passenger/driver may “obtain the email address or telephone number of the appropriate driver or passenger” from the controlling computer system logs (*id.*, 84). Olmi’s method does not specify using a “proxy messaging system” between the passenger and driver but instead discloses that the passenger and driver may use personal phone numbers to communicate with each other by phone. (EX1002, ¶93.) Thus, a POSITA would have recognized that Paul’s proxy communication system, which allows for phone numbers and other confidential information to be kept only at the central data center, would have been

advantageous because it would have allowed for increased user privacy and thus enhanced safety. (*Id.*; EX1006, 8-9.) Paul contemplates this communication functionality as part of the same transportation-service workflow: after the data center sends pickup confirmation, the passenger's and driver's phone numbers may be shared so they can communicate directly, or, alternatively, those phone numbers may be kept only at the data center and communications coordinated through the data center. (EX1006, 8-9.) A POSITA likewise would have found it straightforward to implement that proxy communication functionality within Olmi's central controlling computer system, because Olmi already discloses a single central controlling computer system having two-way data exchange with passenger and driver communicator devices and already contemplates passenger-driver communications and communication-related events as part of that same system. (EX1005, 31, 44, 84, 87; EX1002, ¶93.) Moreover, a POSITA would have understood that Paul's proxy communication system would have improved user convenience and system efficiency by allowing for passengers and drivers to communicate through the same platform through which ride requests are sent and received. (EX1002, ¶93.)

A POSITA would have had good reason to implement, and had a reasonable expectation of success in implementing, such a modification to Olmi's system/process, especially given it would have involved the application of known

technologies (e.g., known shared transport systems (Olmi) and transportation service communications systems (Paul)) according to known techniques (e.g., known communication technology (Paul)). (EX1002, ¶94.) Such a modification would have predictably resulted in a modified Olmi-Paul system/process in which a shared transport system (e.g., in a carpooling or public transport configuration) is configured to allow for the passenger and driver to exchange messages, via a central computer system (e.g., consisting of network/data center servers), using their mobile devices. (*Id.*) *KSR Int'l. Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

A POSITA would have understood that the central computer system (consisting of network/data center servers), and processes performed by such system, operate as a “proxy” between the passenger and driver by acting as an intermediary between the two users. (EX1002, ¶95.) A POSITA would have also understood that when messages from a sender, such as the “first message” described above, are coordinated through the central computer system (consisting of network/data center servers), the messages are first sent to the communication system of the central computer system (“receiving, by a proxy messaging system, a first message... the proxy messaging system is part of the shared transport system”). (*Id.*; EX1005, 29-31; EX1006, 8-10.) Indeed, Paul explains that after a driver sends an arrival time update (“a first message from a sender device of a sender, wherein the sender is...the transport provider”), the update may be conveyed to the passenger

from the network/data center server by pull or push transmission. (EX1006, 9.) Paul thus teaches server-mediated coordination of rider-driver communications. (EX1006, 8-10.) And Olmi teaches that the shared transport system already includes a central controlling computer system with two-way data exchange to passenger and driver communicator devices. (EX1005, 29-31.) A POSITA would have thus understood that for the sender's message to be eventually received by the recipient *via the central computer system*, the sender's original message ("first message") would have been initially received by the communication system operated by, and part of, the central computer system ("receiving, by a proxy messaging system, a first message from a sender device of a sender"). (EX1002, ¶95.)

Further, a POSITA would have found it obvious to implement the Olmi-Paul system/method such that, when a sender sends a message from the sender's wireless device, the message is first received by the central computer system, which implements a communication system ("proxy messaging system") that coordinates communications through the data center, consistent with Paul's teachings. (*Id.*, ¶96; EX1006, 8-9.) A POSITA would have had good reason to leverage the teachings from the various aspects of Paul's disclosed invention to configure the Olmi-Paul system/method (discussed above for limitations [1.pre]-[1.a]) such that the central computer system would be configured to use such a communication system (as a proxy messaging system) to forward messages (e.g., transportation requests, updates

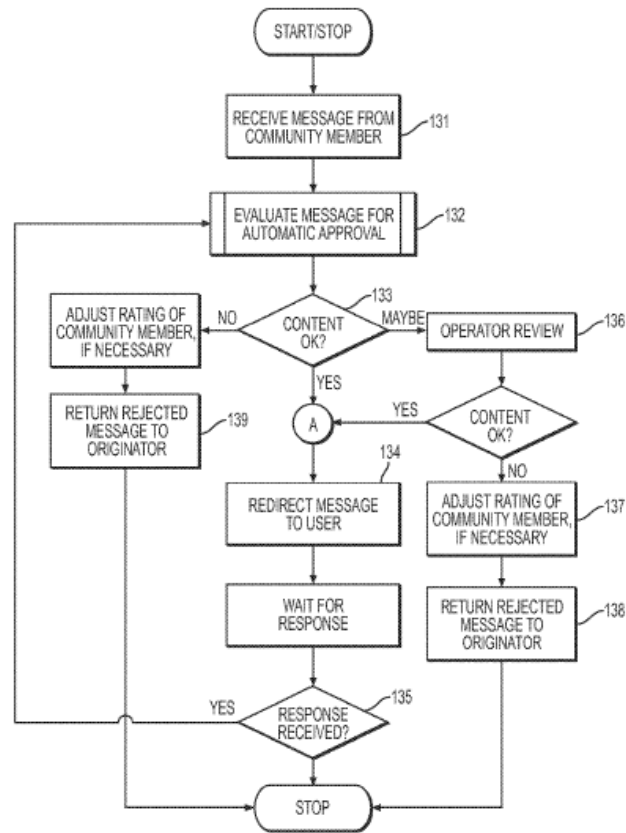
to existing transportation journeys, etc.) received from one passenger/driver device to the other of the driver/passenger devices (i.e., the recipient device) in a manner similar to the features discussed above by Paul. (EX1002, ¶96; EX1005, 29-31, 43-44, 84; EX1006, 8-9; *see also supra* §§IX.A.4.i, IX.A.4.iii.) Accordingly, a POSITA would have had good reason to leverage Paul's teachings to configure the Olmi system/method such that the central computer system uses a communication system, as a proxy messaging system, to receive a message from one passenger/driver device and forward that message to the other driver/passenger device. (EX1002, ¶96.)

A POSITA would have recognized the advantages of such an implementation consistent with those expressly contemplated by Paul, such as to allow users to exchange messages while keeping phone numbers and other user information confidential, as discussed above. (EX1002, ¶97; EX1006, 9.) Recognizing such benefits, and the teachings/suggestions provided by Paul's disclosure, a POSITA would have had good reason, and found it obvious, to implement such a modification. (EX1002, ¶97.) A POSITA would have had good reason to implement, and had a reasonable expectation of success in implementing, such a modification to the Olmi-Paul system/process, especially given it would have involved the application of known technologies (e.g., known rideshare communication systems that coordinate communication through a central computer system or network/data center servers (Olmi, Paul)) according to known techniques

(e.g., known methods of proxy communication to maintain user anonymity (Paul and a POSITA's state-of-the-art knowledge)). (EX1002, ¶97.) A POSITA would have had the skills, knowledge, and capabilities to implement such a modification using the disclosed features of Paul in context of their state-of-the-art knowledge, including, e.g., software programming and related component design and development skills that would facilitate the messaging functions taught/suggested by Paul. (*Id.*) Such an implementation would have predictably yielded the Olmi-Paul system/method performing processes that include “receiving, by a proxy messaging system, a first message from a sender device of a sender, wherein the sender is one of the transport user and the transport provider, and the proxy messaging system is part of the shared transport system,” as claimed. (*Id.*, ¶97.) *KSR*, 550 U.S. at 416.

Indeed, the Olmi-Paul system/method discloses/suggests a proxy messaging system (and related operations) in a manner consistent with the '071 patent. Namely, the specification and figures of the '071 patent do not describe a proxy messaging system, but instead refer to a process flow when discussing proxy messaging. (EX1001, 13:13-54; e.g., *id.*, 13:25-31 (“FIG. 13 shows a message proxy **system** ...” and “the **system** would function as illustrated in FIG. 13”), FIG. 13 (below).)

FIGURE 13. TRANSPORT COMMUNITY PROXY MESSAGE SERVICE



(EX1001, FIG. 13.)

The Olmi-Paul system/method discloses/suggests the claimed “proxy messaging system” in a similar fashion because as demonstrated above, the central computer system (consisting of network/data center servers) of the Olmi-Paul system/method would have included a communication system that performs functions just like that claimed.¹² (EX1002, ¶¶98-99.)

¹² Petitioners reserve the right to address potential §112 issues relating to the '071 patent regarding the claimed proxy messaging system in other proceedings.

(2) [1.b.ii]

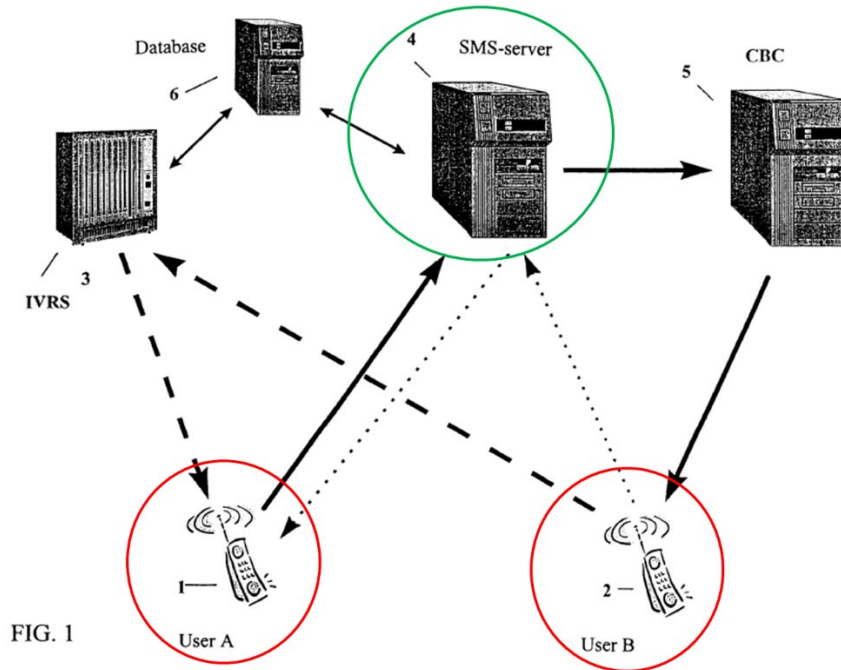
Olmi in view of Paul and Jarvinen discloses/suggests this limitation. (EX1002, ¶¶100-115.)

As discussed for limitation [1.b.i] (*see* §IX.A.4.iii.(1)), the Olmi-Paul system/method discloses/suggests that the “proxy messaging system” allows for a passenger and driver’s phone numbers (and other confidential information) to be kept confidential by storing the contact/confidential information only at the data center, assigning each user a separate unique identifier (“a first unique identifier associated with the sender”), and coordinating communications through the central computer system (consisting of network/data center servers). (EX1006, 9.) As further discussed for limitation [1.b.i] (*see* §IX.A.4.iii.(1)), the Olmi-Paul system/method discloses/suggests that the central computer system’s proxy messaging system transmits the sender’s update/message to the recipient. (EX1002, ¶101.)

While neither Olmi nor Paul explicitly disclose that this transmission involves “generating, by the proxy messaging system, a second message, wherein the second message comprises contents of the first message and a first unique identifier associated with the sender,” a POSITA would have had good reason and found it obvious to implement such features in the Olmi-Paul system/method in view of Jarvinen. (EX1002, ¶102.)

Like Olmi, Jarvinen relates to a method that provides for two-way communication between mobile devices, and like Paul, Jarvinen specifically relates to a method of implementing a proxy messaging system. (*Id.*, ¶103.) For example, Jarvinen discloses a “method for transmitting a message in a communications service operating through a mobile telephone network.” (EX1007, Abstract.) “The communications service may be, for example, a chat line” which is “implemented in Internet and telephone applications.” (*Id.*, 1:5-6.) Jarvinen explains that its method and system are implemented via a CHAT2000 program that operates on a conventional mobile telephone. (*Id.*, 3:1-3.) Jarvinen explains that “[u]sers can communicate with others who are logged on as users of the system, whenever their terminal device is in the operating area of the mobile telephone network.” (*Id.*, 2:17-18; EX1002, ¶103.)

In Jarvinen’s system, a customer addresses a message to at least one other customer, with the message being routed through an SMS server before eventually reaching the intended customer recipient. (EX1007, Abstract, 4:5-10, 4:26-5:7.) Figure 1 below shows how communication between users’ mobile devices (in red) is routed through the SMS server (in green).



(*Id.*, FIG. 1 (annotated); *see also id.*, 2:6-12, 3:5-7, 3:22-25, 4:3-4; EX1002, ¶104.)

Thus, Jarvinen is similar to Olmi, which discloses a central computer system that allows for two-way communication between mobile device users, and similar to Paul, which discloses a proxy messaging system for use in a mobile telephone application that allows for communication between two mobile device users to be routed through a server of the proxy messaging system. (*See generally* §§IX.A.4.i-IX.A.4.iii.(1).) A POSITA would have therefore had good reason to consider the teachings of Jarvinen when implementing the Olmi-Paul system/method. (EX1002, ¶105.)

Jarvinen additionally discloses that the SMS server assigns a user identifier (also referred to as a CHAT2000 ID) that is used to identify the user and stores

information in a database reflecting the relationship between a user's phone number (i.e., calling-party number) and the user's CHAT2000 ID user identifier. (EX1007, Abstract, 3:18-22.) Jarvinen explains that the user identifier is "intended to conceal the real identity of the customer" (*id.*, Abstract) and "permits completely anonymous communication with other systems users, with no danger in the service of the user's own identity being revealed" (*id.*, 2:21-23; *see also id.*, 5:13-14; EX1002, ¶106.)

After an original message is sent from the sender to the SMS server, the SMS server generates a new message that comprises the original message with the sender's user identifier attached and then forwards this second message to the intended customer/recipient. (EX1007, Abstract, 4:28-5:7; EX1002, ¶107.)

The recipient (some customer B) may respond to the original sender (some customer A) by selecting customer A's CHAT2000 ID user identifier as the destination and sending a message to the SMS server, which then uses the database to identify the actual phone number of customer A corresponding to customer A's CHAT2000 ID and forwards customer B's message to customer A by attaching customer B's CHAT2000 ID to the message. (EX1007, 4:5-10, 5:13-18; EX1002, ¶108.)

Jarvinen explains that the above method of attaching a user identifier to messages sent back and forth between a sender and recipient not only allows for anonymous communication, but "can also be used to ensure that messages always

go to the correct recipient.” (EX1007, 2:21-25; EX1002, ¶109.) Thus, Jarvinen discloses that after a first message is sent from the sender to the SMS server, the SMS server’s system (“proxy messaging system”) generates a second message (“generating, by the proxy messaging system, a second message”) comprised of the first message and a user identifier of the sender (“wherein the second message comprises contents of the first message and a first unique identifier associated with the sender”). (EX1002, ¶109.) Jarvinen explains that each user identifier uniquely identifies a specific customer (“first unique identifier associated with the sender”), describing each identifier as a “customer-specific user identifier, intended to conceal the real identity of the customer, [which] is allocated to each customer...of the communications service.” (EX1007, Abstract.) Indeed, Jarvinen describes each customer-specific CHAT2000 ID identifier as corresponding to a specific telephone number of a user, such that a CHAT2000 ID may be looked up in a database that maps identifiers to phone numbers to identify the exact user corresponding to the identifier. (*Id.*, 3:18-22 (describing “SMS server 4” as “mak[ing] an entry in database 6” mapping “the CHAT2000 ID and calling-party [phone] number” to each other), 4:8-10.) A POSITA would have thus understood that each user identifier described in Jarvinen is “unique” to a given user because as discussed above, a user is identified by their corresponding CHAT2000 ID, and the SMS server stores user phone number and CHAT2000 ID pairings in a database such that a CHAT2000 ID

lookup may be used to retrieve (i.e., identify) a specific user's phone number from the database. (EX1002, ¶109.)

Because Jarvinen and Olmi (in context of Paul) each describe similar features (e.g., use of mobile devices that communicate via a central system) that are reasonably pertinent to a problem the '071 patent purports to address (e.g., inter-device messaging), Olmi, Paul, and Jarvinen are all analogous art. (*See, e.g.*, EX1001, 1:23-3:20, 13:15-54; *supra* §§IX.A.4.i, IX.A.4.iii.(2) regarding EX1005-EX1007; EX1002, ¶110.) Thus, a POSITA would have looked to Jarvinen when considering and implementing Olmi-Paul transportation system/process to facilitate the proxy messaging functionalities discussed above for limitation [1.b.i]. (EX1002, ¶110; §IX.A.4.iii.(1).)

A POSITA would have had good reason, and found it obvious, to include features similar to those disclosed by Jarvinen when implementing the Olmi-Paul system/method in order to provide an improved method of proxy messaging communication in a manner consistent with the features disclosed/suggested by Paul. (EX1002, ¶111.) As discussed above, Paul discloses giving each driver and passenger a “unique identifier separate from their cell phone number,” but does not disclose a specific implementation for the unique identifiers. (EX1006, 9; *see* §IX.A.4.ii.) A POSITA would have thus had sufficient reason to consider Jarvinen's method in context of the Olmi-Paul system/method, which provides a specific

implementation for using unique identifiers in a proxy messaging system. (EX1002, ¶111.) Indeed, a POSITA would have understood that Jarvinen's unique identifier method would have advantageously provided for complete anonymity while still ensuring that messages reach the correct recipient, as discussed above. (*Id.*, ¶111; EX1007, 2:21-25.) Moreover, a POSITA would have understood that anonymity would have been a desired goal in the Olmi-Paul rideshare communication system, since Paul explains that a passenger's and driver's cell phone numbers and other confidential information may be kept only at the network/data center servers. (EX1006, 9; EX1002, ¶111.)

In light of the teachings/guidance of Jarvinen, in context of Paul's teachings as discussed above, a POSITA would have had good reason to configure the proxy communication system of the Olmi-Paul system/method such that messages sent from sender (either a passenger or driver) to the central computer system's proxy messaging system would be forwarded to the intended recipient (the other of the driver or passenger) by creating a second message containing the contents of the first message and the unique identifier of the original sender, with similar processes enabled to allow the recipient to respond in the same manner. (EX1002, ¶112.)

A POSITA would have appreciated and understood that Paul looks to provide inter-device messaging via a central system, and so a POSITA would have looked to ways to facilitate and/or improve on the processes/techniques to facilitate such

communications. (*Id.*, ¶113; *supra* §IX.A.4.iii.(1).) Moreover, Paul explains that the network communications can be facilitated using mobile device/cellular technologies, relevant to Jarvinen’s teachings. (EX1006, 6 (passenger’s cellular zone), 8 (cell phone or other wireless device), 9, 15, 17; EX1007, Abstract, 1:3-12.) As such, a POSITA would have looked to teachings in the art to consider ways to implement, configure, improve, and/or complement such features. A POSITA would have considered the teachings in Jarvinen for application to a transportation system (like in the Olmi-Paul system/method) because a POSITA would have understood that technologies/techniques to perform proxy messaging functions by adding a unique identifier to a transport request message received from a passenger and forwarded to a vehicle/driver were known in the art. (EX1002, ¶113; EX1012, ¶[0028] (describing a “dispatch center terminal” that “assigns an identification number” to a dispatch request received from a user mobile terminal, and “transmits the dispatch request information with the assigned identification numbers to these taxi terminals” that may service the request), Abstract, ¶¶[0001]-[0006], FIG. 1.)¹³ Such knowledge coupled with Jarvinen’s teachings/suggestions would have led a

¹³ EX1012 describes a POSITA’s state-of-the-art knowledge known at the time. (EX1002, ¶113.)

POSITA to implement the above modification to the Olmi-Paul system/process for the reasons stated. (EX1002, ¶113.)

For similar reasons, a POSITA would have had a reasonable expectation of success in implementing such a modification. (*Id.*, ¶114.) As discussed, Paul and Jarvinen disclose similar proxy messaging features, such as assigning unique user identifiers when implementing a proxy messaging system that stores all contact/confidential information at the network/data center servers, as in Paul. (EX1006, 8.) Thus, a POSITA would have understood that implementing the Olmi-Paul-Jarvinen combined features would have involved modifying the Olmi-Paul system/method in a manner Paul suggests was feasible—implementing a fully anonymous proxy communication system by using unique identifiers to identify senders and recipients of messages, as taught by Jarvinen. (EX1002, ¶114.) Moreover, both Olmi and Paul disclose a central computer system (e.g., consisting of network/data center servers) that uses databases to store various data pertaining to users and their devices (*see* EX1005, 30, 32-35; EX1006, 10-12, 19), and thus a POSITA would have understood that features similar to Jarvinen’s messaging features, which are described as being implemented using an SMS server, database, and user devices, would have been predictably implemented. (EX1002, ¶114.)

A POSITA would have had the skills, knowledge, and motivation to implement, and reasonable expectation of success in achieving, such a modification,

because it would have involved a combination of known technologies (e.g., known shared transport systems employing two-way communication (Olmi) and known proxy communication systems (Paul and Jarvinen)) according to known techniques (e.g., known programming and component design techniques involving use of unique user identifiers to implement anonymous communication in a proxy messaging system (e.g., Jarvinen and state-of-the-art knowledge)). (EX1002, ¶115.) Such a modification would have predictably resulted in the Olmi-Paul system/process using conventional software and component design techniques/technologies such that messages are forwarded from the Olmi-Paul central computer system's proxy messaging system to an intended recipient by generating a second message comprising the contents of the sender's first message and a unique identifier of the sender, like that claimed. (*Id.*, ¶115.) *KSR*, 550 U.S. at 416.

(3) [1.b.iii]

The Olmi-Paul-Jarvinen combination discloses/suggests this limitation for the same reasons explained above for limitation [1.b.ii]. (EX1002, ¶116; §IX.A.4.iii.(2).) Indeed, the analysis for limitation [1.b.ii] demonstrates how the Olmi-Paul-Jarvinen combination discloses/suggests a process/system where after a sender (either a passenger device or driver device) sends a first message to the proxy messaging system of the central computer system, that proxy messaging system then

generates a second message comprised of the original message and the sender's unique identifier, and then sends that second message to the mobile device of the intended recipient ("transmitting, by the proxy messaging system, the second message to a recipient device of a recipient"), where the intended recipient is the other of the passenger or driver ("wherein the recipient is the other of the transport user and the transport provider"), as recited in limitation [1.b.iii]. (See §IX.A.4.iii.(2); EX1002, ¶116.)

5. Claim 2

The Olmi-Paul-Jarvinen combination discloses/suggests this limitation. (EX1002, ¶117.) As discussed for limitation [1.b.ii], the Olmi-Paul-Jarvinen combination discloses/suggests that the second message generated by the proxy messaging system of the central computer system does not include private information, such as the actual phone number of the sender ("wherein the second message is without private information associated with the sender, the private information being...contact information of the sender") because the unique user identifier is used to enable anonymous communication between passengers and drivers. (See §IX.A.4.iii.(2); EX1006, 9; EX1002, ¶117.)

6. Claim 10

i) Limitations [10.a]-[10.c]

The Olmi-Paul-Jarvinen combination discloses/suggests these limitations.
(EX1002, ¶¶118-124.)

In the discussion below, “Customer A” refers to the original sender of the first message, and “Customer B” refers to the original recipient of the second message (and thus the “recipient” who sends the “third message” in claim 10). As discussed for limitation [1.b.ii] (*see* §IX.A.4.iii.(2)), in Jarvinen, after an original sender (some customer A) sends a first message to the SMS server, which is forwarded as a second message to the recipient (some customer B), customer B may respond to customer A by selecting customer A’s CHAT2000 ID unique user identifier as the destination and sending a message to the SMS server. When it receives the response, the SMS centre checks the database to identify the actual phone number of customer A corresponding to customer A’s CHAT2000 ID and forwards customer A’s message to customer B by attaching customer B’s CHAT2000 ID to the message. (EX1007, 4:5-10, 5:13-18; EX1002, ¶¶119-120.)

Thus, Jarvinen discloses that the original recipient (customer B) responds by sending a new message to the SMS server’s proxy messaging system (“receiving, by the proxy messaging system, a third message from the recipient device”), with the message addressed using customer A’s CHAT2000ID (including the unique identifier associated with the original sender) (“the third message comprising the first unique identifier associated with the sender”). (EX1002, ¶121.)

Jarvinen also explains that when a response message is sent using the recipient's CHAT2000 ID, the SMS center/server checks the database to find the actual telephone number corresponding to that CHAT2000 ID (customer A) and then sends the short text message to the desired recipient ("identifying, by the proxy messaging system, the sender device based on the first unique identifier included in the third message"). (EX1007, 4-5.) Jarvinen further explains that, when the recipient responds anonymously, the original sender receives a short text message with the communications-service user identifier of the recipient displayed as the sender's number ("generating, by the proxy messaging system, a fourth message"), and when a call is connected, the IVRS displays the communications-service user identifier of the original recipient (customer B) of the message on the mobile phone of the person receiving the call ("wherein the fourth message comprises contents of the third message and a second unique identifier associated with the recipient"). (EX1007, 5-7; EX1002, ¶122; *see also* §IX.A.4.iii.)

A POSITA would have found it obvious to implement the above-discussed proxy messaging features in the Olmi-Paul-Jarvinen system/method to allow a recipient to respond to an original sender in the same manner that the original message was sent (i.e., routing communication through the proxy messaging system and using unique identifiers to maintain anonymity in both directions). (EX1002, ¶123.) A POSITA would have had the same reasons, rationale, and expectation of

success as explained for limitation [1.b.ii], to implement the features disclosed by Jarvinen and discussed above with the other proxy messaging system features disclosed/suggested by the Olmi-Paul-Jarvinen combination. (See §IX.A.4.iii.(2); EX1002, ¶123.) Also, Paul discloses two-way communication between the passenger and driver, and thus a POSITA would have understood that message response/return communication features for identifying a user, similar to those disclosed by Jarvinen, would have been easily implemented in the Olmi-Paul-Jarvinen system/method. (EX1006, 8, 9 (messages from driver to passenger to, e.g., “update the passenger 170 of any changes to the arrival time estimate”), 10 (messages from passenger to driver to, e.g., “notify...the driver that she has decided to cancel the trip, change the pickup time, pickup location, and/or any other changes to her itinerary”); EX1002, ¶123.)

A POSITA would have had the skills to implement and reasonable expectation of success in achieving such a modification, because it would have involved a combination of known technologies (e.g., known two-way communication systems in a shared transport system (Olmi) and known proxy communication systems (Paul and Jarvinen)) according to known techniques (e.g., known two-way proxy communication methods (Jarvinen)). (EX1002, ¶124.) Such an implementation would have predictably yielded a system/method of the Olmi-Paul-Jarvinen combination, like that recited in claim 10, in which an original recipient

(passenger/driver) may respond to the original sender (the other of the passenger/driver) by sending a **third message** (addressed using the original sender's unique identifier) to the proxy messaging system of the central computer system, upon which the proxy messaging system uses the unique identifier in the third message to identify the original sender's device (i.e., the actual phone number), generates a **fourth message** including the original recipient's unique identifier and the contents of the responsive third message, and transmits that fourth message to the original sender's device. (*Id.*) *KSR*, 550 U.S. at 416.

7. Claim 11

The Olmi-Paul-Jarvinen combination discloses/suggests this limitation. (EX1002, ¶125.) As discussed for limitations [1.b.ii] and [10.a]-[10.c], the Olmi-Paul-Jarvinen combination discloses/suggests that the fourth message generated by the proxy messaging system of the central computer system does not include the actual phone number of the original recipient (i.e., the user/device that sent the third message to the proxy messaging system) because the unique user identifier is used to enable anonymous communication between passengers and drivers in both directions. (*See* §§IX.A.4.iii.(2), IX.A.6.i.) Thus, for the same reasons, the Olmi-Paul-Jarvinen combination discloses/suggests claim 11. (EX1002, ¶125.)

8. Claim 12

The Olmi-Paul-Jarvinen combination discloses/suggests this limitation. (EX1002, ¶126.) As discussed for limitations [1.b.i]-[1.b.iii], the sender's wireless device ("sender device") and the recipient's wireless device ("recipient device") send messages through a "proxy messaging system" operated by the central computer system. (See §§IX.A.4.iii.(1)-IX.A.4.iii.(3).) As discussed for limitation [1.pre], Paul discloses that passengers and drivers (i.e., the senders and recipients, depending on the direction of a message) communicate and transmit/receive data through a wireless communication network ("data communication network") that connects users' wireless devices to the central computer system (i.e., to the proxy messaging system that is part of the central system) ("wherein the sender device and the recipient device are connected to the proxy messaging system via a data communication network"). (§IX.A.4.i; *see also* EX1006, 3-5.)

Accordingly, for these reasons and for limitations [1.pre] and [1.b.i]-[1.b.iii], the Olmi-Paul-Jarvinen combination discloses/suggests claim 12. (EX1002, ¶127.)

9. Claim 13

The Olmi-Paul-Jarvinen combination discloses/suggests this limitation. (EX1002, ¶128.) As discussed for limitation [1.b.i], the Olmi-Paul-Jarvinen combination discloses/suggests that the messages sent between passengers and drivers (and routed through the proxy messaging system of the central computer

system), including the second message transmitted from the proxy messaging system of the central computer system to the recipient's wireless device (“wherein the second message is transmitted to the recipient device”), may be in a message format such as SMS (i.e., Short Message Service) in wireless environments (“via at least one of a short messaging service...”). (See §IX.A.4.iii.(1); *see also* EX1006, 9.)

Accordingly, for these reasons and for limitation [1.b.i], the Olmi-Paul-Jarvinen combination discloses/suggests claim 13. (EX1002, ¶129.)

10. Claim 14

i) Limitations [14.pre]-[14.b]

To the extent limiting, Olmi in view of Paul discloses/suggests the preamble of claim 14 ([14.pre]) and discloses/suggests the features of limitations [14.a]-[14.b] to perform the method claimed in claim 14, as explained below in §IX.A.10.ii. (EX1002, ¶¶130-134.)

As discussed for limitation [1.pre], the Olmi-Paul combination discloses/suggests a transportation ecosystem/rideshare communication system (“system”) that comprises a wireless network with a central computer system (“shared transport system”) through which the mobile devices of potential passengers and drivers (“entities of a shared transport system”) may communicate

and send/receive messages (“[a] system for exchanging messages between entities of a shared transport system”).¹⁴ (See §IX.A.4.i; EX1002, ¶131.)

The Olmi-Paul combination also discloses/suggests “a memory having processor-readable instructions stored therein” and “a processor configured to access the memory and execute the processor-readable instructions which, when executed by the processor, configure the processor to perform a plurality of functions comprising” the functions recited in limitations [14.b.i]-[14.b.ii.C]. (See *infra* §IX.A.10.ii; EX1002, ¶132.) Olmi’s central controlling computer system is a “data-processing system” that may “compris[e] a set of distributed...computer processors,” and that “the term controlling computer system not only refers to the data-processing hardware, but also encompasses the data-processing instructions (computer programming code) running on this hardware.” (EX1005, 13.) Paul’s invention “include[s] various steps,” where “[t]he steps may be embodied in

¹⁴ For reasons explained in this Section and above for Claim 1, the Olmi-Paul combination discloses/suggests the claimed “shared transport system” under Petitioners’ proposed construction. (EX1002, ¶131; *see supra* §IX.A.4.i.) Likewise, Olmi (including as modified herein) discloses a “shared transport system” under any reasonable construction of the term, for the same reasons explained in this ground. (EX1002, ¶131.)

machine-executable instructions” and “[t]he instructions can be used to cause a general-purpose or special-purpose processor to perform certain steps.” (EX1006, 17; EX1002, ¶132.)

A POSITA would have understood that the Olmi-Paul system includes “a memory having processor-readable instructions stored therein.” (*Id.*, ¶133.) Indeed, Olmi “data-processing instructions” include “computer instructions or code” that may be “encapsulated in hardware (such as firmware or purpose-designed integrated circuits).” (EX1005, 12.) Paul’s invention also provides for a “machine-readable medium for storing the machine-executable instructions,” where “[t]he machine-readable medium may include, but is not limited to, floppy diskettes, optical disks, CD-ROMs, and magneto-optical disks, ROMs, RAMs, EPROMs, EEPROMs, magnetic or optical cards, propagation media or other type of media/machine-readable medium suitable for storing electronic instructions.” (EX1006, 20.) Thus, the Olmi-Paul system would have had processing instructions stored in machine-readable hardware/memory. (EX1002, ¶133.)

A POSITA would have understood that the Olmi-Paul system’s processor (i.e., the processor of the central computer system) would necessarily be configured to access the memory in order to execute the instructions and perform the functionalities disclosed by Olmi and Paul, as discussed above. (EX1002, ¶134.) Such an understanding of Olmi and Paul’s disclosures would have been consistent

with a POSITA's understanding of computer-implemented systems/processes as described by Olmi and Paul. (*Id.*; see also, e.g., EX1010, FIG. 1, ¶¶[0006], [0022]-[0023] (describing server system (including a processor and memory) for maintaining data, and processing information and performing processes relating to demand/capacity in a transportation system); EX1011, 3:5-4:17, 5:12-22 16:31-17:19, FIG. 5 (similarly describing server system (including a processor and memory) for processing transportation requests from passengers and matching/assigning passengers to drivers accordingly).)¹⁵ A POSITA would have further understood that implementing the central computer system/server functionality described by Olmi and Paul necessarily entails at least one processor executing stored instructions and using memory to store program code and operational data (e.g., request records, identifiers, and routing/matching state). (EX1002, ¶134.) These “processor,” “memory,” and “instructions” elements are conventional for the disclosed server/network architectures and would have been obvious to a POSITA implementing the described systems. (*Id.*)

¹⁵ EX1010 and EX1011 describe state of the art knowledge known to a POSITA at the time.

ii) Limitations [14.b.i]¹⁶-[14.b.ii.C]

Limitations [14.b.i]-[14.b.ii.C] recite language similar to that of limitations [1.a]-[1.b.iii]. Accordingly, the Olmi-Paul combination (including as further modified above in view of Jarvinen) discloses/suggests, and renders obvious, limitations [14.b.i]-[14.b.ii.C] for the same reasons as discussed above for limitations [14.pre]-[14.b] (addressing claimed system/processor/memory) and respectively limitations [1.a]-[1.b.iii] (addressing same “functions” recited in claim 14).¹⁷ (See §§IX.A.4.ii-IX.A.4.iii, IX.A.10.i; EX1002, ¶135.) Thus, the Olmi-Paul-Jarvinen combination discloses/suggests, and renders obvious, the recited system of claim 14. (EX1002, ¶135.)

¹⁶ Limitation [14.b.i] recites a “share transportation system” for which there is no antecedent basis. For purposes of this Petition, Petitioners assume the claim language was intended to refer to the “shared transportation system” recited in the preamble of claim 14.

¹⁷ For reasons explained in this Section and above for Claim 1, the Olmi-Paul combination discloses/suggests the claimed “transport provider” and “pick-up location” under Petitioners’ and Patent Owner’s proposed constructions. (EX1002, ¶135; *see supra* §IX.A.4.ii.)

11. Claim 15

The Olmi-Paul-Jarvinen combination discloses/suggests, and renders obvious, claim 15 for the same reasons as discussed for claims 2 and 14. (*See* §§IX.A.5, IX.A.10; EX1002, ¶136.)

12. Claim 17

i) Limitations [17.a]-[17.c]

The Olmi-Paul-Jarvinen combination discloses/suggests, and renders obvious, claim 17 for the same reasons as discussed for claims 10 and 14. (*See* §§IX.A.6.i, IX.A.10; EX1002, ¶137.)

13. Claim 18

The Olmi-Paul-Jarvinen combination discloses/suggests, and renders obvious, claim 18 for the same reasons as discussed for claims 11 and 14. (*See* §§IX.A.7, IX.A.10; EX1002, ¶138.)

14. Claim 19

The Olmi-Paul-Jarvinen combination discloses/suggests, and renders obvious, claim 19 for reasons explained for limitations [1.b.i]-[1.b.ii] and claim 14 (§IX.A.10). (EX1002, ¶139.) As discussed for limitations [1.b.i]-[1.b.ii], in the Olmi-Paul-Jarvinen combination, the sender of a message may be either the driver or passenger, with the recipient being the other user, and thus the Olmi-Paul-Jarvinen combination discloses/suggests the sender may be the driver and the recipient the passenger. (*See* §§IX.A.4.iii.(1)-IX.A.4.iii.(2).) Indeed, as discussed for limitation

[1.b.i], Paul discloses that a driver may send a message to a passenger to provide updates to arrival time estimates. (See §IX.A.4.iii.(1); EX1006, 9.)

15. Claim 20

i) [20.pre]

To the extent the preamble of claim 20 is limiting, Olmi in view of Paul discloses/suggests the limitations therein. (EX1002, ¶140.)

The analysis for limitations [14.pre]-[14.b] demonstrates how the Olmi-Paul combination discloses/suggests similar features. (See §IX.A.10.i (demonstrating how the Olmi-Paul combination discloses/suggests a “processor” and “memory” with “instructions” that are executed by the processor in the Olmi-Paul system’s rideshare communication system to allow for the exchange of messages between the wireless devices of passengers/drivers).) For those same reasons discussed for limitations [14.pre]-[14.b], the Olmi-Paul combination discloses/suggests limitation [20.pre].¹⁸ (*Id.*; EX1002, ¶141.) Moreover, for the additional reasons below in §IX.A.15.ii, the Olmi-Paul-Jarvinen combination discloses/suggests, and renders

¹⁸ For reasons explained in this Section and above for Claim 1, the Olmi-Paul combination discloses/suggests the claimed “shared transport system” under Petitioners’ and Patent Owner’s proposed constructions. (EX1002, ¶141; *see supra* §IX.A.4.i.)

obvious, the “processor” configured to perform the plurality of functions as recited in claim 20. (*Id.*)

ii) Limitations [20.a]¹⁹-[20.b.iii]

Limitations [20.a]-[20.b.iii] recite language similar to that of limitations [1.a]-[1.b.iii]. Accordingly, the Olmi-Paul combination (including as further modified above by Jarvinen) discloses/suggests limitations [20.a]-[20.b.iii] for the same reasons as discussed above for limitation [20.pre] (addressing claimed system/processor/memory) and respectively limitations [1.a]-[1.b.iii] (addressing same “functions” recited in claim 20).²⁰ (See §§IX.A.4.ii-IX.A.4.iii, IX.A.15.i; EX1002, ¶142.) Thus, the Olmi-Paul-Jarvinen combination discloses/suggests, and renders obvious, the functions recited in claim 20. (EX1002, ¶142.)

¹⁹ Limitation [20.a] recites a “share transport system” for which there is no antecedent basis. For purposes of this Petition, Petitioners assume the claim language was intended to refer to the “*shared* transport system” recited in the preamble of claim 20.

²⁰ For reasons explained in this Section and above for Claim 1, the Olmi-Paul combination discloses/suggests the claimed “transport provider” and “pick-up location” under Petitioners’ and Patent Owner’s proposed constructions. (EX1002, ¶142; *see supra* §IX.A.4.ii.)

X. CONCLUSION

Accordingly, Petitioners request IPR be instituted.

Respectfully submitted,

Dated: March 12, 2026

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XI. APPENDIX A (CLAIM LISTING)

Claim 1

[1.pre] A method of exchanging messages between entities of a shared transport system, the method comprising:

[1.a] identifying, by the share transport system, a transport user and a transport provider based on:

[1.a.i] receiving, by the shared transport system, a transport request from a transport user device of a transport user, wherein the transport request includes a pick-up location; and

[1.a.ii] determining, by the shared transport system, a transport provider device of a transport provider in proximity to the pick-up location received in the transport request; and

[1.b] upon identifying, by the shared transport system, the transport user and the transport provider, and at a time before or after transport of the transport user by the transport provider:

[1.b.i] receiving, by a proxy messaging system, a first message from a sender device of a sender, wherein the sender is one of

the transport user and the transport provider, and the proxy messaging system is part of the shared transport system;

[1.b.ii] generating, by the proxy messaging system, a second message, wherein the second message comprises contents of the first message and a first unique identifier associated with the sender; and

[1.b.iii] transmitting, by the proxy messaging system, the second message to a recipient device of a recipient, wherein the recipient is the other of the transport user and the transport provider.

Claim 2

The method of claim 1, wherein the second message is without private information associated with the sender, the private information being a name and/or contact information of the sender.

Claim 10

[10.a] The method of claim 1, further comprising: receiving, by the proxy messaging system, a third message from the recipient device, the third message comprising the first unique identifier associated with the sender;

[10.b] identifying, by the proxy messaging system, the sender device based on the first unique identifier included in the third message;

[10.c] generating, by the proxy messaging system, a fourth message, wherein the fourth message comprises contents of the third message and a second unique identifier associated with the recipient.

Claim 11

The method of claim 10, wherein the fourth message is without private information associated with the recipient, the private information being a name and/or contact information of the recipient.

Claim 12

The method of claim 1, wherein the sender device and the recipient device are connected to the proxy messaging system via a data communication network.

Claim 13

The method of claim 1, wherein the second message is transmitted to the recipient device via at least one of a short messaging service, an e-mail service, a voice messaging service, and a phone call service.

Claim 14

[14.pre] A system for exchanging messages between entities of a shared transport system, the system comprising:

[14.a] a memory having processor-readable instructions stored therein; and

[14.b] a processor configured to access the memory and execute the processor-readable instructions which, when executed by the processor, configure the processor to perform a plurality of functions comprising:

[14.b.i] identifying, by the share transport system, a transport user and a transport provider based on:

[14.b.i.A] receiving, by the shared transport system, a transport request from a transport user device of a transport user, wherein the transport request includes a pick-up location; and

[14.b.i.B] determining, by the shared transport system, a transport provider device of a transport provider in

proximity to the pick-up location received in the
transport request; and

[14.b.ii] upon identifying, by the shared transport system, the
transport user and the transport provider, and at a time before or
after transport of the transport user by the transport provider:

[14.b.ii.A] receiving, by a proxy messaging system, a
first message from a sender device of a sender, wherein
the sender is one of the transport user and the transport
provider, and the proxy messaging system is part of the
shared transport system;

[14.b.ii.B] generating, by the proxy messaging system, a
second message, wherein the second message comprises
contents of the first message and a first unique identifier
associated with the sender; and

[14.b.ii.C] transmitting, by the proxy messaging system,
the second message to a recipient device of a recipient,
wherein the recipient is the other of the transport user and
the transport provider.

Claim 15

The system of claim 14, wherein the second message is without private information associated with the sender, the private information being a name and/or contact information of the sender.

Claim 17

[17.a] The system of claim 14, the plurality of functions further comprising:

receiving, by the proxy messaging system, a third message from the recipient device, the third message comprising the first unique identifier associated with the sender;

[17.b] identifying, by the proxy messaging system, the sender device based on the first unique identifier included in the third message;

[17.c] generating, by the proxy messaging system, a fourth message, wherein the fourth message comprises contents of the third message and a second unique identifier associated with the recipient.

Claim 18

The system of claim 17, wherein the fourth message is without private information associated with the recipient, the private information being a name and/or contact information of the recipient.

Claim 19

The system of claim 14, wherein the sender is the transport provider and the recipient is the transport user.

Claim 20

[20.pre] A non-transitory computer readable medium comprising processor-readable instructions which, when executed by a processor, configure the processor to perform a plurality of functions for exchanging messages between entities of a shared transport system, the plurality of functions comprising:

[20.a] identifying, by the share transport system, a transport user and a transport provider based on:

[20.a.i] receiving, by the shared transport system, a transport request from a transport user device of a transport user, wherein the transport request includes a pick-up location; and

[20.a.ii] determining, by the shared transport system, a transport provider device of a transport provider in proximity to the pick-up location received in the transport request; and

[20.b] upon identifying, by the shared transport system, the transport user and the transport provider, and at a time before or after transport of the transport user by the transport provider:

[20.b.i] receiving, by a proxy messaging system, a first message from a sender device of a sender, wherein the sender is one of the transport user and the transport provider, and the proxy messaging system is part of the shared transport system;

[20.b.ii] generating, by the proxy messaging system, a second message, wherein the second message comprises contents of the first message and a first unique identifier associated with the sender; and

[20.b.iii] transmitting, by the proxy messaging system, the second message to a recipient device of a recipient, wherein the recipient is the other of the transport user and the transport provider.

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. §42.24(d), the undersigned certifies that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,741,071 contains, as measured by the word-processing system used to prepare this paper, 13,528 words. This word count does not include the items excluded by 37 C.F.R. §42.24 as not counting towards the word limit.

Respectfully submitted,

Dated: March 12, 2026

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CERTIFICATE OF SERVICE

I hereby certify that on March 12, 2026, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 10,741,071 and supporting exhibits to be served via express mail on the Patent Owner at the following correspondence address of record as listed on Patent Center:

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