

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RIDECO INC.,
Petitioner,

v.

VIA TRANSPORTATION, INC.,
Patent Owner.

IPR2022-00286
Patent 9,816,824 B1

Before PATRICK R. SCANLON, MICHAEL L. WOODS, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

DECISION
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

Petitioner, RideCo Inc., challenges claims 1–20 of U.S. Patent No. 9,816,824 B1 (“the ’824 patent,” Ex. 1001), which is assigned to Patent Owner, Via Transportation, Inc. We have jurisdiction under 35 U.S.C. § 6, and we issue this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 (2019). For the reasons set forth below, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1–20 of the ’824 patent are unpatentable.

I. BACKGROUND

A. *Procedural History*

Petitioner filed a Petition requesting *inter partes* review of the challenged claims. Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response. Paper 7. With our authorization, Petitioner then filed a Corrected Preliminary Reply to Patent Owner’s Preliminary Response. Paper 10. Patent Owner filed a Preliminary Sur-Reply to Petitioner’s Preliminary Reply. Paper 11. Pursuant to 35 U.S.C. § 314, we instituted an *inter partes* review as to all challenged claims and all grounds raised in the Petition. Paper 12 (“Institution Decision” or “Inst. Dec.”).

After institution, Patent Owner filed a Response (Paper 17, “PO Resp.”), Petitioner filed a Reply (Paper 22, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 23, “PO Sur-reply”). An oral hearing in this proceeding was held on March 28, 2023, and a transcript of the hearing is included in the record (Paper 29, “Tr.”).

B. *Related Matters*

Petitioner filed a related petition for *inter partes* review in IPR2022-00740 for related U.S. Patent No. 10,197,411. PO Sur-reply 22, n.3. The parties indicate that Patent Owner asserts the ’824 patent against Petitioner

in *Via Transp., Inc. v. RideCo Inc.*, No. 21-cv-00457 (W.D. Tex.). Pet. 76; Paper 4, 2.

C. The '824 Patent

The '824 patent generally relates to “continuously updatable computer-generated routes with continuously configurable virtual bus stops for passenger ride-sharing of a fleet of ride-sharing vehicles.” Ex. 1001, 1:24–26. One aspect of the '824 patent’s technology involves a user request for a ride from a pickup location to a dropoff location, with the system selecting suitable “virtual bus stops” that correspond to said locations. *Id.* at 1:37–2:2. The '824 patent describes a virtual bus-stop as a location “safe for at least one passenger pickup (i.e., the location to which passenger(s) being directed to go to be picked up by a designated vehicle (e.g., bus, van, car, etc.)) and/or at least one passenger dropoff.” *Id.* at 8:58–63.

The system can also identify suitable vehicles for completing the user’s requested route using GPS data to determine the “current vehicle location data for a plurality of ride-sharing vehicles traveling within the at least one geographic locale.” Ex. 1001, 2:5–10. The system and method outlined by the '824 patent can also include additional features and steps, such as dynamically selecting and assigning a plurality of optimal virtual bus stops and routes for vehicles that will be simultaneously servicing multiple ride-sharing requesting passengers based on various parameters. *Id.* at 2:25–61. The '824 patent further discusses dynamically updating and displaying optimal routes on the screens of electronic devices associated with passengers and vehicles. *Id.* at 2:53–3:4. As the '824 patent explains, “the term ‘dynamic(ly)’ means that events and/or actions can be triggered and/or occur without any human intervention.” *Id.* at 8:25–27.

Figure 5 of the '824 patent is reproduced below.

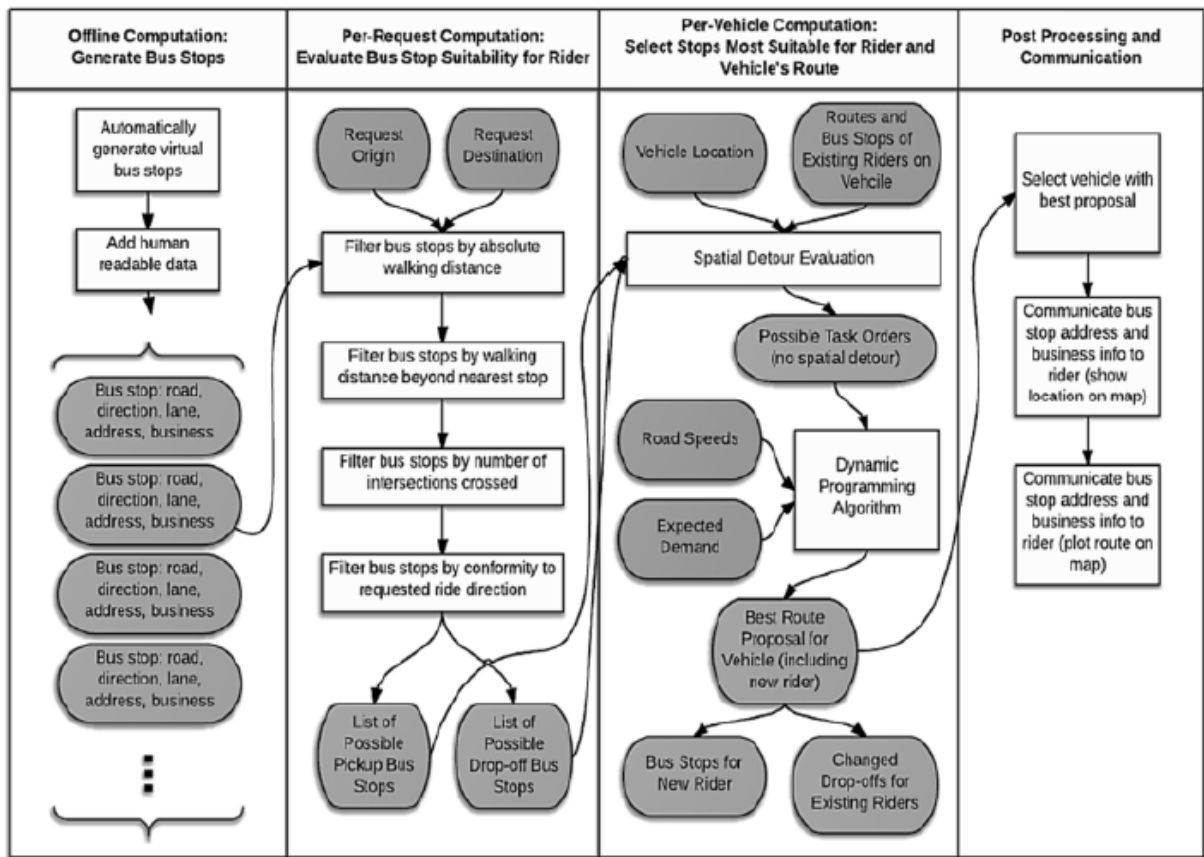


FIG. 5

Figure 5 depicts the steps the system may take in greater detail. As shown above in Figure 5 and detailed in the '824 patent, the patent teaches a multistep process by which the system dynamically selects appropriate virtual bus stops, routes, and vehicles for a plurality of rideshare-requesting passengers. For example, “the exemplary computer transportation systems of the present invention are further configured to determine which of the virtual bus-stops among the grid of virtual bus-stops are candidate[s] for boarding and/or disembarking based on at least one of” several parameters and factors. Ex. 1001, 9:13–17. The '824 patent additionally explains that the system can be “further configured to choose a single boarding virtual bus-stop and/or single disembarking virtual bus-stop . . . , where the chosen

boarding virtual bus-stop and/or disembarking bus-stop are based on at least one of” several parameters and factors. *Id.* at 9:37–45.

D. Challenged Claims

Petitioner challenges claims 1–20 of the ’824 patent. Claims 1 and 2 are independent and similar to each other in language and scope, with claim 1 directed to a system and claim 2 directed to a method. Ex. 1001, 30:45–32:11. Claims 3–14 depend directly from claim 2, and claims 15–20 depend directly from claim 1. *Id.* at 32:12–34:17. Claim 1, which is directed to the ’824 patent’s disclosed system, is illustrative and reproduced below:

1. A computer-implemented transportation system, comprising:

a non-transient memory, electronically storing particular computer executable program code; and

at least one computer processor which, when executing the particular program code, is configured to perform at least the following operations:

receiving a ride-sharing request from a first electronic computing device operated by a user, wherein the ride-sharing request includes origin location data identifying a user-identified origin point and destination location data identifying a user-requested destination point;

receiving current vehicle location data for a plurality of ride-sharing vehicles traveling within a geographic locale, wherein the current vehicle location data includes global positioning system (GPS) data generated by at least one GPS component of at least one second electronic computing device associated with each ride-sharing vehicle;

accessing a memory that stores locations of a plurality of virtual bus stops associated with the geographic locale, wherein each virtual bus stop corresponds to a geographic location point

- within the geographic locale at which a user can be picked up or drop-off by a ride-sharing vehicle;
- accessing current ride-sharing data representative of current routes of the plurality of ride-sharing vehicles and current virtual bus stops associated with a plurality of passengers who are currently riding in the plurality of ride-sharing vehicles;
- determining from among the plurality of ride-sharing vehicles a particular vehicle which can pick up the user, wherein at a time of determining, the particular ride-sharing vehicle is carrying other passengers along an existing route schedule and wherein the determining the particular vehicle is based on at least a portion of the current ride-sharing data including the current virtual bus stops, the current vehicle location data, the origin location data, and the destination location data;
- assigning the particular vehicle and a pair of associated virtual bus stops for picking up and dropping off the user requesting a ride, the virtual bus stop for picking up the user being at least a block away from the point of origin of the user;
- updating the existing route schedule of the particular vehicle by inserting the pair of the assigned virtual pick-up bus stop and virtual drop off bus stop into the existing route schedule; and
- causing to electronically display on a screen of the at least one second electronic computing device associated with the vehicle an updated route including the pair of virtual bus stops assigned to the user.

Ex. 1001, 30:45–31:31.

E. Asserted Ground of Unpatentability

Petitioner asserts that claims 1–20 are unpatentable based on the following grounds (Pet. 6–7):

Claims Challenged	35 U.S.C. §	References
1–3, 6, 7, 12, 13, 16, 19, 20	103	Lambert, ¹ Poykko, ² McCall ³
4, 5, 8, 17, 18	103	Lambert, Poykko, McCall, Lerenc ⁴
9–11, 14, 15	103	Lambert, Poykko, McCall, Sweeney ⁵

Petitioner relies on the Declaration of Mr. Scott Andrews to support its contentions. *See* Ex. 1003. Patent Owner relies on the Declaration of Dr. Alexandre Jacquillat, Ph.D. *See* Ex. 2022.

II. ANALYSIS

A. Legal Standards

To prevail in its challenges, Petitioner must prove unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e) (2012); 37 C.F.R. § 42.1(d) (2018). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (discussing the burdens of proof in an *inter partes* review).

¹ US 9,679,489 B2, issued June 13, 2017 (Ex. 1004, “Lambert”).

² US 2008/0270204 A1, published Oct. 30, 2008 (Ex. 1005, “Poykko”).

³ US 2013/0096827 A1, published Apr. 18, 2013 (Ex. 1006, “McCall”).

⁴ US 2014/0324505 A1, published Oct. 30, 2014 (Ex. 1007, “Lerenc”).

⁵ US 2015/0161554 A1, published June 11, 2015 (Ex. 1008, “Sweeney”).

Petitioner relies on obviousness for all its challenges. Pet. 6–7. A claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) where in evidence, so-called secondary considerations, also known as objective indicia of non-obviousness.⁶ *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

1. The Parties’ Contentions

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). “The person of ordinary skill in the art is a hypothetical person who is presumed to know the relevant prior art” at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.*

⁶ The parties do not introduce any evidence pertaining to objective indicia of nonobviousness.

Petitioner contends that a person of ordinary skill in the art (“PHOSITA”) at the time of the invention “would have been a person having (i) a Bachelor’s degree in computer science, computer engineering, electrical engineering, or a similar technical field[;] (ii) a working knowledge of computer programming and navigation systems; and (iii) two to four years of experience with location-based systems, user interfaces and databases.” Pet. 5–6 (citing Ex. 1003 ¶ 37).

Patent Owner contends that a person of ordinary skill in the art at the time of the invention would have “at least a bachelor’s degree in computer science, operations research, industrial engineering, applied mathematics, or a related field with at least two years of experience with optimization modeling, large scale optimization algorithms, or artificial intelligence solutions in the context of ride-sharing systems.” PO Resp. 30. Patent Owner further contends that “[a] person with an advanced degree [in the above fields] (a master’s or Ph.D.) . . . would also have been an ordinary artisan in the field of the ’824 patent even if that person lacked two years of specific experience with ride-sharing systems.” *Id.*

Patent Owner argues that we should reject Petitioner’s proposed definition because “it focuses on navigation technology rather than ride-sharing technology.” PO Resp. 31 (citing Ex. 2022 ¶¶ 52–56). According to Patent Owner, “on-demand ride-sharing systems include multiple components, including but not limited to navigation technology (‘location based systems’), databases, and user interfaces.” *Id.* (citing Ex. 2022 ¶¶ 31, 52; PO Resp. 14–15). Patent Owner claims that, unlike previous ride sharing apps, the ’824 patent “is directed to the backend artificial intelligence (decision-making) components that a ride sharing system uses to

match riders with drivers” including “improving the artificial intelligence components to select pickup and dropoff locations on behalf of riders.” *Id.* at 31–32 (citing Ex. 2022 ¶¶ 20–23, 43, 52). Patent Owner and its declarant Dr. Jacquillat reason that a person familiar with navigation technology broadly would not have the relevant experience with backend artificial intelligence systems they claim are at issue in the ’824 patent. *Id.*

Petitioner disagrees, and notes that Patent Owner’s definition limits the invention “to large-scale implementations of ridesharing systems facilitating ‘a fleet of thousands of vehicles providing hundreds of thousands (perhaps millions) of rides on a daily basis.’” Pet. Reply 10–11 (citing Ex. 2022 ¶ 48). Petitioner contends that this would limit the invention beyond what the patent intends. *Id.* Petitioner notes “the ’824 Patent describes the field as ‘continuously updatable computer-generated routes with continuously configurable virtual bus stops for passenger ride-sharing of a fleet of ride-sharing vehicles and computer transportation systems and computer-implemented methods for use thereof.’” *Id.* at 11 (citing Ex. 1001, 1:23–28). Petitioner further notes that the patent broadly claims “[a] computer-implemented transportation system,” and not specifically an artificial intelligence system as Patent Owner contends. *Id.* (quoting Ex. 1001, 30:45–46). According to Petitioner, the ’824 patent makes a single reference to the alleged artificial intelligence in referencing “dynamic programming algorithms.” *Id.*

2. Discussion

We have considered the parties’ arguments and evidence of record, and we adopt Petitioner’s asserted level of ordinary skill because it is consistent with the problems identified and solutions provided in the ’824

patent and the prior art. In particular, we agree with Petitioner that the relevant field of art is not limited to backend artificial intelligence components in a ride-sharing system as Patent Owner contends. *See* Pet. Reply 10–11; *see also* PO Resp. 31–32. We disagree with Patent Owner’s assertions that the ’824 patent is directed towards a complex artificial intelligence system far beyond the scope of traditional navigation systems. *See* PO Resp. 31–32. Neither Patent Owner nor its expert, Dr. Jacquillat, cites to the patent in determining the relevant skill in the art to explain why the art of the ’824 patent is limited to artificial intelligence components. *See id.*; Ex. 2022 ¶¶ 41–51. As Patent Owner acknowledges, the ’824 patent makes no reference to “artificial intelligence” directly, and Patent Owner instead relies upon declarant testimony to argue that the patent is directed towards an advancement in artificial intelligence. PO Sur-reply 11. Patent Owner claims, without support, that “programming a computer to make decisions in the place of humans is a form of artificial intelligence.” *Id.* Regardless, we need not determine the precise definition of artificial intelligence to determine the relevant skill in the art pertaining to a patent that never uses the term. We agree with Petitioner that an artisan with an understanding of computer programming and navigation systems as well as two to four years of experience in location-based systems would understand the “computer-implemented transportation system” of the ’824 patent.

In summary, we find that the relevant level of ordinary skill in the art “would have been a person having (i) a Bachelor’s degree in computer science, computer engineering, electrical engineering, or a similar technical field[;] (ii) a working knowledge of computer programming and navigation

systems; and (iii) two to four years of experience with location-based systems, user interfaces and databases.” Pet. 5–6 (citing Ex. 1003 ¶ 37).

3. Petitioner’s Declarant

Patent Owner contends that Petitioner’s declarant, Mr. Andrews, is not qualified as a person of ordinary skill in the art under its proposed definition of a person of ordinary skill in the art. PO Resp. 37–40. According to Patent Owner, “Mr. Andrews has ample testifying experience and he may be qualified as an expert in many different areas, but he is not qualified to offer expert opinions on the backend artificial intelligence operations of ridesharing systems.” *Id.* at 38 (citing Ex. 1009). Patent Owner contends that Mr. Andrews has no experience working with artificial intelligence operations of ridesharing systems, and notes that Mr. Andrews is neither familiar with the qualifications for, nor worked with anyone in the field of ridesharing systems. *Id.* at 38–39 (citing Ex. 2023, 44:23–45:10). Furthermore, Patent Owner contends that Mr. Andrews believes that anyone who has studied “Fundamental Algorithms” would “be able to design the types of algorithms used in ride-sharing systems,” and argues that this oversimplifies the art and is indicative of “Mr. Andrew’s lack of expertise in the pertinent art.” *Id.* at 39 (citing Ex. 2022 ¶¶ 54–55).

For its part, Petitioner argues that “[Mr. Andrews] is qualified in the pertinent art regardless of the definition.” Pet. Reply 11–12. Petitioner notes that Patent Owner’s expert, Dr. Jacquillat, stated that dynamic programming algorithms are covered in textbooks including “Fundamental Algorithms.” *Id.* at 12 (citing Ex. 2022 ¶ 55). Petitioner further notes that, in his deposition, Mr. Andrews testified he studied “Fundamental Algorithms,” and Petitioner therefore reasons that Mr. Andrews is qualified

as a PHOSITA under Patent Owner’s definition. *Id.* (citing Ex. 2023, 35:10–23; Ex. 1003 ¶ 38). Petitioner further argues that Mr. Andrews does not need to have specific background experience in ridesharing systems as long as he has related qualifying experience. *See id.* at 12–13. Petitioner notes that Mr. Andrew has significant related experience including, for example, “work[ing] in database dispatch systems for fleet management . . . where you’re trying to match up a truck driver with a load.” *Id.* at 13 (quoting Ex. 2023, 44:15–19).

Having addressed the relevant skill in the art, we address Patent Owner’s contention that Mr. Andrews “is not qualified to offer opinions concerning the artificial intelligence components of a ride-sharing system that are at issue in the ’824 patent.” PO Resp. 37. As discussed previously, we disagree with Patent Owner’s proposed qualifications for a person of ordinary skill in the art, and have adopted Petitioner’s position. Patent Owner does not offer an opinion as to whether Mr. Andrews would be qualified as a person of ordinary skill in the art under Petitioner’s definition. The record reflects that Mr. Andrews possessed an advanced degree in electronic engineering, had a working knowledge of computer programming and navigation systems, and had more than two years of experience with location-based systems, user interfaces, and databases at the time of the ’824 patent. *See, e.g.*, Ex. 1003 ¶¶ 4–19; Ex. 1009. Therefore, we find that Mr. Andrews is qualified to offer opinions as a person of ordinary skill in the art for the ’824 patent under the relevant definition.

Additionally, we find that Mr. Andrews’s background would qualify him as a person of ordinary skill in the art even if we adopted Patent Owner’s proposed level of ordinary skill in the art. Under Patent Owner’s

proposal, a person of ordinary skill in the art would have a “degree in computer science, operations research, industrial engineering, applied mathematics, *or a related field* with at least two years of experience with optimization modeling, large scale optimization algorithms, or artificial intelligence solutions in the context of ride-sharing systems.” PO Resp. 30 (emphasis added). The record demonstrates that Mr. Andrews meets these qualifications. Mr. Andrews possesses a Bachelor of Science degree in Electrical Engineering and a Master of Science degree in Electronic Engineering, which we find to be in a “related field.” Ex. 1003 ¶ 6. Additionally, Mr. Andrews has significantly more than two years of experience in the fields Patent Owner suggests are relevant as evidenced by, for example, Mr. Andrews testimony that he has experience in “location-based systems,” and “work[ing] in database dispatch systems for fleet management.” Ex. 2023, 44:2–9; 44:15–19. Furthermore, given Mr. Andrews’s advanced degree, Patent Owner’s definition would allow Mr. Andrews to have less than two years of experience in the pertinent fields. PO Resp. 30; Ex. 1003 ¶ 6.

C. Claim Construction

We interpret a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b) (2020). Under this standard, we construe the claim “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

Petitioner contends that it generally applies “the ordinary and customary meaning of the claim terms” and argues for a particular

construction of a limitation in dependent claim 8. Pet. 7–8. Patent Owner disagrees with Petitioner’s proposed construction for claim 8 but contends that construing it is unnecessary to resolve any controversy in this case. PO Resp. 36. Patent Owner agrees that “virtual bus stops” should be given its plain and ordinary meaning, and notes that the district court in the parallel proceeding has also adopted the plain and ordinary meaning for “virtual bus stops.” *Id.* at 33.

In our Institution Decision, we adopted the plain and ordinary meaning for “virtual bus stops,” and invited the Patent Owner to “specify the ordinary meaning of [virtual bus stops] and how Lambert’s dynamically selected locations fail to disclose those locations.” Inst. Dec. 22. According to Patent Owner, the parties agree that the plain and ordinary meaning of “virtual bus stops” is “pickup and dropoff locations **selected by the ride-sharing system itself** (i.e., not a rider or driver).” PO Resp. 33–34 (citing Ex. 1003 ¶¶ 34, 176; Ex. 2004, 5; Ex. 2023, 63:18–64:16). Additionally, Patent Owner points to the claims of the ’824 patent as offering support for its proposed definition. Specifically, Patent Owner argues that both independent claims 1 and 2 are “directed to a ‘**computer-implemented**’ transportation system/method where the ride-sharing system itself performs the step of assigning . . . a pair of virtual bus stops for picking up and dropping off the user requesting a ride.” *Id.* at 35 (citing Ex. 1001). Patent Owner also cites the specification for support, noting, for example, that the ’824 patent states that “‘virtual bus stop’ is a location selected by the exemplary computer transportation system(s) of the present invention.” *Id.* at 35–36 (citing Ex. 1001, 8:55–57, 9:13–36) (emphasis omitted).

For its part, Petitioner states that it “does not dispute PO’s assertion that the virtual bus stops must be selected by the ride-sharing system.” Pet. Reply 4. Petitioner does not propose any other claim constructions in its Reply, but argues that Patent Owner and Dr. Jacquillat improperly read “artificial intelligence” and other limitations into the claims in their analysis. *See id.* at 4–10.

Under these circumstances, where the parties now agree that the ordinary meaning should apply to “virtual bus stops” and the district court adopted the same approach, we see no reason to depart from applying the ordinary meaning in this proceeding. We therefore apply the plain and ordinary meaning proposed by the parties, where “virtual bus stops” means “pickup and dropoff locations selected by the ride-sharing system itself.”

As to the construction of dependent claim 8, we agree with Patent Owner that we need not formally construe the term to resolve the issues before us. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (stating that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))). As to Petitioner’s remaining arguments, we do not read artificial intelligence or other limitations into the claims as Petitioner warns against, and Petitioner does not argue for any specific construction in relation to these arguments that would require us to resolve a specific claim construction dispute. *See* Pet. Reply 4–10.

D. Summary of Cited Prior Art

1. Summary of Lambert

Lambert generally discloses a “ride sharing system [that] connects drivers who wish to share their vehicles with riders looking for a ride,” and “[m]atching an individual rider with an individual driver [to get] the rider to his destination quickly.” Ex. 1004, 1:13–16. Lambert explains that the “invention can be implemented in numerous ways, including as a process; an apparatus; a system; . . . [or] a computer program product embodied on a computer readable storage medium.” *Id.* at 1:61–64. Lambert describes a system for determining a dispatch that “comprises an input interface for receiving a request for a first pickup including a first pickup location and a first destination, a driver selection system for determining a driver to dispatch to the first pickup location, and an output interface for providing a first pickup indication to the driver to go to the first pickup location.” *Id.* at 2:28–34. Lambert also discloses “ride chaining,” which Lambert describes as including the steps for a first request and “further for receiving a request for a second pickup including a second pickup location and a second destination.” *Id.* at 2:39–41.

Lambert describes its system for coordinating ride sharing. At a basic level, “[a] rider uses the rider system to request a ride, the driver dispatch server system assigns the ride to a driver, the ride request is delivered to the driver using the driver system, and the driver drives to meet the rider and gives them the ride.” Ex. 1004, 2:49–53. Lambert’s Figure 8A is reproduced below.

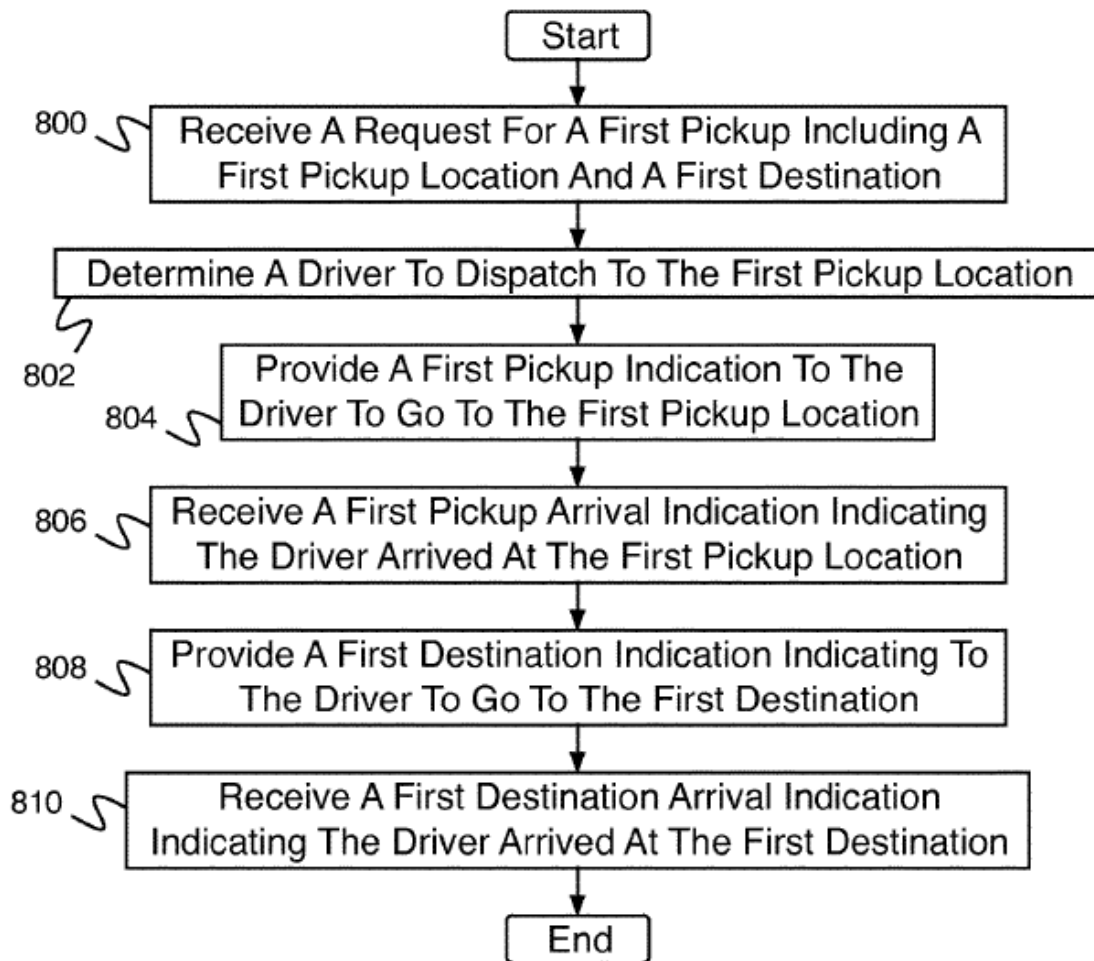


Fig. 8A

Figure 8A “is a flow diagram illustrating an embodiment of a process for a dispatch,” and explains the steps by which the system assigns drivers to particular requests from riders. *Id.* at 1:41–42. The process includes receiving a request for a first pickup from at a first pickup location, providing that location to a driver, and providing a first destination location to the driver. *Id.* at Fig. 8A.

For some embodiments, Lambert discusses having two riders sharing rides for the purpose of efficiency due to similarities in routes and request times, in which case the “request for a new ride is received by the driver dispatch server system that can be shared with the already assigned route,

the driver dispatch server system modifies the route to include the new ride, and provides the new modified route to the driver.” Ex. 1004, 2:53–3:1.

Lambert also discloses that, in some embodiments,

trip efficiency is increased by dynamically selecting pickup and dropoff locations (e.g., dropping off the first passenger a block away from their destination in order to avoid the driver looping around the block or making a left turn onto a busy street; selecting a pickup point at a major intersection between both riders and instructing them to walk there, etc.).

Id. at 4:17–23.

2. Summary of Poykko

Poykko generally relates to a system by which passengers can request rides between locations. Ex. 1005, code (57), ¶¶ 1, 5. Poykko teaches a method by which a rider can request a ride between pickup and dropoff locations by sending a Short Messaging System (“SMS”) or other forms of messages to a transport server. *Id.* ¶¶ 5, 43–46. Poykko discloses a system that can include a “database 110 for storing information about passengers, vehicles, routes and usage of the demand responsive transport system.” *Id.* at ¶ 40. Poykko further teaches that the user can add additional pre-stored locations with the transport server that correspond to fixed locations, such as “HOME.” *Id.* ¶¶ 41–42. According to Poykko’s disclosed method, when a rider sends a transportation request, a transport server can determine a suitable vehicle for accomplishing the rider’s requested route based on current vehicle location information and the points along currently active routes. *Id.* ¶ 52. Upon matching a vehicle with a rider, the system will automatically update the vehicle’s route itinerary and notify the rider and vehicle. *Id.*

A rider can request transportation to a dropoff location without indicating a pickup location in the message, in which case Poykko's system would then automatically request the current location data from the rider's mobile device. Ex. 1005 ¶¶ 48–49. Poykko's transport server would then “consult a database of possible stopping points to find the point nearest to the passenger's indicated location where a transport vehicle could stop, and announce it as the selected pick-up point to both the transport vehicle and the passenger.” *Id.* ¶ 48. Alternatively, the “database of stopping points may include stopping points that have already been defined as points where a transport vehicle will stop anyway in the next few moments,” or “the points are defined as common locations for an organization, office names etc.” *Id.*

3. *Summary of McCall*

McCall generally relates to a system for processing and communicating ride sharing requests and routes. *See* Ex. 1006, code (57), ¶ 1. At a general level, McCall discloses a method by which a system can match vehicle operators with riders requesting rides, which “includes determining a route for an operator of the vehicle and accessing user preferences of the operator, the user preferences including characteristics of a ride share event and prospective ride share individuals.” *Id.* ¶ 7. If a vehicle operator accepts a request, McCall explains that the “method includes transmitting a communication to the selected qualified candidate accepting the request.” *Id.*

McCall discusses that the vehicle operators can utilize communication devices for interacting with the system that include the vehicle's onboard system or other wireless communication devices such as a smart phone. Ex.

1006 ¶ 23. McCall describes the operator’s communication device including “output components of the I/O components [that] may include a display screen or monitor, or may be an audio system that presents audio messages or alerts to occupants of the vehicle.” *Id.* ¶ 21. In certain embodiments, McCall describes how route information can be communicated to the operator’s device and displayed on the navigation screen. *See id.* ¶ 39 (“In an embodiment, the logic 110 may be configured to update the driver’s route on the navigation screen to reflect the detour needed in order to accommodate the selected candidate.”).

E. Obviousness Challenges

Petitioner contends that claims 1–20 would have been obvious over Lambert, Poykko, and McCall, and further in view of either Lerenc or Sweeney. Pet. 8–70. Claims 1 and 2 are independent and the rest of the challenged claims depend from either claim 1 or claim 2. Ex. 1001, 30:45–34:16. The parties treat independent claims 1 and 2 as containing essentially the same limitations, and we will also treat the claims together for purposes of our analysis. *See* Pet. 44–46 (addressing claim 2 by incorporating by reference relevant discussion from analysis of claim 1); PO Resp. 40–42 (grouping the same limitations in claims 1 and 2 together), 42–59 (arguing relevant claim limitations together without distinguishing between claims 1 and 2); Tr. 6:5–12 (Petitioner’s counsel acknowledging the lack of substantive differences between claims 1 and 2); Tr. 35:5–10 (Patent Owner’s counsel acknowledging that claims 1 and 2 rise and fall together). We will refer to the language of claim 1 for ease of reference. We focus our analysis on Petitioner’s challenge to independent claim 1 because if Petitioner fails to establish that claim 1 (and therefore claim 2) would have been obvious over Lambert, Poykko, and McCall, Petitioner’s obviousness

challenges to the dependent claims fall with its challenges to claims 1 and 2. *See* PO Resp. 47. The parties focus their arguments on the “virtual bus stop” and “a pair of virtual bus stops” limitations, and we will do the same in our analysis.

Having considered the parties’ positions and evidence of record, we determine that Petitioner has not demonstrated by a preponderance of evidence that claims 1–20 would have been obvious over Lambert, Poykko, and McCall. Our analysis follows.

1. Virtual Bus Stops

a. The Parties’ Contentions

According to Petitioner, Lambert discloses or renders obvious “virtual bus stops.” Pet. 25, 30, 35, 39–40, 42. The “virtual bus stops” limitation first appears in claim 1 within the limitation “accessing a memory that stores locations of a plurality of virtual bus stops.” In this context, Petitioner contends that Lambert discloses dynamic pickups and drop-offs that include, for example, “dropping off the first passenger a block away from their destination in order to avoid the driver looping around the block or making a left turn onto a busy street” and “selecting a pickup point at a major intersection between both riders and instructing them to walk there.” Pet. 25 (citing Ex. 1004, 4:17–23) (referring to “Lambert’s dynamically selected pickup/dropoff locations (i.e., a plurality of virtual bus stops”)).⁷ According

⁷ Petitioner does not cite to any declarant support for its “virtual bus stops” argument, but does cite to its declarant in the context of later limitations in claim 1 that involve the “virtual bus stops.” *See* Pet. 25, 35. For example, Petitioner relies on its declarant’s statement that “Lambert discloses that the pickup/dropoff locations may be dynamically selected pickup/drop-off locations, which qualify as virtual bus stops,” which largely mirrors the

to Petitioner, Because Lambert discloses or renders obvious a system associated with a geographic locale, according to Petitioner, “each of Lambert’s dynamically selected pickup/dropoff locations qualifies as a virtual bus stop [that] corresponds to a geographic location point within the geographic locale at which a user can be picked up or drop[ed]-off by a ride-sharing vehicle.” *Id.* (emphasis omitted).

Petitioner next argues that although “Lambert does not specify whether the dynamically selected pickup/dropoff locations (i.e., a plurality of virtual bus stops) are stored in a memory accessed by the server,” it would have been obvious to do so because Poykko teaches such a system. Pet. 25–26. Petitioner contends that Poykko “teaches a shared transportation system including a transport server accessing ‘a database of possible stopping points to find the point nearest to the passenger’s indicated location where a transport vehicle could stop.’” *Id.* at 26 (quoting Ex. 1005 ¶ 48). Petitioner also relies on Poykko’s explanation that its database of stopping points may include “stopping points that have already been defined as points where a transport vehicle will stop anyway,” “stopping points may be a list of all those points where convenient stopping of a transport vehicle is possible in any case,” or “the points are defined as common locations for an organization, office names etc.” *Id.* According to Petitioner, “[b]ased on the teachings of Poykko, it would have been obvious to a PHOSITA to similarly configure Lambert’s server to access memory including a database of stopping points associated with the rideshare system’s coverage area when dynamically selecting pickup and dropoff locations.” *Id.* (citing Ex. 1003

language in the Petition. Ex. 1003 ¶ 183; *see also* Pet. 25, 35 (citing Ex. 1003 ¶ 183).

¶ 168). Petitioner then provides a number of reasons why one of ordinary skill in the art would have been motivated to pre-store the locations in Lambert’s database as taught by Poykko, with an expectation of success. *Id.* at 26–28 (citing Ex. 1003 ¶¶ 168–172; Ex. 1004, 4:17–23).

Patent Owner contends that Lambert does not teach “virtual bus stops” and claims that “Petitioner argues that Lambert teaches ‘virtual bus stops’ because Lambert mentions ‘dynamically selecting’ pickup and dropoff locations in **one sentence**.” PO Resp. 42 (citing Ex. 1004, 4:17–23). According to Patent Owner, “Petitioner summarily asserts that the ‘dynamically selected’ locations are ‘virtual bus stops’ because they are associated with a geographic locale.” *Id.* Patent Owner claims that Petitioner does not provide further support, and has no additional citations or explanation from Lambert as to how these dynamically located locations are virtual bus stops. *Id.* at 42–43. Additionally, Patent Owner contends that Petitioner does not argue that any of the other prior art relied upon in the Petition disclose “virtual bus stops.” *Id.*

According to Patent Owner, Petitioner’s argument is premised on a misunderstanding of Lambert’s disclosure of “dynamically selecting a pickup or dropoff location.” PO Resp. 43–44. Patent Owner contends this disclosure refers to “the conventional practice in 2015 of allowing **riders and drivers** to make dynamic changes to pickup and dropoff locations.” *Id.* (citing Ex. 2022 ¶¶ 91–92). Patent Owner cites to a variety of contemporaneous references that describe “a routine feature of ride-sharing systems in 2015 [that] allowed riders to adjust pickup locations using the ridesharing locations” and “communicate concerning such dynamic changes.” *Id.* (citing Ex. 2033 ¶ 112; Ex. 2034, 5:46–49; Ex. 2022 ¶ 91).

Accordingly, Patent Owner contends that Lambert’s reference to “dynamically selecting” is actually describing the “conventional practice of allowing drivers and riders to make dynamic changes to those locations,” such as a driver asking a rider to meet them at a specific location to avoid driving around the block. *Id.* at 44–45 (citing Ex. 2023, 173:13–174:8 (quoting Mr. Andrews’s deposition testimony describing where “the driver might instruct the system that he’s going to be near that intersection, and if he has multiple riders, they might want to join him there”))).

Patent Owner contends that Lambert’s sentence describing pickup and dropoff locations that Petitioner relies on is “part of a broader explanation of how such changes are **communicated to the ride sharing system** so it can update information on its ‘pool of riders’ and ‘pool of drivers.’” PO Resp. 45 (citing Ex. 2022 ¶ 93). Patent Owner notes that in the paragraph following the discussion of “dynamically selecting,” Lambert states that the system “‘**receive[s]**’ an indication of ‘a pickup location change, a dropoff location change’ from the riders and drivers” such as when “**a driver** indicates a dropoff location change, a pickup location change.” *Id.* (citing Ex. 1004, 4:24–45). Therefore, Patent Owner contends, these teachings describe “the conventional practice of allowing **riders and drivers** to dynamically select a pickup or dropoff location once the rider is matched with a vehicle.” *Id.* (citing Ex. 2022 ¶ 93). Additionally, Patent Owner presents several reasons why a PHOSITA would understand that the single sentence disclosure in Lambert could not possibly teach a “ride-sharing system that is capable of selecting [pickup and dropoff] locations on behalf of riders.” *Id.* at 46 (citing Ex. 2022 ¶¶ 87–93).

In its Reply, Petitioner argues that it does not merely rely on the key sentence from Lambert as to dynamic pickup and dropoff locations. *See* Pet. Reply 16–17. For example, Petitioner states that because *Lambert* does not specify whether the pickup/dropoff locations are stored in a memory accessed by the server, it relies on Poykko’s teachings as part of its argument that it would have been obvious to configure Lambert’s server to access a memory storing locations. *Id.* Petitioner further argues that the Petition, when addressing later limitations referring to virtual bus stops, “explains why it would have been obvious to configure Lambert’s server to perform the dynamic selection of the virtual bus stops.” *Id.* at 17. As to the sentence in Lambert mentioning pickup and dropoff locations, Petitioner argues that “Lambert’s example of ‘selecting a pickup point at a major intersection between both riders and instructing them to walk there’ shows the system is selecting the point since only the system would be capable of recognizing that two riders are nearby and then instruct them each to walk to the pickup point.” *Id.* at 18 n.3 (citing Ex. 2023, 86:9–92:5).

Petitioner further contends that the argument it presented in the Petition is “configuring Lambert’s server (i.e., the ridesharing system) to select the pickup/dropoff locations (i.e., the virtual bus stops) from a database of stopping points, as taught by Poykko.” Pet. Reply 18–19 (citing Pet. 25–28). Petitioner claims that in the Petition it presented a combination of Lambert and Poykko wherein a PHOSITA would configure “Lambert’s server to select the dynamically selected pickup/dropoff points from a database of possible stopping points as taught by Poykko.” *Id.* at 19. Petitioner contends that its combination would modify Lambert so that the

dynamic selection of the pickup/dropoff locations would be done by the server and not be a “realtime, *ad hoc*, adjustment.” *Id.* at 20.

In its Sur-reply, Patent Owner argues that Petitioner’s entire argument that Lambert discloses “virtual bus stops” is that “*Lambert’s* dynamically selected pickup/dropoff locations qualifies as a virtual bus stop.” PO Sur-reply 18–19 (citing Pet. 30, 35, 39, 42, 46–50, 56–57). Patent Owner contends that the disclosure from Lambert that Petitioner relies on for this assertion is based on a misunderstanding of Lambert. *Id.* at 19. Specifically, Patent Owner contends that Lambert’s “dynamically selecting” language does not refer to an action by the server, but rather “refers to the ability of **riders and drivers** to make on-the-fly changes to pickup and dropoff locations and to provide updates to the system concerning those changes.” *Id.* (citing Ex. 1004, 4:24–45). According to Patent Owner, this disclosure in Lambert refers to the ability of the system to “accommodate such dynamic changes when dispatching drivers to service ridesharing requests.” *Id.* (citing Ex. 2022 ¶ 93). As to Petitioner’s argument that only Lambert’s system could instruct riders to meet at an intersection, Patent Owner responds that drivers in Lambert’s system could communicate a different pickup location directly to riders or through the ridesharing application. *Id.* at 21 n.2 (citing Ex. 2022 ¶ 94).

Patent Owner contends that Petitioner’s argument that “it would have been obvious to ‘configure’ Lambert’s server to select pickup and dropoff locations ‘based on the teachings of Poykko’” is a new argument not presented in the Petition. PO Sur-reply 20–21 (citing Pet. 25, 30, 35, 39, 42, 46–50, 56–57; Pet. Reply 16–17). According to Patent Owner, Petitioner never cited Poykko as teaching virtual bus stops, instead relying on Poykko

as teaching a different limitation, “accessing a memory” that stores virtual bus stops. *Id.* at 21. Furthermore, Patent Owner contends that Petitioner’s expert, Mr. Andrews, advanced the same positions as Petitioner, while also expressly confirming that “he relied on Lambert, **not Poykko**, for the virtual bus stop limitation.” *Id.* at 22 (citing Ex. 2023, 218:9–19).

Additionally, Patent Owner argues that Petitioner’s reliance on Poykko does not teach a ridesharing system that selects pickup and dropoff locations on behalf of its user. PO Sur-reply 23. According to Patent Owner, Poykko teaches that for pickup and dropoff locations, the user specifies their locations, noting that “[i]n all cases, riders manually enter their dropoff locations,” and for pickups, “riders may manually enter their pickup locations or, alternatively, simply share their current GPS location.” *Id.* (citing Ex. 1005 ¶¶ 48, 53). Patent Owner contends that correlating GPS to a street address is not the same as the teachings of the ’824 patent, including, for example, because the challenged claims require a pair of pickup and dropoff locations, and selecting a pickup location that is at least a block away from the rider’s origin location. *Id.* at 23–24.

b. Discussion

We have considered Petitioner’s arguments and evidence of record, and find that Petitioner has failed to establish that Lambert or Lambert in view of Poykko teach or suggest the “virtual bus stops” limitation. We first address our interpretation of Petitioner’s argument as to “virtual bus stops” as set forth in the Petition. *See* Pet. 25. When the Petition first addresses the “virtual bus stops” limitation, it only refers to the sentence in Lambert’s column 4 referring to dynamic selection of pickup and dropoff locations, which we reproduce again below. *See id.* (citing Ex. 1004, 4:17–23).

In some embodiments, trip efficiency is increased by dynamically selecting pickup and dropoff locations (e.g., dropping off the first passenger a block away from their destination in order to avoid the driver looping around the block or making a left turn onto a busy street; selecting a pickup point at a major intersection between both riders and instructing them to walk there, etc.).

Ex. 1004, 4:17–23. The Petition does not cite to any declarant support, additional prior art, other embodiments in Lambert, or any obviousness analysis when addressing “virtual bus stops.” *See* Pet. 25. Although for later aspects of claim 1 the Petition relies on Poykko and an obviousness analysis when arguing that it would have been obvious to configure Lambert’s server to operate in a certain way (e.g., to access memory that includes a database of locations as taught by Poykko), the Petition does not rely on such an analysis when first addressing “virtual bus stops” alone. *See id.* The combination of Lambert’s statement above with Poykko and other aspects of Lambert, potentially with allegedly obvious modifications of Lambert, may serve as the basis of Petitioner’s arguments for these later limitations involving “virtual bus stops,” but these later allegations do not reach back and redefine Petitioner’s more limited argument with respect to “virtual bus stops” in isolation.⁸ To the extent Petitioner argues in its Reply that a combination of Lambert and Poykko or other obviousness arguments

⁸ In our Institution Decision, we noted that Patent Owner, at that stage of the proceeding, failed to properly address Petitioner’s proposed combination of Lambert and Poykko for various “virtual bus stop” limitations. Inst. Dec. 22–23. That said, we do not view the Petition’s arguments and evidence as to “virtual bus stops” limitation in isolation, prior to addressing the “memory” limitation and adding Poykko and obviousness to the analysis, as relying on a combination of Lambert and Poykko or obviousness. *See* Pet. 25.

satisfy the “virtual bus stops” limitation, we agree with Patent Owner that this introduces an improper new theory in the Reply. *See* PO Sur-reply 20–22.

As noted above, we adopt the parties’ agreed scope of “virtual bus stops,” which means “pickup and dropoff locations selected by the ride-sharing system itself.” *See supra* Section II.C. Accordingly, as we read the Petition, to prevail on this issue, Petitioner must establish that the quoted sentence from Lambert above, standing alone, discloses the “pickup and dropoff locations selected by the ride-sharing system itself,” i.e., not locations merely selected by the riders or drivers.

With this background in mind, we agree with Patent Owner that Petitioner has not proven by a preponderance of the evidence that Lambert teaches the claimed “virtual bus stops.” We further agree with Patent Owner that the more persuasive interpretation of Lambert views the “dynamically selecting” of pickup and dropoff locations as ad-hoc changes specified by the users of the system rather than changes made by the system. As the parties note, Lambert discusses “dynamically selecting pickup and dropoff locations” in the single sentence quoted above. Ex. 1004, 4:17–23. Lambert does not define “dynamically,” nor does Lambert use dynamically anywhere outside of this single reference. We agree with Patent Owner that a PHOSITA reading Lambert in the context of Lambert’s specification would understand that “dynamically” refers to the riders and drivers of the system making changes after an initial request has been made.

Two aspects of Lambert support Patent Owner’s view. First, Lambert’s description of events that occur without human interaction, i.e., actions taken by Lambert’s server, support this interpretation. Lambert

discusses numerous actions undertaken by the server or the system, and Lambert carefully refers to the “server” when an action is taken by the server versus taken by the rider or driver. For example, the following from Lambert are just several of many instances in which Lambert specifies that the “server” undertakes an action:

- (1) “A rider uses the rider system to request a ride, the *driver dispatch server system* assigns the ride to a driver, the ride request is delivered to the driver using the driver system,”
- (2) “If a driver has already been assigned a route . . . and a request for a new ride is received by the *driver dispatch server system* that can be shared with the already assigned route, the *driver dispatch server system* modifies the route,”
- (3) “The *server* uses the destination address to determine whether a ride can be combined”
- (4) “In some embodiments, the *server* attempts to match the rider with another rider to share the ride.”

Ex. 1004, 2:49–54, 2:63–67, 3:19–20, 3:34–35 (emphasis added). The disclosure relied upon by Petitioner does not describe either the server or the system performing the dynamic selection of pickup and dropoff locations, and given Lambert’s other specific references to “server” we decline to read-in a server action not described as such by Lambert.

Second, reading Lambert’s “dynamically selecting” pickup and dropoff locations language the Petitioner relies on in concert with the paragraph that immediately follows that sentence shows that the locations refer to locations selected by the rider or driver, not the server. Specifically, Lambert states:

[A] system for ride chaining updates a pool of riders desiring rides in the event that an indication is received that a rider desires a ride, in the event that a rider indicates that a rider no longer desires a ride, a rider rejects a driver assigned to provide a ride, a rider accepts a driver assigned to a ride, *a pickup location change, a dropoff location change* . . . a system for ride chaining

updates a pool of potential drivers in the event . . . a driver indicates a drop off location change, a pickup location change, or any other appropriate event for updating a pool of potential drivers.

Ex. 1004, 4:24–43 (emphasis added). This paragraph refers to rider or driver identification of pickup and dropoff locations, that do not satisfy the virtual bus stop limitation because such locations are not selected by the system. In other words, immediately after discussing “dynamically selecting pickup and dropoff locations,” Lambert contemplates updating the system based on a rider or driver selecting a new pick up or drop off location. Read together, we agree with Patent Owner that the dynamic selection contemplated by Lambert refers to ad-hoc choices made by the riders and drivers using the system. *See* PO Resp. 45 (citing Ex. 1004, 4:24–45; Ex. 1022 ¶ 93).

In addition to relying on persuasive language from Lambert itself, Patent Owner supports its interpretation of Lambert with persuasive declarant testimony from the viewpoint of one of ordinary skill in the art. *See* PO Resp. 43–46 (citing Ex. 2022 ¶¶ 37–39, 86–93). That testimony includes detailed analysis of how one of ordinary skill in the art would interpret various aspects of Lambert, which we find credible because Lambert directly supports the analysis. *See* Ex. 2022 ¶¶ 87–89, 91–93. This testimony also persuasively rebuts Petitioner’s position that only a server can instruct a rider to meet a driver at a dynamically selected pickup locations such as an intersection between two riders by noting that “instructing” a rider to walk to a desired location could be done by a driver instructing a rider directly or through the ridesharing application. *See id.* ¶¶ 94–95; *see also* Pet. Reply 18 n.3; PO Sur-reply 21 n.2. When viewed as a whole, we view Patent Owner’s argument and evidence, including its

declarant testimony, more persuasive than the argument and evidence set forth by Petitioner on this issue.⁹

Although, as discussed above, we view Petitioner's argument as relying on Lambert's text in column 4 alone as teaching "virtual bus stops," even if we consider other aspects of the Petition such as the reliance on Poykko, we would still conclude that Petitioner fails to carry its burden. *See* Pet. 26–28; Pet. Reply 16–17 (arguing a proposed modification wherein a PHOSITA would configure Lambert's server to access memory including a database of stopping points as purportedly taught by Poykko). First, Petitioner's proposed modification seems to assume, improperly given our analysis directly above, that Lambert's dynamically selected pickup/dropoff locations *are already* "virtual bus stops." Pet. 25 (stating "Lambert does not specify whether the dynamically selected pickup/dropoff locations (i.e., a plurality of virtual bus stops) are stored in a memory accessed by the server, although it would have been obvious to do." (emphasis omitted)). Second, Petitioner claims a PHOSITA would pre-store locations in a database to facilitate the dynamic selection of pick up and dropoff points, but none of the teachings of Poykko that Petitioner relies on cure the deficiency at the heart of Lambert, that the dynamic selection of pickup and dropoff locations are ad-hoc decisions made by the rides and drivers. *See* Pet. 26–28; Pet. Reply 17. At most, it appears that incorporating Poykko's teachings into

⁹ Even if we did not agree that Patent Owner correctly interprets Lambert's disclosure, that would not mean that Petitioner carried its burden here. At a minimum, the sentence Petitioner relies on in Lambert's column 4 *could* be read, as Patent Owner urges, to refer to pickup and dropoff locations *not selected by the server* as the "virtual bust stop" limitation requires, and that ambiguity cuts against Petitioner here because Petitioner bears the burden to establish that Lambert discloses the limitation.

Lambert would limit the pickup and dropoff locations that a *rider* could select, i.e., the database of locations would be presented to the user when choosing to use the proposed rideshare application. This still would not result in the *system* choosing the pickup and dropoff locations as both parties agree is necessary for “virtual bus stops.” To the extent that Petitioner argues that even if neither Lambert nor Poykko discloses a server or system selecting the pickup and dropoff locations, as required by the parties’ agreed upon interpretation of “virtual bus stops,” but that the combination of Lambert and Poykko would somehow meet the limitation, the allegation lacks sufficient articulated reasoning supporting a combination that would supply the key missing limitation. *See* Pet. 26–28 (citing Ex. 1003 ¶¶ 167–172); Pet. Reply 17; *see also* PO Sur-reply 23–24 (providing reasons why Poykko does not each system-selected pickup and dropoff locations on behalf of riders).

Petitioner also refers to Lambert’s Figure 11 in its Reply when arguing that it should not be limited to the reliance on Lambert alone in connection with the “virtual bus stops” limitation:

As explained in Petitioner’s analysis of Claim 1(h), for example, “it would have been obvious to a PHOSITA [to] assign the dynamically selected pickup and drop-off locations as part of the updated route building process of Fig. 11” and “this could be implemented by including a further optimization process that recognizes inefficiencies to the route caused by the user’s requested pickup and dropoff locations and dynamically selecting more efficient pickup and dropoff locations in the vicinity of the user’s requested locations.”

Pet. Reply 17 (citing Pet. 39–40). This passage correctly notes that the Petition relies on Lambert’s Figure 11 as part of its claim 1 analysis, but not when addressing “virtual bus stops” when it first appears in claim 1, in

isolation, and instead only relies on Figure 11 in the context of later limitations in claim 1. *See* Pet. 25, 36–39. Again, we see Petitioner’s new reliance on Figure 11 in this context in its Reply as improper. Importantly, Petitioner does not argue that Figure 11 alone discloses “virtual bus stops” because Figure 11 does not involve a server selecting pickup and dropoff locations, and for that reason such reliance does not cure the deficiencies in Petitioner’s reliance on the language in Lambert’s column 4. *See id.* And similar to our analysis of Petitioner’s reliance on Poykko, to the extent that Petitioner argues that it would have been obvious to modify Lambert to disclose a key missing limitation such as “virtual bus stops,” based on some combination of Lambert’s user- and driver-selected pickup and dropoff locations and Figure 11’s disclosure, with or without Poykko’s teachings, the analysis lacks sufficient rational underpinnings. *See* Pet. Reply 17. Because we find that Petitioner has not proven Lambert’s column 4 text, its Figure 11, or Poykko disclose *system-selected* pickup and dropoff locations when viewed in isolation, Petitioner must do more than assert, with little explanation or supporting evidence, that the combination of two or more of these teachings would supply the missing limitation. Instead, we view Patent Owner’s countervailing arguments as more persuasive on these points. *See* PO Sur-reply 23–24 (addressing Poykko), 27–30 (addressing Lambert’s Figure 11).

Finally, we acknowledge that the ’824 patent defines the term “dynamically” to mean “events and/or actions [that] can be triggered and/or occur without any human intervention.” Ex. 1001 8:25–27. Petitioner *does not*, however, rely on this description to support its argument that Lambert’s reference to “dynamically selecting pickup and drop off locations” (Ex.

1004, 4:17–23) satisfies the recited “virtual bus stops,” which we interpret to mean “pickup and dropoff locations selected by the ride-sharing system itself.” *See supra* Section II.C; *see also* Pet. 25. Moreover, and even if Petitioner relied on this description from the challenged patent, the definition applies to a different patent and simply provides that “events and/or actions *can be* triggered and/or occur without any human intervention.” Ex. 1001 8:25–27 (emphasis added). The definition of “dynamically” does not preclude pickup and dropoff locations selected by the driver or rider, themselves, which we find Lambert to teach.

2. *A Pair of Virtual Bus Stops*

a. *The Parties’ Contentions*

Claims 1 and 2 each contain several limitations requiring a “pair of . . . virtual bus stops,” where the pair of stops are associated with the pickup and dropoff locations of the user. *See, e.g.*, Ex. 1001, 31:19–23, 31:66–32:3. For example, claim 1 requires “assigning the particular vehicle and a pair of associated virtual bus stops for picking up and dropping off the user requesting a ride.” *Id.* at 31:19–21. According to Petitioner, “Lambert’s dynamically selected pickup and drop-off locations qualify [as] a pair of associated virtual bus stops for picking up and dropping off the user requesting a ride.” Pet. 39. Petitioner claims that Lambert “teaches improving efficiency by ‘dynamically selecting pickup and dropoff locations’” and that “it would have been obvious to a PHOSITA [to] assign the dynamically selected pickup and drop-off locations as part of the updated route building process of Fig. 11.” *Id.* at 38–39 (citing Ex. 1004, 4:17–23; Ex. 1003 ¶ 191). Petitioner argues that modifying the route building process of Figure 11 would have yielded a “predictable result of a more efficient

route that does not require the driver to travel along a route segment that would add unnecessary delay to the route.” *Id.* Petitioner contends that the dynamically selected pickup and dropoff locations would be selected as part of determining the most efficient new route as depicted by Figure 11 of Lambert. *Id.* (citing Ex. 1003 ¶ 192). Petitioner argues this modification “could be implemented by including a further optimization process that recognizes inefficiencies to the route caused by the user’s requested pickup and dropoff locations and dynamically selecting more efficient pickup and drop-off locations in the vicinity of the user’s requested locations.” *Id.* at 39–40. According to Petitioner, implementing such an optimization process “would have only required a minor change to the software running on Lambert’s server.” *Id.* at 40.

Patent Owner disputes that Lambert or any of Petitioner’s other asserted prior art references “teaches assigning riders ‘pairs’ of pickup and dropoff locations.” PO Resp. 53. According to Patent Owner, Petitioner “argues that would have been obvious to modify Lambert to replicate these key claim limitations.” *Id.* Patent Owner presents several arguments as to why Petitioner’s arguments fail. First, as discussed previously, Patent Owner contends that “Lambert’s reference to ‘dynamically selecting’ pickup and dropoff locations is a reference to the conventional aspect of ride sharing systems that allows riders and drivers to make dynamic changes to those locations” and not that the system itself assigns “virtual bus stops.” *Id.* at 54. Accordingly, Patent Owner contends that Lambert does not teach assigning any virtual bus stops, let alone a pair of virtual bus stops. *Id.* at 54–55. Second, Patent Owner argues that Petitioner’s assertion that the disclosure of “dynamically selecting” pickup and dropoff locations in

Lambert teaches “**a pair** of associated virtual bus stops” lacks support. *Id.* at 55. Patent Owner argues that this disclosure does not state or imply assigning these locations to riders as pairs, but rather that these “dynamic adjustments are made on an *ad hoc* basis to **individual** stops in order to improve efficiency.” *Id.* (citing Ex. 2022 ¶ 124).

Patent Owner further argues that it would not have been obvious to modify Lambert’s teachings in Figure 11 to assign pairs of “dynamically selected” pickup and dropoff locations. PO Resp. 56. According to Patent Owner, Lambert’s Figure 11 “discloses a sub-process that occurs recursively for all vehicles that currently have passengers.” *Id.* (citing Ex. 2022 ¶ 125). Patent Owner contends that the process described in Figure 11 “does not assign pickup and dropoff locations; it simply uses the pickup and dropoff locations provided by the rider.” *Id.* Accordingly, Patent Owner reasons that substituting “dynamically selected” locations into this process would require a new process for assigning locations for each “driver from the set of drivers with routes.” *Id.* (citing Ex. 2022 ¶ 125). Patent Owner contends this process is not taught by Lambert, and that the “dynamic selection” process contemplated by Lambert is performed on an ad-hoc basis and not by the system. *Id.* at 56–57. Additionally, Patent Owner contends that “making a change to a particular pickup or dropoff location after a vehicle is assigned is **fundamentally different** than assigning alternate pickup and dropoff locations for every ‘driver from the set of drivers with routes’ to determine the best driver to dispatch to service a ride request.” *Id.* at 57 (citing Ex. 2022 ¶ 125).

Patent Owner also contends that Petitioner’s argument that the proposed modification is a “minor change” is not supported by the record.

PO Resp. 57 (citing Ex. 2022 ¶¶ 125–126). Patent Owner argues that Petitioner’s proposed modification amounts to “an **entirely new** artificial intelligence process for selecting pickup and dropoff locations that occurs before (or in tandem with) the route-building process of FIG. 11.” *Id.* According to Patent Owner, this process is not disclosed in Lambert or the other asserted prior art, and Petitioner simply states that a “PHOSITA would have been motivated to create this new process to make Lambert’s system more efficient.” *Id.* (citing Pet. 39–40). Patent Owner argues a generic motivation to improve a system’s efficiency is not sufficient to motivate “a PHOSITA to build an entirely new and massively complex artificial intelligence process in the absence of any teaching in Lambert (or elsewhere) of how to build such a system.” *Id.* (citing Ex. 2022 ¶ 126).

In its Reply, Petitioner argues that it proposes a modification wherein the process of Figure 11 incorporates the “dynamically selected pickup/dropoff locations” contemplated by Lambert. Pet. Reply 21. Petitioner argues that Lambert would already have incorporated such a system in certain circumstances, such as when “the rider’s requested location may not be on a navigable route/road segment, which would require Lambert’s process in Figure 11 to assign a pickup/dropoff point on a route segment.” *Id.* at 21–22 (citing Ex. 2023, 96:13–24, 104:10–19, 131:11–132:8, 251:19–252:9, 252:22–253:5). Additionally, Petitioner argues that Patent Owner’s claim that Petitioner’s proposed modification would require a significant artificial intelligence process is not credible because “the ’824 Patent uses conventional techniques.” *Id.* at 22.

In its Sur-reply, Patent Owner contends that neither of the teachings Petitioner relies on in its proposed modification teaches “assigning pickup

and dropoff locations.” PO Sur-reply 27. Patent Owner argues that Petitioner’s position in its Reply is different than what was presented in the Petition. *Id.* at 28. Specifically, Patent Owner argues that Petitioner originally argued that it “would have been obvious to **modify** Figure 11 to assign pairs of pickup and dropoff locations,” and that in its Reply Petitioner claimed that Figure 11 “**already teaches** assigning such locations.” *Id.* (citing Pet. 38–40; Pet. Reply 21–22). According to Patent Owner, this new argument arises from testimony offered by Mr. Andrews during his deposition that “Lambert’s ride-sharing system itself assigns the pickup and dropoff locations that are ‘inserted’ into existing routes as part of the process depicted in Figure 11.” *Id.* (citing Ex. 2023,¹⁰ 117:8–123:16).

Patent Owner contends that the argument raised by Petitioner in its Reply is “procedurally improper,” and contradicts the position it advanced in the Petition. PO Sur-reply 28. Patent Owner argues that in the Petition, Petitioner “admitted that the pickup/dropoff locations ‘inserted’ in Figure 11 are **selected by the riders**, not assigned by the system.” *Id.* (quoting Pet. 36 (“The processing in Figure 11 is based on the user’s requested pickup location . . . and the user’s requested destination location.”)). Patent Owner notes that this is consistent with Petitioner’s declarant at the time of the Petition. *Id.* (citing Ex. 1003 ¶ 190). When questioned about the seeming inconsistency between the Petition and Reply, Patent Owner claims Mr. Andrews “stated he did **not** want to change the opinion in his declaration”

¹⁰ Patent Owner incorrectly cites to Exhibit 1037 in this passage, but the context makes clear that it intended to cite to Exhibit 2023, the deposition transcript of Mr. Andrews. *See* PO Resp. 28.

and stated that “It is what it is. It stands as written.” *Id.* at 29 (citing Ex. 2023, 207:20–208:8, 208:13–20).

Patent Owner and its declarant, Mr. Jacquillat, assert that Mr. Andrews bases his testimony on an incorrect assumption that “‘inserting’ pickup and dropoff locations into a ‘route’ involves **moving** those stops to a road where the vehicle is already scheduled to travel.” PO Sur-reply 29 (citing Ex. 1037, 117:8–123:16). According to Patent Owner, this incorrectly reads Lambert’s Figure 11, and Patent Owner contends that Lambert teaches “‘inserting’ a rider’s pickup/dropoff location between the ‘endpoints’ of a ‘route segment’ . . . [means] that a pickup/dropoff location is ‘inserted’ into a route by inserting the stop between existing stops on the vehicle’s route.” *Id.* (citing Ex. 2022 ¶¶ 71–74, 96–102). Accordingly, Patent Owner concludes that Lambert’s teachings relate to “changes to individual stops, not assigning a ‘pair’ of stops” and that “Figure 11 of Lambert does not assign any stops to a rider; it merely ‘inserts’ the rider’s specified origin and destination locations.” *Id.* at 30–31 (citing PO Resp. 54–55).

b. Discussion

Having failed to show by a preponderance of the evidence that the prior art discloses a single “virtual bus stop,” Petitioner fails to show assigning “a pair of virtual bus stops” for the same reasons—i.e., Petitioner’s arguments as to assigning a pair of virtual bus stops do not remedy its inability to show that the prior art as a whole teaches a *system* that selects the pickup and dropoff locations. Furthermore, we determine that even if Petitioner’s combination of Lambert and Poykko renders obvious a *single* virtual bus stop, the combination fails to disclose assigning a *pair* of stops,

and we discuss that issue below. As Patent Owner correctly points out, neither of the teachings relied upon by Petitioner teach assigning both a pickup and a dropoff location as a pair.

We first note that Lambert's reference to dynamically selecting pickup and dropoff locations in column 4, standing alone, does not expressly or inherently disclose assigning a pair of such locations. *See* Ex. 1004, 4:17–23. Even if we assume for purposes of this analysis that the language refers to system-assigned locations, the sentence can be read to assign a pickup location at the outset of a trip, and potentially a dropoff location during the trip to the same user, but does not state that both such locations (which differ from the user's existing location and desired dropoff location), are *assigned as a pair* together as required by the claim.

As noted above, Petitioner relies on a combination of Lambert's text in column 4 and Lambert's route-building process in Figure 11 in its analysis, and claims that a PHOSITA would assign the dynamically selected pickup and drop-off locations disclosed in Lambert as part of Lambert's Figure 11 route building process. Pet. 38. Importantly, Petitioner acknowledges that Figure 11 describes determining a route between two points selected by the *rider* and not by the system. *See id.* at 36. Specifically, Petitioner states that “Figure 11 is based on the user's requested pickup location (i.e., the origin location data) and the user's requested destination location (i.e., the destination location data).” *Id.* Accordingly, Figure 11 itself does not disclose system-assigned pickup and dropoff locations. Petitioner proposes that a PHOSITA would dynamically assign a virtual bus stop to the pickup and dropoff locations of a user to allegedly improve the efficiency of the transportation system, such as by including “a

further optimization process that recognizes inefficiencies to the route caused by the user's requested pickup and dropoff locations and dynamically selecting more efficient pickup and drop-off locations in the vicinity of the user's requested locations." *Id.* at 40. Petitioner claims this modification would only require a "minor change to the software running on Lambert's server. *Id.*

We agree with Patent Owner that Petitioner fails to meet its burden with its proposed modification to Figure 11 of Lambert. First, we agree with Patent Owner that changing from user-defined pickups to system-defined pickups represents a fundamental change in the system. PO Resp. 56–57. Even if we accept that Lambert's disclosure of "dynamically selecting pickup and dropoff locations" contemplates system-selected "virtual bus stops," the rest of Lambert teaches a system based on user inputs. The algorithms and system architecture disclosed in Lambert are not designed around the system making dynamic changes to pickup and dropoff locations. For example, as Petitioner acknowledges, the process disclosed in Figure 11 involves a user inputting a pickup and dropoff location. Ex. 1004, 11:19–37; Pet. 36. Petitioner has the burden of showing that the changes it proposes are supported by the record, and has failed to do so here. Petitioner argues that the changes that would need to be made to Lambert would be "minor" but fails to show *why* it would be minor. Patent Owner suggests these changes would require a significant overhaul of Lambert's system because the proposed changes are fundamentally different from what Lambert originally contemplates. PO Resp. 56–57 (citing Ex. 2022 ¶¶ 125–126). For example, Patent Owner states that Lambert's general goal of improving efficiency does not support building a new system based on system-assigned

pickup and dropoff locations, which we find persuasive. *See id.* at 57 (citing Ex. 2022 ¶ 126). We need not reach how significant the changes would be, or reach Patent Owner’s argument that they would involve a complex artificial intelligence system, because Petitioner has failed to put forth any argument as to what the modification would entail or require.

3. Conclusion as to Obviousness Challenges

Because Petitioner fails to establish that Lambert alone, or in combination with one or more of Poykko, McCall, Lerenc, and Sweeney, discloses or renders obvious “virtual bus stops,” and “assigning . . . a pair of associated virtual bus stops” as required by independent claims 1 and 2, Petitioner fails to establish that claim 1 or 2 would have been obvious over the asserted prior art. As noted above, Petitioner’s challenge to: dependent claims 3, 6, 7, 12, 13, 16, 19, and 20 based on Lambert, Poykko, and McCall; dependent claims 4, 5, 8, 17, and 18 based on Lambert, Poykko, McCall, and Lerenc; and dependent claims 9–11, 14, and 15 based on Lambert, Poykko, McCall, and Sweeney rely on Petitioner’s predicate analysis as to independent claims 1 and 2, which we find unpersuasive for the reasons provided above. *See* Pet. 46–70. Accordingly, we determine that Petitioner has not demonstrated by a preponderance of evidence that any of dependent claims 3–20 would have been obvious based on the asserted prior art combinations.

III. CONCLUSION

Based on the fully developed record, Petitioner has not demonstrated by a preponderance of the evidence that claims 1–20 of the '824 patent are unpatentable. A summary of our conclusions is set forth in the table below.

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 6, 7, 12, 13, 16, 19, 20	103	Lambert, Poykko, McCall		1–3, 6, 7, 12, 13, 16, 19, 20
4, 5, 8, 17, 18	103	Lambert, Poykko, McCall, Lerenc		4, 5, 8, 17, 18
9–11, 14, 15	103	Lambert, Poykko, McCall, Sweeney		9–11, 14, 15
Overall Outcome				1–20

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–20 of the '824 patent are not determined to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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