

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

UBER TECHNOLOGIES, INC.
Petitioner

v.

FARE TECHNOLOGIES LLC
Patent Owner

IPR2023-00746

U.S. Patent No. RE46,727

Title: Taxi Trip Meter System With Indication of Fare and Distance Violations

Filed: August 18, 1998

Issued as U.S. Patent No. 6,122,591: September 19, 2000

Reissue Filed: May 28, 2015

Reissued: February 20, 2018

PETITION FOR *INTER PARTES* REVIEW
U.S. PATENT NO. RE46,727

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I. INTRODUCTION

Pursuant to 35 U.S.C. §§ 311-319 and 37 C.F.R. Part 42, Petitioner Uber Technologies, Inc. (“Uber” or “Petitioner”) respectfully requests *Inter Partes* Review of claims 1-4, 7-8, 11-13, 17-20, 26-31, and 37-41 (“Challenged Claims”) of U.S. Patent No. RE46,727 (EX1001, “the ‘727 Patent”). The ‘727 Patent is presently assigned to Fare Technologies LLC (“Patent Owner” or “Fare”).

The ‘727 Patent is directed to monitoring the operations of a taxi to detect, for example, if a taxi driver has taken an unnecessarily long route. (EX1001, 1:26-29.) To perform this monitoring, the ‘727 Patent discloses using a location sensor, such as a global positioning satellite (“GPS”) receiver to determine the starting point and destination point for a trip. (*Id.*, 2:30-33.) It then proposes to first determine the shortest distance between those two points and then compare that shortest distance to the actual trip distance to determine if the driver took an improper route. (*Id.*, 2:36-3:14, Fig. 2.)

The use of GPS receivers to track vehicle location was well-known prior to 1998, the earliest possible priority date of the ‘727 Patent. Moreover, by this time, it was known how to calculate a route from a starting point to a destination point of a trip, including the shortest trip distance between those points, and determine if an actual trip distance was exceedingly long compared to the route calculation.

As set forth herein, the Challenged Claims are, therefore, not patentable.

II. MANDATORY NOTICES

A. Real Party-in-Interest [37 C.F.R. § 42.8(b)(1)]

Petitioner Uber is the real-party-in-interest for this proceeding. No party other than Uber has controlled, directed, funded, or participated in the preparation of this Petition, and therefore no party other than Uber is understood to be a real-party-in-interest.

B. Related Matters [37 C.F.R. § 42.8(b)(2)]

Fare asserted the ‘727 Patent against Uber in the Western District of Texas on March 25, 2022 (No. 6:22-cv-00317-ADA-DTG), served on March 28, 2022. On June 2, 2022, Uber filed a Motion to Dismiss for Improper Venue. On March 14, 2023, Judge Albright dismissed Fare’s complaint without leave to amend.

Fare also asserted the ‘727 Patent against Lyft, Inc. on March 25, 2022 in the Western District of Texas (No. 6:22-cv-00315-ADA-DTG). Fare filed its Second Amended Complaint against Lyft on March 13, 2023.

C. Lead/Back-up Counsel [37 C.F.R. § 42.8(b)(3)]

Petitioner is filing a power of attorney designating Benjamin J. Bradford (Reg. No. 74,728, bbradford@jenner.com) as lead counsel, and Yusuf Esat (Reg. No. 64,057, yesat@jenner.com) as back-up counsel, both of Jenner & Block LLP, 353 N. Clark St., Chicago, Illinois 60654.

D. Service Information [37 C.F.R. § 42.8(b)(4)]

Petitioner consents to e-mail service at the addresses of lead and back-up counsel and chgoip@jenner.com. Documents also may be delivered by hand to the address of lead and back-up counsel above.

III. GROUNDS FOR STANDING

Petitioner certifies that the ‘727 Patent is available for *Inter Partes* Review, and Petitioner is not barred or estopped from requesting *Inter Partes* Review challenging the claims on the grounds identified herein.

IV. BACKGROUND OF THE ‘727 PATENT

A. The ‘727 Patent

The ‘727 Patent describes that “[a] taxi fare is typically determined by a taximeter based on trip distance and waiting time in traffic” and “[t]axi drivers are free to take whichever route they choose.” (EX1001, 1:24-26.) “Riders who are unfamiliar with the area being traversed are sometimes cheated by unscrupulous taxi drivers who take a roundabout route to inflate the fare.” (*Id.*, 1:26-29.)

Another problem is that “taxi drivers [may] try to increase income by driving very fast to minimize travel time and thus increasing customer turnover, but at the expense of safety.” (*Id.*, 1:29-31.)

To address these problems, the ‘727 Patent proposes solutions that include determining “a distance violation,” “a speed violation,” or “a fare violation.” (*Id.*, Abstract.) To identify these violations, the ‘727 Patent proposes a taxi trip meter

system that records the trip route between the starting point and destination point of a taxi ride. (*Id.*, 2:39-52.) When the taxi ride concludes, the taxi trip meter system determines whether a violation occurred. (*Id.*, Figs. 2-3.) For example, a distance violation occurs when the actual distance exceeds the shortest distance by a permissible margin. (*Id.*, 2:52-3:8, Fig. 2.) Similarly, a fare violation occurs when the actual fare exceeds an estimated taxi fare by a permissible margin. (*Id.*, Abstract, Fig. 3.) Rather than prevent fare violations from occurring, the taxi trip meter system deters taxi drivers from cheating by notifying the taxi customer and the taxi company of fare violations and by recording the fare violations for review by the taxi company and by government authorities. (*Id.*, 3:11-14, 4:2-5, 4:39-42.)

B. Status of the ‘727 Patent

The ‘727 Patent is a reissue patent. (EX1002 at 1¹.) On May 28, 2015, Patent Owner filed a reissue application to reissue U.S. Patent No. 6,122,591 (EX1003, “the ‘591 Patent”) because “[t]he inventor or the inventor’s attorney failed to previously present narrower claims” and to “add structure” to claim 12 “in light of recent case law requirements.” (EX1002, 12.) The ‘591 Patent was filed on August 18, 1998 and issued on September 19, 2000. (EX1001, 1.)

¹ Page cites are to the PDF page numbers and not to internal document page numbers. This includes cites to EX1002, 1004, 1006, 1008-1014, 1016.

The ‘727 Patent issued on February 20, 2018 and expired on August 18, 2018. (*Id.*)

C. The Challenged Claims of the ‘727 Patent

The ‘727 Patent contains 41 claims. Claims 1-17 are the original claims of the ‘591 Patent and claims 18-41 were added during the reissue proceedings. Of the original claims, claim 12 was amended and claim 14 was canceled during those reissue proceedings. The Challenged Claims, claims 1-4, 7-8, 11-13, 17-20, 26-31, and 37-41, are set out in Appendix A with the claim limitations labeled for reference. (*Id.*, cols. 4-8.)

D. The Prosecution of the ‘727 Patent

During prosecution of the reissue application, the Patent Office found that claim 12 was unpatentable in view of U.S. Patent No. 4,212,069 (EX1015, “Baumann069”) and U.S. Patent No. 6,067,502 (“Hayashida”). (EX1002, 148-151.) In response, Patent Owner amended claim 12 as shown in the ‘727 Patent, with deletions shown with brackets and additions shown in italics. (EX1002, 186; EX1001, 1:6-11.) The Patent Owner also argued that amended claim 12 was not obvious in view of Baumann069 and Hayashida because neither reference discloses “use of vehicle geographical location information data obtained from a location sensor as claimed.” (EX1002, 199.)

During prosecution of the ‘591 Patent, the Patent Office found that claims 1-17, were anticipated by U.S. Patent No. 5,917,434 (“Murphy”). (EX1004, 46.) In response, Patent Owner argued that Murphy only disclosed measuring actual distance, not calculating an estimated shortest trip distance. (*Id.*, 56-57.) As a result, Murphy is unable to alert passengers that they are “**taken for an unnecessarily long ride.**” (*Id.*, 56 (emphasis original).)

E. Priority Date of the ‘727 Patent

The earliest possible priority date for the ‘727 Patent is August 18, 1998, the filing date of the ‘591 Patent application. This is the same priority date Fare identified in its preliminary infringement contentions in the district court litigation. (EX1016, 1.)

F. Level of Ordinary Skill

In this Petition, Petitioner applies the perspective of one of ordinary skill around the time of the alleged invention of the ‘727 Patent, which is the August 18, 1998 filing date of the ‘591 Patent. Here, as explained by Petitioner’s expert, a person of ordinary skill in the art (“POSITA”) would typically have had working knowledge of the taxicab and the transportation industry. (See EX1005, ¶¶24-25; *see also*, EX1009, 50.)

V. IDENTIFICATION AND OVERVIEW OF PRIOR ART

A. International Publication No. WO 97/18521 to Smith (EX1006)

Smith was filed on October 27, 1995 and published on May 22, 1997, more than a year before the '727 Patent priority date of August 18, 1998. Therefore, it is prior art at least under pre-AIA § 102(b). Smith was not before the Examiner during prosecution of the '727 Patent. (EX1001, 1-2.)

Smith discloses a fully automated dispatching system for “taxis, ambulances, or other vehicles” (“Smith’s System”). (EX1006, 3:5-7.) These “[v]ehicles must be tracked so that their location is known.” (*Id.*, 3:17-19.) To track vehicle location, “there are commercially available Automatic Vehicle Locator (AVL) systems which automatically track (typically via satellite navigation) the locations of managed vehicles.” (*Id.*, 5:3-10.) “AVL systems may also include a street map database and search algorithm through which the AVL can identify a street route.” (*Id.*, 6:1-4.) Smith uses the “existing AVL technology to compute routing and mileage based on invoiced pickup and destination sites, and then compare the mileage of the computed route to the mileage charged in the invoice.” (*Id.*, 12:16-21.) In this way, Smith can detect “excessive mileage charges.” (*Id.*, 12:11-15.)

B. European Patent Publication No. 0 032 607 B1 to Baumann (EX1007)

Baumann was filed on January 19, 1980 and published on July 16, 1986, more than a year before the '727 Patent priority date of August 18, 1998.

Therefore, it is prior art at least under pre-AIA § 102(b). Baumann was not before the Examiner during prosecution of the ‘727 Patent, but Baumann069 was considered. (EX1001, 1-2.) While Baumann and Baumann069 are not related, they share a similar specification.

This petition relies on Baumann distinctly from how the Examiner used Baumann069 during prosecution, where the Examiner found neither Baumann069 nor Hayashida disclosed the “use of vehicle geographical location information data obtained from a location sensor as claimed.” (EX1002, 199.) This Petition does not argue that the Examiner erred in her understanding of Baumann069, nor that Baumann discloses “use of vehicle geographical location data” (*Id.*) Instead, for Ground 3, Baumann is used as a secondary reference to supply technical details of taxi operation that are not expressly present in Smith. And Ground 4 uses Baumann as a primary reference, but relies on a reference not previously before the Examiner to supply the disclosures that the Examiner found missing in Baumann069 and Hayashida. Use of Baumann is appropriate under 35 U.S.C. § 325(d) in these circumstances. *See Oticon Med. AB v. Cochlear Ltd.*, 2019 WL 5237817, Case No. IPR2019-00975 (PTAB) (instituting a petition, over patent owner’s objection under § 325(d), that included one new, non-cumulative prior art reference that was not considered during prosecution, even though three of the other prior art references cited in the petition were considered in prosecution).

Baumann discloses “fare computation and dispatching methods” for “taxi operations.” (EX1007, 1:3-19.) Baumann uses “a central control system for monitoring not only the fare needs of the taxi fleets, but for enabling central computation of the fares, estimated trip time information and other needs,” considering “the peculiarities of different routes, traffic patterns and exigencies or difficulties of travel at different times of day or weather and the like.” (*Id.*, 1:54-65.) Baumann’s system stores information “relating to routes and distances between street addresses and historical data as to time for normal transit therebetween under different times of day and traffic conditions” and “calculate[s] fares and estimate[s] times of transit using [the] stored information.” (*Id.*, 2:59-3:18.)

C. Korean Patent Publication No. 1998-016705 to Choi (EX1008)

Choi was filed on August 29, 1996 and published on June 5, 1998, before the ‘727 Patent priority date of August 18, 1998. Therefore, it is prior art at least under pre-AIA § 102(a). Choi was not before the Examiner during prosecution of the ‘727 Patent. (EX1001, 1-2.)

Choi discloses “a taxi meter and a driving system using a Global Positioning System (hereinafter abbreviated as GPS) capable of recording and reading the taxi passenger pick-up and drop-off points.” (EX1008, 10.) “The location of a vehicle can be found by calculating latitude data and longitude data using the

aforementioned GPS receivers.” (*Id.*) “The taxi meters (14, 24, 54) record the total business data (total mileage, business distance, income, vehicle speed, number of business, etc.), and the location data (N , E) of the GPS receivers (13, 23, 53).” (*Id.*)

**VI. IDENTIFICATION OF CHALLENGE AND RELIEF REQUESTED
[37 C.F.R. §§ 42.104(b)(1)-(2)]**

Petitioner requests *Inter Partes* Review of claims 1-4, 7-8, 11-13, 17-20, 26-31, and 37-41 of the ‘727 Patent and requests that the Board find these claims to be invalid and unpatentable based on the following specific statutory grounds and prior art.

Ground 1: International Publication No. WO 97/18521 (“Smith”) (EX1006) anticipates claims 7, 8, and 11 under § 102.

Ground 2: International Publication No. WO 97/18521 (“Smith”) (EX1006) renders obvious claims 7, 8, and 11 under § 103(a).

Ground 3: International Publication No. WO 97/18521 (“Smith”) (EX1006) in combination with European Patent Publication No. 0 032 607 B1 (“Baumann”) (EX1007) renders obvious claims 1-4, 7-8, 11-13, 17-20, 26-31, and 37-41 under § 103(a).

Ground 4: European Patent Publication No. 0 032 607 B1 (“Baumann”) (EX1007) in combination with Korean Patent Publication No. 1998-016705

(“Choi”) (EX1008) renders obvious claims 12-13, 17, 19-20, 26-28, 30-31, and 37-40 under § 103(a).

VII. CLAIM CONSTRUCTION [37 C.F.R. § 42.104(b)(3)]

The Board “need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017). In the district court case, the parties agreed that four terms should be given their plain and ordinary meanings. (EX1009-EX1014.) The plain and ordinary meaning is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc); 37 C.F.R § 42.100(b) (2019). Petitioner identified the plain and ordinary meanings of these four terms to a POSITA in 1998 in the district court case as follows.

Term	Plain and Ordinary Meaning
Taxi	an automobile licensed for hire as a taxi or taxicab and fitted with a meter
Trip Meter	a device in the taxi that determines distance traveled using input collected from the taxi
Starting Point	geographical location where the ride began
Destination Point	geographical location where the ride ended

(EX1012, 2.) For purposes of this Petition, Petitioner applies the plain and ordinary meanings as listed above.

Petitioner argued that a fifth term was indefinite in the district court case. The term “waiting time encountered in traffic” found in claims 12 and 30 has at least three possible meanings in the context of the ‘727 Patent. (EX1009, 17-20.) These three meanings are: (1) the difference between optimal and current trip time; (2) time when a taxi is in traffic; and (3) the amount of time that a taxi spent stopped or below a predefined speed threshold. For purposes of this Petition, Petitioner addresses these possible meanings as it discusses the prior art.

VIII. GROUNDS FOR UNPATENTABILITY [37 C.F.R. § 42.104(b)(4)-(5)]

Petitioner explains how the claims are unpatentable and specifies where each limitation of the claim is found in the prior art. These grounds are further supported by the expert declaration of David Hilliard Williams. (EX1005.)

A. Ground 1: Smith Anticipates Claims 7, 8, and 11

1. Smith anticipates claim 7 of the ‘727 Patent

a. [7pre] A taxi trip distance violation detection method, comprising:

Smith discloses a taxi trip distance violation detection method. Smith’s system can be used for taxi dispatching, monitoring, and billing. (EX1006, 3:5-7, 13:9-12.) Smith’s claim 33 is directed towards “[a] system for ensuring that appropriate mileage charges are being applied to transportation services.” (*Id.*, Claim 33.) After a trip is completed, Smith’s system can compare the actual distance of a trip with the shortest distance for that trip, and then determine if the

“mileage purportedly travelled is appropriate.” (*Id.*, 12:11-21, Claim 33.)

“Smith’s determination of appropriate mileage detects a distance violation.”

(EX1005, ¶66.) Thus, to the extent that the preamble is found to be limiting, Smith discloses it.

**b. [7a] determining a starting point for a trip;
[7b] determining a destination point for said trip**

Smith uses “commercially available Automatic Vehicle Locator (AVL) systems which automatically track (typically via satellite navigation) the locations of managed vehicles.” (EX1006, 5:3-10.) “In particular, satellite-based vehicle tracking circuitry may be used to track the locations of the vehicles, and the vehicle locations forwarded via satellite or radio to the processing circuitry for using in vehicle monitoring.” (*Id.*, 9:3-10.) Smith’s Figure 3A shows that its dispatch file includes “[t]he pickup and destination addresses and their latitudes and longitudes,” which are the geographical location where the ride began and ended, respectively. (EX1006, 29:14-16; EX1005, ¶¶68-69, 75.)

Dispatch File	
1	Transport ID Number
2	Status Flag (= " ", "D", "C", or "F")
3	Date of Service
4	Appointment Time (= <time> or "ASAP")
5	Lead Time
6	Transport Type (Wheelchair/Basic/AdvancedLifeSupport)
7	Vehicle ID Number
8	Driver Employee Number
9	Attendant Employee Number
10	Pickup Location
11	Pickup Latitude
12	Pickup Longitude
13	Destination Location
14	Destination Latitude
15	Destination Longitude

(EX1006, Fig. 3A (annotated).)

To determine the starting and ending points of a trip, Smith teaches that the “dispatching procedure 26 generates a request to the AVL system to determine the latitude and longitude of the vehicle.” (*Id.*, 57:12-14.) The AVL system provides a “response [that] indicates the latitude and longitude” for the pickup and destination locations. (*Id.*, 78:3-5.) Next, “[i]n handling a latitude/longitude response, ... the communications process updates 220 the latitude and longitude fields (fields 11-12 and 14-15) in the dispatch record.” (*Id.*, 78:6-13.) Accordingly, Smith determines the starting and destination points when the AVL system determines the latitude and longitude of the vehicle to be populated in the dispatch record for the pickup and destination locations. (EX1005, ¶¶71-73, 75.)

c. [7c] determining an estimated shortest trip distance between said starting point and said destination point

Smith determines an estimated shortest trip distance between its pickup location and destination location using then-existing AVL technology. Such AVL technology “include[s] a street map database and search algorithm through which the AVL can identify a street route from one address to another upon request from the dispatcher.” (EX1006, 6:1-4; EX1005, ¶77.) Smith improves upon this existing AVL technology by “providing a fully automated dispatching system which, at least under normal operating conditions, eliminates the human dispatcher from dispatching operations.” (EX1006, 7:15-20.) According to Smith, “the present invention encompasses systems which make use of existing AVL technology to compute routing and mileage based on invoiced pickup and destination sites, and then compare the mileage of the computed route to the mileage charged in the invoice.” (*Id.*, 12:16-21.) This computed route can be the “shortest route from said starting point to said ending point.” (*Id.*, Claim 33.)

d. [7d] determining an actual trip distance traveled by a vehicle after said trip is completed

Smith determines the mileage traveled, which can be stored in the invoice record. (*Id.*) For example, Smith claims “said records indicating ... a mileage purportedly travelled in providing said transportation services.” (*Id.*) “Invoice file 34 contains information for generating an invoice for the activities performed by

vehicles 20 upon customer request.” (*Id.*, 23:17-19.) A POSITA understands that the trip is completed to determine actual trip distance and generate an invoice. (EX1005, ¶81.)

e. [7e] comparing said estimated shortest trip distance with said actual trip distance

Smith “compare[s] the mileage of the computed route to the mileage charged in the invoice.” (EX1006, 12:16-21.) Smith’s comparison of the estimated shortest trip distance with the actual trip distance is found in claim 33: “comparing a mileage associated with said shortest route to said mileage purportedly travelled.” (*Id.*, Claim 33.) Smith also discloses “compar[ing] the mileage charges to the mileage for an optimal routing.” (*Id.*, 12:4-21.) And a POSITA would understand that “[s]hortest distance is one example of an optimal route.” (EX1005, ¶¶78, 86.)

f. [7f] indicating a distance violation when said estimated shortest trip distance is exceeded by said actual trip distance by a predetermined distance margin

Smith’s claim 33 discloses a “system for ensuring that appropriate mileage charges are being applied to transportation services submitted for reimbursement to a governmental or insurance entity.” (EX1006, Claim 33.) For example, this system compares the shortest trip distance to the actual trip distance “to determine if said mileage purportedly travelled is appropriate for said services.” (*Id.*) In

order for this determination to be used by an insurance or governmental entity, the system must provide an indication of whether a distance violation occurred.

(EX1005, ¶¶91-92.)

Smith's system will "automatically" perform a "verification" to determine whether actual mileage is "within parameters set by a Government or insurance agency." (EX1006, 59:9-13.) A POSITA would understand that these "parameters" are a predetermined distance margin. (EX1005, ¶¶89-90.) The "shortest route" cannot be the only "appropriate" mileage and that parameters (*i.e.*, a distance margin) are necessary to determine how much longer than the "shortest route" still qualifies as "appropriate." (*Id.*) This distance margin is predetermined in order for Smith's System to "be used by an insurance or governmental agency to locate excessive mileage charges." (EX1006, 12:11-15.)

2. Smith anticipates claim 8 of the '727 Patent

Smith anticipates claim 8, which depends from claim 7. As set forth above, Smith anticipates claim 7. Claim 8 adds "wherein said estimated shortest trip distance comprises a driving distance through known roads." As described with respect to claim 7, Section VIII.A.1.c, Smith's AVL system with a street map database estimates the shortest distance. The use of this database discloses that Smith's estimate of the shortest trip distance is a driving distance through known roads. (EX1005, ¶95.)

3. Smith anticipates claim 11 of the ‘727 Patent

Smith anticipates claim 11, which depends from claim 7. As set forth above, Smith anticipates claim 7. Claim 11 adds “recording an actual route traveled during said trip for subsequent review for excusable causes for said fare violation.”

Smith discloses using “a database server 10 for storing records indicating requested vehicle services and associated information.” (EX1006, 14:17-19.) These records “accumulate over time” and “include sufficient information to collectively determine the movements of each vehicle throughout each business day.” (*Id.*, 33:17-21.) As a result, “these records can be collectively analyzed to determine the extent to which vehicles are being properly utilized.” (*Id.*, 33:21-25.) For example, Smith’s records can be used “to locate excessive mileage charges.” (*Id.*, 12:11-15.) To determine whether the mileage is excessive, the records can be reviewed to identify excusable causes. (*Id.*, Claim 33; EX1005, ¶98.) Accordingly, Smith records the actual trip traveled for subsequent review for excusable causes for a fare violation. (EX1005, ¶98.)

B. Ground 2: Smith Renders Obvious Claims 7, 8, and 11

As the majority of Smith is directed to its ambulance implementation, rather than its taxi implementation, the Board may find that Smith does not expressly disclose every limitation of claims 7, 8, and 11. However, in that situation, it

would be obvious to a POSITA to read the teachings of Smith to disclose all the limitations of those claims.

For example, although Smith discloses a system that obtains “the latitude and longitude of the vehicle” (EX1006, 57:12-14) and using that information to update “the latitude and longitude fields (fields 11-12 and 14-15) in the dispatch record” for the starting and destination locations (*Id.*, 78:6-13), Smith also discloses populating those fields “automatically” based on the address for known locations, “such as hospitals.” (*Id.*, 29:17-22.)

Taxis, however, are different than ambulances. Ambulances are typically dispatched from known locations (*e.g.*, hospitals) to known addresses (*e.g.*, homes), while taxis are typically hailed on the street and the destination can be non-specific (*e.g.*, near a stadium). (EX1005, ¶100.) Accordingly, it would be obvious to a POSITA implementing Smith’s system for taxis (rather than ambulances) to use the longitude and latitude of the vehicle where the ride began and ended, which corresponds to when a driver starts and stops the taximeter (the device that calculates a taxi fare based on factors such as distance and time) that was in most, if not all, taxis in 1998. (*Id.*, ¶101.) Smith discloses communicating with the vehicle about when a ride begins (*e.g.*, when it is dispatched) (EX1006, 32:16-33:9) and when a ride ends (*e.g.*, when it reaches its destination) (*Id.*, 9:11-13, 32:16-33:9), plus Smith discloses receiving the location of a vehicle (*Id.*,

57:12-14), so it would be obvious to a POSITA to use the geographic location of a taxi at the start and end of a trip based on Smith's disclosures. (EX1005, ¶102.)

Taxis are also different because they typically calculate fares and charge customers using a taxi meter, not an invoice system. Accordingly, if the Board determines that Smith's System fails to disclose "determining an actual trip distance traveled by a vehicle after said trip is completed," it would be obvious to use the taximeter and trip meter in taxis to determine actual trip distance after the trip is completed and the driver has stopped the meter. (EX1005, ¶¶103-104.) Further, it would be obvious to connect the taxi meter to Smith's AVL system to communicate the actual trip distance to Smith's System for comparison to the estimated shortest trip distance. (EX1005, ¶104.)

Additionally, to the extent that the Board determines that Smith does not disclose "indicating a distance violation" by, for example, automatically verifying whether actual mileage is "within parameters set by a Government or insurance agency" (see Section VIII.A.1.f), it would be obvious to a POSITA to provide such an indication in Smith's taxi implementation. For example, as transportation service reimbursement systems typically provide indications to help a payor determine which charges to reimburse and reject, it would be obvious that Smith's System would both compare the distance travelled to the shortest trip distance and then indicate the results of that comparison to the payor. (EX1005, ¶105.) Further,

while ambulances are typically paid by insurers or the government, taxis are typically paid by riders. (*Id.*) Thus, when Smith’s System is applied to taxis, it would be obvious to notify the rider that an inefficient route was taken, which would be “indicating a distance violation.” (*Id.*, ¶¶105-106.)

Similarly, to the extent that the Board determines that the “parameters set by a Government or insurance agency” are not “a predetermined distance margin” (see Section VIII.A.1.f), it would be obvious to a POSITA to use a predetermined distance margin when implementing Smith’s claim 33 for taxis. (EX1005, ¶107.) Smith’s claim 33 recites “determin[ing] if said mileage purportedly travelled is appropriate for said services” based on a comparison of the actual trip distance to the shortest trip distance. (EX1006, Claim 33.) A POSITA would understand “appropriate” in the context of Smith, including the “parameters set by a Government or insurance agency,” to mean that the actual trip distance is within some predetermined margin to the shortest possible trip distance. (EX1005, ¶107.) “This is especially true because Smith discloses automatically identifying excess mileage charges, which requires some predetermined criteria to do so.” (*Id.*)

C. Ground 3: Smith in Combination with Baumann Renders Obvious Claims 1-4, 7-8, 11-13, 17-20, 26-31, 37-41

1. One of Ordinary Skill Would Have Had Reason to Combine Smith With Baumann

As described by Mr. Williams, it would have been obvious to a POSITA to combine the teachings of Smith and Baumann. (EX1005, ¶¶108-121.) Both Smith and Baumann describe dispatching systems for taxis. (*Id.*, ¶108.) In addition, both references describe using a central control system to monitor the activities of a taxi. (*Id.*)

For the distance violation embodiment, claims 1-4, 7-8, and 11, a POSITA would understand that Smith's taxi necessarily includes a trip meter for measuring actual trip distance because that is how taxis operated in 1998. (*Id.*, ¶109.) "Thus, the combination of Smith and Baumann does not change the operation of Smith at all. Baumann just fills in well-known details that Smith did not describe." (*Id.*, ¶110) *See Wavetronix LLC v. Smart Microwave Sensors GmbH*, 746 Fed. App'x 984, 991 (Fed. Cir. 2018) (upholding the Board's finding that it would be obvious to combine two prior art references where the primary reference disclosed a "sensor that can generate a signal of 'any desired type,'" and the secondary reference merely disclosed "the details of a sensor with a digital signal generator . . . as required by the claims.") In addition, a POSITA would understand that "it would be obvious to connect Smith's AVL system to a trip meter, including the

trip meter of Baumann, in order to furnish the computer with the distance traveled by the taxi.” (EX1005, ¶111.)

There are also business motivations for combining Smith and Baumann for the distance violation embodiment. As described by Mr. Williams:

In addition to these reasons, from a business standpoint it would make sense to combine Baumann’s trip meter into Smith’s taxi system as the mileage associated with a taxi’s usage would be one of the biggest individual expenses incurred by the taxi company. Knowing exactly how much of a taxi’s usage was employed in transporting passengers versus the taxi mileage associated with looking for passengers (e.g., driving around looking for fares) or the taxi driver’s personal usage, would play a key role in the business accounting expenses incurred by the company (e.g., allocating mileage and capital depreciation expenses to various categories including actual taxi passenger delivery operations). Tracking such trip mileage could also play a major role in ensuring that cash receipts (the only way of paying for a taxi for many years) matched charged receipts, and in turn how and how much the driver was paid (particularly if the taxi driver worked for the taxi company, as opposed to owning the vehicle and/or leasing a taxi medallion, etc.).

(*Id.*, ¶113.)

For the fare estimating embodiment, claims 12-13, 17-20, 26-31, and 37-41, it would be obvious to include the fare estimation routine found in Baumann in Smith’s invoice verification process. (*Id.*, ¶115.) Smith also includes all of the equipment and data necessary to determine actual waiting time and the actual taxi fare, including by using a combination of a distance fare rate and a time fare rate as described by Baumann. (*Id.*, ¶¶116-117) In addition, Smith’s collected data can be used to compensate for traffic conditions as described by Baumann. (*Id.*)

There are also business motivations for combining Smith and Baumann for the fare estimating embodiment. As described by Mr. Williams:

Traffic, and the associated waiting time, for a taxi/taxi operator is a dynamic, variable cost (as well as revenue-generator), and one that can have very significant impact not only on a customer's fare but also on the efficiency of a taxi/taxi fleet's operations and operational planning. ... Further, from a revenue maximization standpoint, such waiting time information could help the operator to better adjust travel versus waiting time customer charges to better optimize the revenue from short distance (but long trip time) fares, improving customer satisfaction (many taxi customers dislike paying for waiting time/not moving) and perhaps improving fare volume. In addition or alternatively, such waiting time-based fare adjustments could provide significant business flexibility. For example, it could enable different types of fare categories, e.g., long-haul vs. short-haul; enable being able to better match fares with associated expenses; and even provide flexibility in how vehicles are assigned and deployed (e.g., more efficient vehicles at slow/no speeds (high "city mileage") being assigned to slow, dense city traffic areas).

(*Id.*, ¶¶119-121.) Accordingly, a POSITA would incorporate Baumann's fare estimating process into Smith's invoice verification system to determine if a charged taxi fare was appropriate. (EX1005, ¶117.)

2. Smith in combination with Baumann renders obvious claim 1 of the '727 Patent

a. [1pre] A taxi trip meter system for a taxi

Smith discloses a taxi trip meter system in association with its system for "dispatching or controlling of taxis, ambulances, or other vehicles." (EX1006, 3:5-7.) Smith's Figure 1 depicts a "fully automated vehicle dispatching, monitoring and billing system." (*Id.*, 13:9-12.) This system in Figure 1 communicates with

the taxis, ambulances, or other vehicles, *id.* at 3:5-7, to form a taxi trip meter system.

Baumann also discloses a taxi trip meter system. For example, Baumann discloses a central control system (EX1007, 1:54-65) to support “fare computation and dispatching methods” for “taxi operations.” (*Id.*, 1:3-19.) Baumann’s system also includes various vehicle components, including a taxi meter 10 and a trip meter 8. (*Id.*, 5:57-60, Fig. 1.) For the trip meter, Baumann discloses a “speedometer cable sensor connected to [the] vehicle driveshaft.” (EX1007, 6:38-44, Fig. 1; EX1005, ¶126.) This sensor is used in combination with a taxi meter in the vehicle to determine trip distance for a taxi ride. (EX1007, 5:57-6:4; EX1005, ¶¶126, 135-136.) Thus, Baumann’s speedometer cable sensor is a trip meter, *i.e.*, a device in the taxi that determines distance traveled using input collected from the taxi. (EX1005, ¶126.)

Baumann discloses a “taxi meter” and that “the meter distance fare rate and time fare rate [are] adjustable to accommodate virtually any fare rate structure.” (EX1007, 5:14-19, Fig. 1.) Baumann further explains that these adjustments can be made “using wire jumpers that determine the cents/minute, cents/mile, and threshold velocity (i.e. the point at which the instantaneous time fare rate is the same as the distance fare rate). Below the threshold velocity, fares are based on

time; above, only on distance.” (*Id.*, 6:11-17.) Baumann’s discussion of fare rate structures signifies that taxis are regulated. (EX1005, ¶125.)

Baumann further discloses “local meter displays” and a “vehicle printer.” (EX1007, 2:16-27, 7:49-52.) Smith further discloses a location sensor in the form of “satellite-based vehicle tracking circuitry.” (EX1006, 9:3-10.) Both Smith and Baumann disclose transmitters for communicating between the taxi and the central computer. (EX1006, 6:7-12; EX1007, 4:42-53, 5:5-14; EX1005, ¶¶156-157.) Accordingly, the combination of Smith’s System, and Baumann’s central control system and the taxi vehicle equipment, disclose all of the elements and connections of the taxi trip meter system shown in Fig. 1 of the ‘727 Patent. (EX1005, ¶¶126-127.)

b. [1a] a computer

Smith’s System includes “a microcomputer running a multitasking operating system, a network of computers, or any other arrangement of computing hardware.” (EX1006, 8:18-9:2.) In addition, Smith uses “AVL technology to compute routing and mileage based on invoiced pickup and destination sites, and then compare the mileage of the computed route to the mileage charged in the invoice.” (*Id.*, 12:16-21.) Moreover, Smith uses “a database server 10 for storing records indicating requested vehicle services and associated information.” (*Id.*, 14:17-19.) “Under normal circumstances, the interactions with database server 10

and AVL system 18 are fully automated and are performed by communications processes 24, dispatching processes 26 and vehicle monitoring processes 28, which automatically dispatch and monitor vehicles in response to orders reflected in records and database 10.” (*Id.*, 16:13-20.) “A POSITA understands that Smith’s automated processing is performed by a computer.” (EX1005, ¶132.)

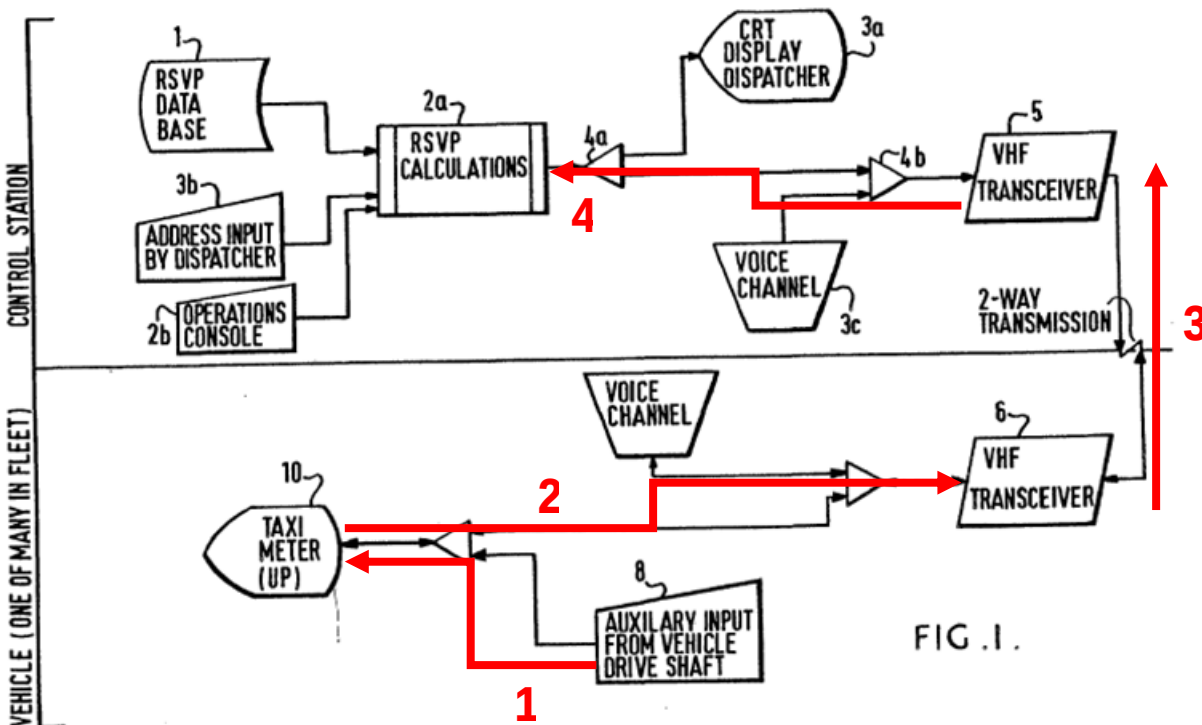
c. [1b] a trip meter connected to said computer, said trip meter for measuring an actual trip distance traveled by said taxi between a starting point and a destination point

While Smith discloses a system for use with a taxi, it does not expressly describe the well-known technical details of a taxi, including the use of a trip meter. (EX1006, 3:5-7.) Baumann, however, supplies those technical details, including a trip meter.

Taxis have used trip meters to measure trip distance since the beginning of this century. (EX1009, 399-402.) As discussed with respect to claim 1’s preamble, Section VIII.C.2.a, Baumann discloses a trip meter as a speedometer cable sensor “connected to [a] vehicle driveshaft” for measuring trip distance in a taxi. (EX1007, 5:57-6:4, 6:38-44, Fig. 1.) Baumann also discloses using this trip meter in a taxi meter system that identifies the start and end of a trip, *e.g.*, when the taxi driver hits the “flag button.” (*Id.*, 5:35-40.)

Baumann’s trip meter is connected to a computer through the taxi meter. (*Id.*, 3:60-61, 4:47-53, 5:20-28, 6:22-37, Fig. 1.) Baumann’s Figure 1, annotated

below, depicts the connection from: (1) the trip meter 8 to the taxi meter 10; (2) to the vehicle transceiver 6; (3) to the control station transceiver 5; and (4) to the control station's computer. "The Central Computer 2a will perform all calculations, communications processing, and real-time monitoring in the system." (*Id.*, 3:62-64.)



The '727 Patent discloses that the connection between the trip meter and the computer can be an indirect connection through the taxi meter as shown in Baumann's Figure 1. (EX1001, 4:45-47.)

Thus, it would be obvious to connect Baumann's trip meter to Smith's AVL system. Smith teaches that it uses the "mileage purportedly travelled" for determining whether such mileage was appropriate. (EX1006, Claim 33.) In taxi

embodiments, this is the actual distance measured by the trip meter when operating in a “conventional taxi mode.” (EX1007, 5:5-19, 6:11-17; EX1005, ¶137.)

Connecting Baumann’s trip meter to Smith’s AVL system would provide Smith’s System with direct access to the mileage traveled for use in Smith’s calculations.

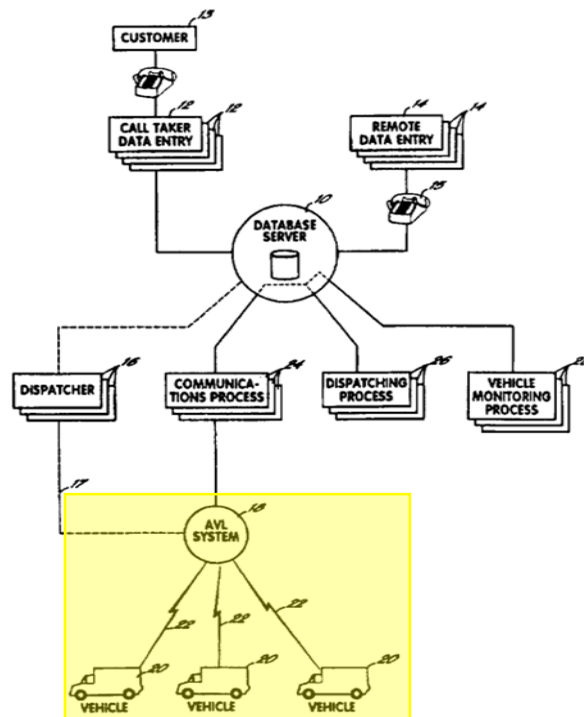
This connection would also allow Smith’s System to switch between GPS distance measurements and trip meter distance measurements, such as when GPS signals are lost or other technical issues that prevent the determination of mileage.

(EX1005, ¶137.) For example, Baumann describes switching from a “computer-controlled mode” to a “conventional taxi mode,” “in the event of a computer failure.” (EX1007, 5:5-14, 5:29-33.)

d. [1c] a location sensor providing geographical location information about said taxi to said computer

Smith discloses “satellite-based vehicle tracking circuitry” that is used to track vehicle location. (EX1006, 9:3-10.) This circuitry includes a GPS receiver for receiving geographical location information, specifically the latitude and longitude data of the vehicle, such as a taxi. (EX1005, ¶125.) As the ‘727 Patent describes that the location sensor can be a GPS receiver (EX1001, 2:30-33), Smith discloses the claimed location sensor as well as the function that location sensor performs: providing geographical location information about the taxi. (EX1005, ¶139.)

Smith's GPS receiver provides the geographical location information to Smith's AVL system via "wireless communication links 22." (EX1006, 15:24-16:5.) Smith's Figure 1, highlighted below, depicts vehicles transmitting their geographical location information to the AVL system, which is a computer that is tracking vehicle locations. (*Id.*, 5:3-10, Fig. 1; EX1005, ¶140.)



e. [1d][i] instructions loaded in said computer instructing said computer

Smith's System uses algorithms for route calculation and other software for performing tasks, such as vehicle location and communications. (EX1006, 18:11-22:17, 52:19-21, Abstract, Claims 1-4, 32-34.) Each of these examples are instructions loaded in the computer. (EX1005, ¶¶142-144.) The instructions relevant to the claim are described with the next three limitations.

f. [1d][ii] to calculate an estimated shortest trip distance between said starting point and said destination point

As described with respect to limitation [7c], Section VIII.A.1.c, Smith discloses “determining a shortest route from said starting point to said ending point.” (EX1006, Claim 33.)

Further, Baumann discloses detecting the start and stop of a trip when a “flag button” is pushed. (EX1007, 5:35-40.) Indeed, this is how a typical taxi operated in 1998 – the “driver would start and stop the taximeter to indicate the start and end of a trip.” (EX1005, ¶147.) As Smith requires pickup and destination latitude and longitudes to evaluate whether a ride was “appropriate,” a POSITA would understand that the taxi implementation of Smith requires determining the geographic location at the start and end of a taxi ride – namely, when the driver pressed the “flag button” described by Baumann to indicate the start and end of a trip. (*Id.*) Accordingly, it would be obvious to a POSITA to use Smith’s vehicle location system to obtain those geographic locations. (*Id.*)

g. [1d][iii] to compare said estimated shortest trip distance with said actual trip distance

As described with respect to limitation [7e], Section VIII.A.1.e, Smith claims “comparing a mileage associated with said shortest route to said mileage purportedly travelled.” (EX1006, Claim 33.) “The mileage associated with the

shortest route is the estimated shortest trip distance, while the mileage purportedly traveled is the actual trip distance.” (EX1005, ¶148.)

h. [1d][iv] to indicate a distance violation when said estimated shortest trip distance is exceeded by said actual trip distance by a predetermined distance margin

As described with respect to limitation [7f], Section VIII.A.1.f, Smith discloses this limitation. Smith’s Claim 33 recites that the Smith System uses the comparison “to determine if said mileage purportedly travelled is appropriate for said services.” (EX1006, Claim 33.) In this way, Smith’s System can be used to “locate excessive mileage charges” by comparing the actual trip distance to the estimated route to determine if the actual trip distance falls within set parameters. (EX1006, 59:9-13; EX1005, ¶¶88-93, 150.)

3. Smith in combination with Baumann renders obvious claim 2

Smith in combination with Baumann renders obvious claim 2. As set forth above, Smith in combination with Baumann renders obvious claim 1. Claim 2 depends from claim 1 and adds “wherein said location sensor comprises a GPS receiver.” As previously described with respect to limitation [1c], Section VIII.C.2.d, Smith discloses that the location sensor is a GPS receiver. (EX1005, ¶154.)

4. Smith in combination with Baumann renders obvious claims 3 and 4

Smith in combination with Baumann renders obvious claims 3-4, which depend from claim 1. As set forth above, Smith in combination with Baumann renders obvious claim 1. Claim 3 adds “further including a transmitter connected to said computer for transmitting violation information.” Claim 4 adds “further including a display connected to said computer for displaying violation information.”

As described in Section VIII.B, Smith discloses indicating a distance violation and providing information about that violation to others, including government agencies and insurance companies responsible for paying for trips. A POSITA would understand that Smith’s taxi embodiment would also provide such indications to taxi customers in the vehicle since they are responsible for paying taxi fares. (EX1005, ¶105.) “[A] POSITA would [also] understand that given the automated nature of Smith, when the violation information is provided to taxi customers, it could be done using the transmitter connected to Smith’s AVL System.” (*Id.*, ¶156)

In addition, both Smith and Baumann disclose communications between a computer and a vehicle display. (EX1006, 6:7-12; EX1007, 2:16-27, 4:42-53, 5:5-14.) Smith discloses that the AVL system computer communicates via cellular communications, which necessarily includes a transmitter. (EX1005, ¶156.)

Baumann also describes the use of a transmitter. (EX1007, 4:42-53 (communicating with “one or two base station transmitters”).) It would be obvious to a POSITA to replace the messages that Smith and Baumann transmit to a vehicle display with a message that includes violation information in an effort to alert taxi customers responsible for paying the taxi fare. (EX1005, ¶156.)

5. Smith in combination with Baumann renders obvious claims 7, 8, and 11

To the extent further evidence is required beyond Smith for limitations of claims 7, 8, and 11, a POSITA would have found these limitations obvious in view of Smith and Baumann. As described above, Sections VIII.C.1-2, the combination of Smith and Baumann discloses all of the limitations of claim 1 and it would have been obvious to combine Smith and Baumann. Claim 7 is a method claim that has many similar limitations as claim 1, and the notable differences between Claims 1 and 7 are addressed herein.

For example, with regard to limitations [7a] and [7b], Baumann discusses identifying the start and end of a taxi trip when the driver hits the “flag” button (EX1007, 5:35-40), which can be used in combination with Smith’s GPS system to identify the starting and destination locations. (See Sections VIII.C.2.c, VIII.C.2.f.) Further, Baumann discloses communicating the start and end of a trip to a central server. (*Id.*) Thus, a POSITA would understand to use the teachings of

Baumann in Smith's implementation of identifying the starting and destination locations. (EX1005, ¶159.)

With regard to limitation [7d], a POSITA would understand that combining Smith's System with Baumann's trip meter would allow Smith's System to obtain actual trip distance from Baumann's trip meter, as explained with regard to limitation [1b]. Baumann's trip meter does not determine the final actual trip distance until after the trip is completed and the taxi driver hits the "flag" button. (EX1007, 5:47-49.)

A POSITA would also understand to use Baumann's teachings about taxi fares to instruct that the taxi implementation of Smith to perform limitation [7f]: "indicating a distance violation when said estimated shortest trip distance is exceeded by said actual trip distance by a predetermined distance margin." (EX1005, ¶160.) Baumann teaches how to calculate an estimated fare and presenting that estimated fare to a rider via a taxi display. (EX1007, 2:16-27, 5:5-14, 6:26-30, 10:23-11:16.) Thus, a POSITA would understand to use that same system "to notify a user when Smith's system identifies a trip where the distance traveled was not 'appropriate.'" (EX1005, ¶160.)

Claims 8 and 11 are also rendered obvious by the combination of Smith and Baumann as Smith discloses the limitations of those claims. (See Sections VIII.A.2 and VIII.A.3.)

6. Smith in combination with Baumann renders obvious claims 12, 30, and 31

**a. [12Pre] An automated taxi fare estimating method;
[30Pre] An automated taxi trip meter system**

Smith's Title is: "Fully Automated Vehicle Dispatching, Monitoring and Billing." (EX1006, Title.) Smith applies to taxis. (*Id.*, 3:5-7.) Smith uses "existing AVL technology to compute routing and mileage based on invoiced pickup and destination sites, and then compare the mileage of the computed route to the mileage charged in the invoice." (*Id.*, 12:16-21.) In addition, Baumann discloses that "the fare may be calculated on the basis of estimated travel distance and travel time." (EX1007, 8:40-44.) As discussed with respect to the preamble of claim 1 (Section VIII.C.2a), the combination of Smith and Baumann discloses a taxi trip meter system.

**b. [12a] using a computer including street information accessible thereon;
[30a] the computer including street information accessible thereon**

Both Smith and Baumann disclose a computer that includes accessible street information. Smith's AVL system includes "a street map database and search algorithm through which the AVL can identify a street route from one address to another upon request from the dispatcher." (EX1006, 6:1-4.) Smith's AVL system includes a computer to execute the search algorithm using the street map database. (EX1005, ¶168.) Baumann's central control station computer includes information

“relating to routes and distances between street addresses.” (EX1007, 2:16-27.)

For example, “Baumann stores street information in an Address-Coordinate File, which includes ‘a Street Name File’ and ‘associates state plane coordinates with all streets.’” (EX 1005, ¶169 (quoting EX1007, 8:53-64).)

**c. [12b][i] the computer including program instructions;
[30a] program instructions for performing the
program steps**

As previously described with respect to limitation [1d][i], Section VIII.C.2.e, Smith discloses that a computer including program instructions to be performed. (EX1006, 20:18-22, 52:19-24.) Baumann also describes the computer including program instructions with respect to Figure 3. (EX1005, ¶171.) “Fig. 3 is a flow-chart in block diagram form of the calculation scheme for the computer program used in the invention.” (EX1007, 3:36-38.)

**d. [12b][iii] to receive geographical location information
from at least one network connected location sensor;
[30a] a computer in network communication with at
least one location sensor**

As previously described with respect to limitation [1c], Section VIII.C.2.d, Smith discloses “satellite-based vehicle tracking circuitry may be used to track the locations of the vehicles, and the vehicle locations forwarded via satellite or radio to the processing circuitry for using in vehicle monitoring.” (EX1006, 9:5-14.) Smith’s computer, which includes the vehicle tracking circuitry, receives the geographical location information from the location sensors in the vehicles over

communication links. (EX1006, 5:3-10, Fig. 1; EX1005, ¶¶139-140, 173.) This is the same way that the '727 Patent describes receiving geographical location information. (EX1005, ¶173.)

**e. [12b][iii] to access the street information based on the received geographical location information;
[30e] accessing the street information using the geographical location information**

Smith tracks “the vehicle’s movements and position.” (EX1006, 9:11-14.) To perform this tracking, Smith “determine[s] the latitude and longitude of the vehicle” using GPS data from the AVL system’s transmitters. (*Id.*, 57:12-14; EX1005, ¶¶156, 175.) The latitude and longitude are the received geographical location information. (EX1005, ¶175.) As previously described, Smith’s AVL system includes “a street map database,” which includes street information. (EX1006, 6:1-4; EX1005, ¶175.) Smith’s System, alone or when combined with Baumann, accesses the street information using the latitude and longitude data it received, for example, to determine if a vehicle has arrived at the starting point or reached the destination point. (*See, e.g.*, Section VIII.C.1.) Accordingly, Smith’s system accesses the street map database using the geographical location information it received from the vehicle’s GPS receiver. (EX1005, ¶176.)

f. [12c][i] the computer program instructions

As previously described with limitations [1d][i] and [12b][i], Sections VIII.C.2.e and VIII.C.6.c, Smith discloses computer program instructions.

- g. [12c][ii] receiving geographical location information from the at least one location sensor;
[30b] receiving geographical location information from the at least one location sensor**

As previously described with limitation [12b][ii], Section VIII.C.6.d, Smith discloses receiving geographical location information from the at least one location sensor.

- h. [12c][iii] determining a starting point for a trip based on the received geographical location information;
[30c] determining a starting point for a trip based on the geographical location information**

As described with limitation [7a], Section VIII.A.1.b, Smith discloses determining a starting point for a trip with, for example, the geographical location information received from the vehicle's GPS receiver. (EX1005, ¶180.)

Additionally, as described with limitation [1b], the proposed combination of Smith and Baumann discloses determining a starting point for a trip with the geographical location information received from Smith's vehicle's GPS receiver in combination with the start of trip information received from the taxi meter described in Baumann. (*Id.*, ¶181.)

- i. [12c][iv] determining a destination point for said trip;
[30d] determining a destination point for the trip**

As previously described with limitation [7b], Section VIII.A.1.b, Smith discloses determining the destination point for a trip using the AVL system. (*See, also*, EX1006, 5:3-10, 22:18-21:2, 29:14-16.) Additionally, as described with

limitation [1b], the proposed combination of Smith and Baumann discloses determining a destination point for a trip with the geographical location information received from Smith's vehicle's GPS receiver in combination with the end of trip information received from the taxi meter described in Baumann. (EX1005, ¶¶135, 183-184.)

- j. **[12c][v] determining an estimated shortest trip distance between said starting point and said destination point based on the street information or on a straight-line distance determined between the starting point and destination point;**
[30f] determining an estimated shortest trip distance between the starting point and the destination point based on the street information or on a straight-line distance determined between the starting point and destination point

As previously described with limitation [7c], Section VIII.A.1.c, Smith determines the claimed estimated shortest trip distance based on street information. Baumann also determines an estimated shortest trip distance between starting and destination points based on the street information. Baumann claims "estimating times of transit" using information "relating to routes and distances between street addresses." (EX1007, Claim 1.) Baumann estimates the shortest trip distance "by adjusting the ... distance in the Time/Distance File by a correction factor based on the information available in the Address-Coordinate File." (*Id.*, 8:44-61.) The Time/Distance File "contains shortest-time-path distances" and the Address-Coordinate File "associates state plane coordinates with all streets addressed in the

service area.” (*Id.*, 8:32-34, 8:49-56, 9:50-51; *see also*, EX1002, 149 (“The Time/Distance File contains shortest-time-path distances...”).) Thus, a POSITA would also understand that Smith and Baumann both determine shortest distance based on street information. (EX1005, ¶¶186-187.)

- k. **[12c][vi] determining an estimated waiting time encountered in traffic during said trip based on the geographical location information and the street information; [30g] determining an estimated waiting time in traffic during the trip based on the street information; [31] wherein the estimated waiting time is determined using the geographical location information**

The ‘727 Patent does not disclose how to estimate waiting time “encountered” in traffic. Both the ‘727 Patent and Baumann, however, disclose calculating a taxi fare using a combination of “trip distance and waiting time in traffic.” (EX1001, 1:24-25; EX1007, 5:14-19.) As Baumann explains, “[b]elow the threshold velocity, fares are calculated based on time; above, only on distance.” (EX1007, 6:16-17.) This aligns with the construction Uber proposed if this limitation is not indefinite – the “amount of time spent stopped or below a predefined speed threshold.” (EX1009, 20-22.)

Additionally, a POSITA would understand that Baumann determines such waiting time as an estimate—*i.e.*, without referencing the actual waiting time as determined by the taxi meter. (EX1005, ¶191.) To perform this estimate, Baumann has access to the same information the ‘727 Patent discloses as being

necessary to estimate waiting time. The '727 Patent states that “[a]n estimated waiting time in traffic along the optimal route is determined at block 51 based on location traffic information and the time of day to account for traffic lights, traffic congestion, etc.” (EX1001, 3:51-54.) Similarly, Baumann “introduces compensations and corrections based upon the particular routes and time of day with its differing traffic and similar circumstances.” (EX1007, 1:65-2:11, *see also* 2:28-38.) To do so, Baumann maintains a “Time/Distance File [that] contains shortest-time-path distances, travel time during uncongested periods, and travel times during congested periods for trips between all possible pairs of traffic zones.” (*Id.*, 8:28-31.) A POSITA would also understand that Smith’s System could also use these techniques with both the “optimal route” and “shortest route” disclosed in Smith. (EX1005, ¶193.)

Accordingly, Smith and/or Baumann discloses each of the potential meanings for this limitation. And, it would be obvious to use Baumann’s methods of determining waiting time encountered in traffic in Smith’s monitoring system as Smith already contemplates factoring in traffic issues. (*Id.*)

- I. **[12c][vii] determining an estimated taxi fare based on said estimated shortest trip distance and said estimated waiting time;
[30h] determining an estimated fare based on the estimated shortest trip distance and the estimated waiting time**

Like the '727 Patent, Baumann discloses determining an estimated taxi fare based on estimated shortest trip distance and estimated waiting time. "[T]he fare may be calculated on the basis of estimated travel distance and travel time."

(EX1007, 8:40-44.) Unlike the '727 Patent, Baumann actually discloses how to do so in a section titled "Calculation of fares." (*Id.*, 10:23-11:63.) Baumann expresses this formula as a function of distance (x) and time (t) to be: $f(x,t) = f_0 + ax + bt$. (*Id.*, 10:52-58.)

Baumann explains, however, that actual taxi fares are calculated differently: "[b]elow the threshold velocity, fares are based on time; above, only on distance." (*Id.*, 6:16-17.) Accordingly, a POSITA would be motivated to use time spent below the threshold velocity in the fare estimation because that is what is used when calculating actual taxi fares. (EX1005, ¶196.) Thus, a POSITA implementing Smith's taxi system would use Baumann's disclosure of actual fare calculation to evaluate whether a taxi fare was appropriate for the ride. (EX1005, ¶¶117, 196.)

7. Smith in combination with Baumann renders obvious claim 13

Smith in combination with Baumann renders obvious claim 13, which depends from claim 12. As set forth above, Smith in combination with Baumann renders obvious claim 12. Claim 13 adds “wherein said estimated shortest trip distance comprises a driving distance through known roads.” This limitation is also found in claim 8. As described with respect to claim 8, Section VIII.A.2, Smith discloses this limitation. Baumann also discloses this limitation via its Time/Distance File and Address-Coordinate File that includes, for example, known roads in the southwest region of Pennsylvania. (EX1007, 8:44-64; EX1005, ¶198.)

8. Smith in combination with Baumann renders obvious claim 17

Smith in combination with Baumann renders obvious claim 17, which depends from claim 12. As set forth above, Smith in combination with Baumann renders obvious claim 12. Like claim 11, claim 17 adds “recording an actual route traveled during said trip for subsequent review for excusable causes for said fare violation.” As described with respect to claim 11, Section VIII.A.3, Smith discloses this limitation.

9. Smith in combination with Baumann renders obvious claims 18, 19, 27, and 39

Smith in combination with Baumann renders obvious claim 18, which depends from claim 1; claim 19, which depends from claim 12; and claims 27 and

39, which depend from claim 30. As set forth above, Smith in combination with Baumann renders obvious claims 1, 12, and 30.

All of these dependent claims relate to determining a fare on a remote computer. Claim 18 adds “wherein the computer is in network communication with the trip meter.” Claim 19 adds “wherein the estimated taxi fare is determined on a remote computer in network communication with a taxi trip meter.” Claims 27 and 39 add “wherein the computer determines the fare from a remote location and communicates the fare over a network connection.”

As described with respect to claim limitation [1b], Section VIII.C.2.c, Baumann discloses a trip meter connected to a computer. Baumann also describes that the computer at the central station is in network communication with the vehicles that include the trip meter, satisfying claim 18. (EX1007, 5:20-28, Fig. 1; EX1005, ¶202.) The computer that calculates estimated taxi fares is remote from the vehicles that include the trip meters, satisfying claim 19. (EX1007, 6:26-30; EX1005, ¶¶204-205.) Baumann transmits a fare over a radio communication link to the appropriate vehicle in the fleet of vehicles, satisfying claims 27 and 39. (EX1007, 2:59-3:19 (“said calculated fares ... selectively addressed to the corresponding vehicle”), 7:57-62 (“information sent along the radio communications link”), Fig. 1; EX1005, ¶211.)

10. Smith in combination with Baumann renders obvious claims 20 and 37

Smith in combination with Baumann renders obvious claims 20 and 37, which depend from claims 12 and 30, respectively. As set forth above, Smith in combination with Baumann renders obvious claims 12 and 30. Claim 20 adds “wherein the estimated shortest trip distance is determined using the geographical location information.” Claim 37 adds “wherein the estimated shortest trip distance is determined using actual street route information available on the computer.”

Smith’s “AVL systems may also include a street map database and search algorithm through which the AVL can identify a street route from one address to another.” (EX1006, 6:1-4.) As explained in Section VIII.A.1.b, Smith’s dispatch file contains the latitude and longitude for the pickup and destination locations, which were received from the GPS in Smith’s AVL System. (EX1006, Fig. 3A.) Baumann also discloses the use of geographical information: “Address-Coordinate File associates state plane coordinates with all street addresses in the service area.” (EX1007, 8:32-34.) State plane coordinates are a type of geographical information. (EX1005, ¶207.) Thus, when Smith’s System estimates the shortest distance (*see, e.g.*, EX1006, Claim 33), it does so using geographical information and street route information. (EX1005, ¶¶207, 224.)

11. Smith in combination with Baumann renders obvious claims 26 and 38

Smith in combination with Baumann renders obvious claims 26 and 38, which depend from claims 12 and 30, respectively. As set forth above, Smith in combination with Baumann renders obvious claims 12 and 30. Claims 26 and 38 add “wherein the estimated waiting time is determined using route information available on a computer” and “wherein the route information includes traffic light or traffic congestion information.” Baumann discloses these limitations as described with limitation [12c][vi] Section VIII.C.6.k. Baumann estimates waiting time on a computer that includes route information stored in a Time/Distance file. (EX1007, 2:28-38, 8:28-31, 8:44-61; EX1005, ¶209.) Baumann’s route information includes traffic congestion information. (*Id.*)

12. Smith in combination with Baumann renders obvious claims 28 and 40

Smith in combination with Baumann renders obvious claims 28 and 40, which depend from claims 12 and 30, respectively. As set forth above, Smith in combination with Baumann renders obvious claims 12 and 30. Claims 28 and 40 add “communicating the estimated fare to a rider upon or after completion of the trip.” After Baumann determines an estimated taxi fare using its central control computer, it automatically transmits the fare to the vehicle for display. (EX1007, Claim 1.) Baumann displays the fare until the trip has ended. (EX1007, 5:47-50;

EX1005, ¶213.) In addition, Baumann can print a receipt via a vehicle printer at the end of the trip. (EX1007, 7:49-50; EX1005, ¶213.) In this way, Baumann discloses transmitting the fare to a rider upon or after a trip is completed. (EX1005, ¶213.) Moreover, it would be obvious to modify Smith's System that automatically checks if a ride was "appropriate," to transmit the estimated fare to the rider (as Smith discloses transmitting such information to government and insurance agencies in the form of an invoice) at the end of a trip. (EX1005, ¶214.)

13. Smith in combination with Baumann renders obvious claims 29 and 41

Smith in combination with Baumann renders obvious claims 29 and 41, which depend from claims 12 and 30, respectively. As set forth above, Smith in combination with Baumann renders obvious claims 12 and 30. Claims 29 and 41 add "determining an actual fare based upon an actual trip distance or an actual trip duration" and "indicating a fare violation if the actual fare exceeds the estimated fare by a predetermined permissible margin." As the Patent Owner described during prosecution, a taxi meter can determine an actual fare based on actual trip distance or duration. (EX1002, 126.)

Baumann discloses that a taxi meter can determine an actual fare based on actual trip distance and duration. Baumann explains that "[b]elow the threshold velocity, fares are based on time; above, only on distance." (EX1007, 6:11-17.) Baumann also discloses two modes of operation: conventional taxi mode and

computer-controlled mode. (*Id.*, 5:29-33.) In conventional taxi mode, Baumann’s taxi meter determines an actual fare, while in computer-controlled mode, Baumann’s central computer determines an estimated fare. (*Id.*, 6:26-30; EX1005, ¶216.) Baumann’s central computer also obtains the actual fare from the taxi meter. (EX1007, 6:30-34.)

While Baumann does not disclose comparing the actual fare to the estimated fare, Baumann’s computer can easily perform this comparison using its own estimated fare (determined by the central computer) and actual fare (determined by the taxi meter). (EX1005, ¶217.) Moreover, a POSITA would be motivated to modify Smith’s System to perform this comparison to indicate a fare violation based on Smith’s comparison of actual and estimated distances to determine a distance violation. (*Id.*; *see also*, Section VIII.A.1.f and VIII.C.1.) While Smith provides an ambulance example, Smith’s example would apply to taxis as well. (EX1006, 3:5-7.) While ambulance charges are based on mileage (*i.e.*, distance), taxi fares can be a combination of distance and time charges. (EX1005, ¶219.) As a result of this difference, “when applying Smith’s comparison to Baumann, a POSITA would compare actual and estimated fares to determine whether a fare was inflated by an unscrupulous driver. As a result, the combination of Smith and Baumann would result in an indication of a fare violation.” (*Id.*)

* * * *

Accordingly, as explained above, the combination of Smith and Baumann renders obvious each of the Challenged Claims, and a POSITA would be motivated to use Baumann's technical details in the taxi monitoring system disclosed in Smith.

D. Ground 4: Baumann in Combination with Choi Renders Obvious Claims 12, 13, 17, 19-20, 26-28, 30-31, and 37-40

1. One of Ordinary Skill Would Have Had Reason to Combine Baumann With Choi

As described by Mr. Williams, it would have been obvious to a POSITA to combine the teachings of Baumann and Choi. (EX1005, ¶¶230-233.) “Both Baumann and Choi describe improvements to managing taxicab services” and “use a central computer to perform analysis.” (*Id.*, ¶231.) “Baumann has all of the equipment, processes, and data necessary to estimate a taxi fare. It would be a straightforward task to include the GPS data collected by Choi in Baumann's fare computation and dispatching method.” (*Id.*)

There are also business reasons for combining Baumann and Choi. As described by Mr. Williams:

The ability to determine location of the taxi during waiting periods is a key enabler of such business benefits. Put another way, knowing waiting time *without* knowing the locations involved has much less benefit: it doesn't allow (or at least significantly inhibits) effective location-based fare and/or operational adjustments, nor does location-less waiting data enable the ability to better analyze the causes of key issues such route-related issues and even non-optimal driver behavior (e.g., waiting times seem to increase dramatically near Joe's coffee

shop). Choi's GPS capability would provide such location enablers, providing detailed, accurate information for dissecting operations and making adjustments, as well as better tailoring fares to customer's location needs and expectations.

(*Id.*, ¶233.)

2. Baumann in combination with Choi renders obvious claims 12, 30, and 31 of the '727 Patent

As described with respect to Ground 3, Section VIII.C.6, Baumann discloses all of the limitations of claims 12, 30, and 31 other than the "location sensor" limitations and the limitations using "geographical location information" received from the location sensor. Choi discloses these limitations missing from Baumann.

**a. [12Pre] An automated taxi fare estimating method;
[30Pre] An automated taxi trip meter system**

As described in Ground 3, Section VIII.C.6.a, Baumann discloses an automated taxi fare estimating method and, as disclosed in Section VIII.C.2.a, Baumann discloses an automated taxi trip meter system. Choi discloses "a fare calculation means to calculate fare for each business area." (EX1008, 10, *see also* Claim 1.)

**b. [12a] using a computer including street information accessible thereon;
[30a] the computer including street information accessible thereon**

As described in Ground 3, Section VIII.C.6.b, Baumann discloses using a computer including street information accessible thereon. Choi discloses that "the computer (62) has previously stored map as shown in Figure 7, and the map is

displayed on the monitor (61).” (*Id.*, 11.) Choi’s Figure 5, depicting the monitor, and Figure 7, depicting the map, are shown below. (*Id.*, 14-15.) As the computer can display the map, which includes street information, Choi also discloses using a computer including street information accessible thereon. (EX1005, ¶237.)

Fig. 5

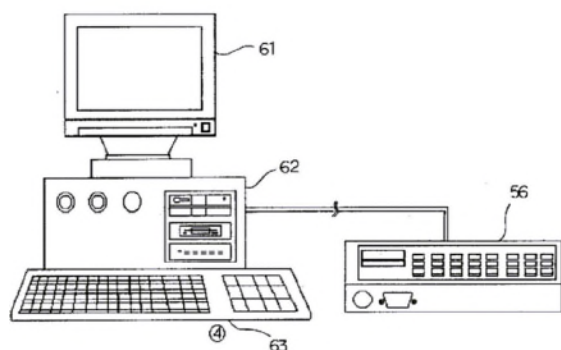
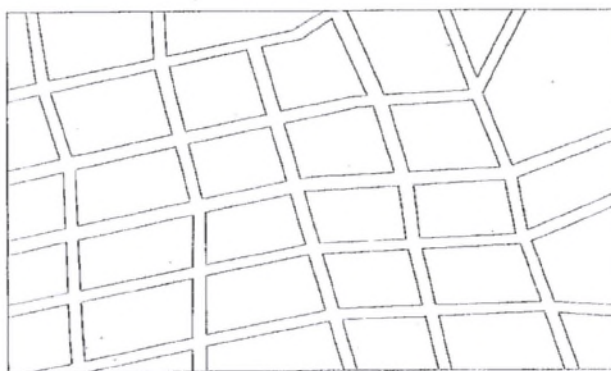


Fig. 7



- c. **[12b][i] the computer including program instructions; [30a] program instructions for performing the program steps**

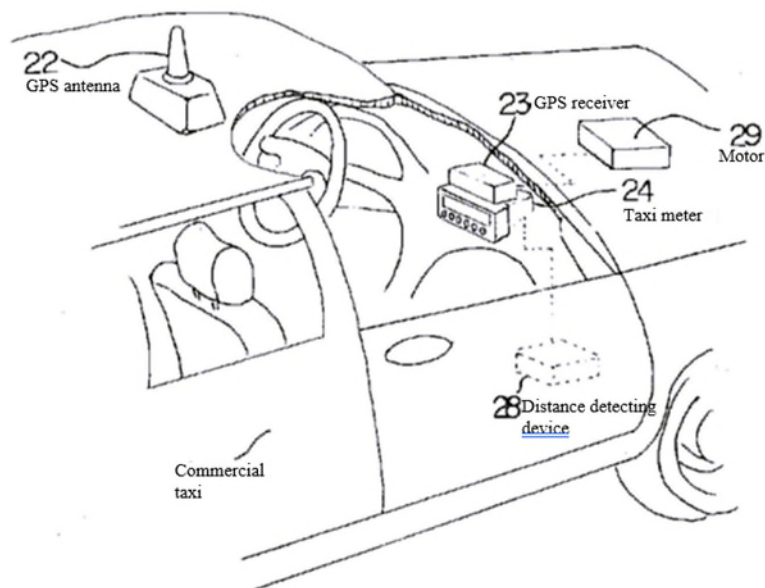
As described in Ground 3, Section VIII.C.6.c, Baumann discloses the computer including program instructions. Choi discloses “analyzing the recorded data with a computer.” (EX1008, 10.) A computer that analyzes data has program instructions to do so. (EX1005, ¶239.)

- d. **[12b][ii] to receive geographical location information from at least one network connected location sensor; [30a] a computer in network communication with at least one location sensor**

Choi discloses “a taxi meter using a Global Positioning System capable of recording and reading the taxi passenger pick-up and drop-off locations and current

location data.” (EX1008, 10.) “When location information is received from the five satellites of the GPS receivers 13, 23, and 53 shown in Fig. 1 through an antenna installed in a taxi and sent to the GPS receivers 13, 23, and 53, a three-dimensional location is obtained and from the three-dimensional locations, latitude data (N) and longitude data (E) are sent to the taxi meter as location data (N, E).” (*Id.*, 11.) Choi’s Figure 2, shown below, depicts a taxi with a GPS receiver and a GPS antenna for receiving geographical location information. (*Id.*, 13.)

Fig. 2



Thus, Choi discloses program instructions to receive geographical location information from at least one network connected location sensor in the same manner as the ‘727 Patent. (EX1005, ¶241.)

- g. [12c][ii] receiving geographical location information from the at least one location sensor;
[30b] receiving geographical location information from the at least one location sensor**

As previously described with limitation [12b][ii], Choi discloses receiving geographical location information from the at least one location sensor.

- h. [12c][iii] determining a starting point for a trip based on the received geographical location information;
[30c] determining a starting point for a trip based on the geographical location information**

Choi discloses “[a] taxi meter using automatic navigation system.”

(EX1008, 9.) Choi’s navigation system is “capable of recording and reading the taxi passenger pick-up and drop-off points and the current location data using radio waves received by a Global Positioning System.” (*Id.*, 10.) In particular, when a taxi trip starts, “the current location of the vehicle that picked up the passenger is stored as the value of Qi (N, E) in the taxi meter’s memory cell (40).” (*Id.*, 11.) In this way, Choi determines the starting point for a trip based on received geographical location information. (EX1005, ¶245.)

And while Baumann discloses determining the start of a trip (see Section VIII.C.2.c), it does not disclose identifying that point with geographic location. However, it would be obvious to a POSITA to use Choi’s determination of geographic location when a taxi trip begins, with the disclosure in Baumann. (EX1005, ¶245.)

**i. [12c][iv] determining a destination point for said trip;
[30d] determining a destination point for the trip**

Baumann discloses determining a destination point for a trip. (EX1005, ¶246.) Baumann discloses identifying the end of a trip when the taxi driver hits the “flag button.” (EX1007, 5:35-40.) Choi also discloses determining a destination point for a trip. As described with respect to the previous limitation, Choi’s navigation system records and reads drop-off points as well as pick up points. In addition, when a trip ends, “the vehicle location of the point at which the passenger is dropped off is stored in the taxi meter as the value of driving route data $Q_i(N, E)$.” (EX1008, 11.) In this way, Choi determines the destination point for a trip. (EX1005, ¶247.) And again, it would be obvious to combine Baumann and Choi to identify the geographic location at the end of a trip. (*Id.*)

**j. [12c][v] determining an estimated shortest trip distance between said starting point and said destination point based on the street information or on a straight-line distance determined between the starting point and destination point;
[30f] determining an estimated shortest trip distance between the starting point and the destination point based on the street information or on a straight-line distance determined between the starting point and destination point**

As described in Ground 3, Section VIII.C.6.j, Baumann discloses determining an estimated shortest trip distance.

- k. **[12c][vi] determining an estimated waiting time encountered in traffic during said trip based on the geographical location information and the street information;**
[30g] determining an estimated waiting time in traffic during the trip based on the street information;
[31] wherein the estimated waiting time is determined using the geographical location information

As described in Ground 3, Section VIII.C.6.k, Baumann discloses
determining an estimated waiting time encountered in traffic.

- l. **[12c][vii] determining an estimated taxi fare based on said estimated shortest trip distance and said estimated waiting time;**
[30h] determining an estimated fare based on the estimated shortest trip distance and the estimated waiting time

As described in Ground 3, Section VIII.C.6.l, Baumann discloses
determining an estimated taxi fare based on said estimated shortest trip distance
and said estimated waiting time.

3. Baumann in combination with Choi renders obvious claim 13 of the ‘727 Patent

Baumann in combination with Choi renders obvious claim 13, which depends from claim 12. As set forth above, Baumann in combination with Choi renders obvious claim 12. Claim 13 adds “wherein said estimated shortest trip distance comprises a driving distance through known roads.” Baumann estimates the shortest trip distance using an Address-Coordinate file that includes “a Street Name File.” (EX1007, 8:62-64.) Baumann’s Street Name File was developed by

a regional planning commission and therefore includes “known roads.” (*Id.*, 8:53-56; EX1005, ¶252.)

4. Baumann in combination with Choi renders obvious claim 17 of the ‘727 Patent

Baumann in combination with Choi renders obvious claim 17, which depends from claim 12. As set forth above, Baumann in combination with Choi renders obvious claim 12. Claim 17 adds “recording an actual route traveled during said trip for subsequent review for excusable causes for said fare violation.”

Choi discloses that “[t]he taxi meters (14, 24, 54) record the total business data (total mileage, business distance, income, vehicle speed, number of business, etc.), and the location data (N , E) of the GPS receivers (13, 23, 53), and by analyzing the recorded data with a computer, it is possible to check the place where the passenger is picked up and dropped off and the business status through the computer monitor, which enables efficient management.” (EX1008, 10.) Using this recorded information, Choi’s computer can calculate “the operating efficiency of the entire driving route” and determine whether the driver is illegally operating the vehicle. (*Id.*, 11.) This type of analysis “would also identify if there were excusable causes for an increased fare.” (EX1005, ¶256.)

5. Baumann in combination with Choi renders obvious claims 19, 27, and 39 of the ‘727 Patent

Baumann in combination with Choi renders obvious claim 19, which depends from claim 12; and claims 27 and 39, which depend from claim 30. As set forth above, Baumann in combination with Choi renders obvious claims 12 and 30. Claim 19 adds “wherein the estimated taxi fare is determined on a remote computer in network communication with a taxi trip meter.” Claims 27 and 39 add “wherein the computer determines the fare from a remote location and communicates the fare over a network connection.”

As described with respect to Ground 3, Section VIII.C.9, Baumann discloses a remote computer in network communication with a taxi trip meter that determines an estimated fare and communicates that fare to a vehicle over a network connection. (See EX1007, 2:59-3:19, 5:20-28, 7:57-62, Fig. 1; EX1005, ¶¶258, 265.)

6. Baumann in combination with Choi renders obvious claims 20 and 37 of the ‘727 Patent

Baumann in combination with Choi renders obvious claims 20 and 37, which depend from claims 12 and 30, respectively. As set forth above, Baumann in combination with Choi renders obvious claims 12 and 30. Claim 20 adds “wherein the estimated shortest trip distance is determined using the geographical

location information.” Claim 37 adds “wherein the estimated shortest trip distance is determined using actual street route information available on the computer.”

As described with respect to Ground 3, Section VIII.C.10, Baumann discloses that the estimated shortest trip distance is determined using geographical location information and actual street route information available on the computer. Baumann’s “Address-Coordinate File ... associates state plane coordinates with all street addresses in the service area.” (EX1007, 8:53-56.) State plane coordinates are a type of geographical information. (EX1005, ¶260.)

7. Baumann in combination with Choi renders obvious claims 26 and 38 of the ‘727 Patent

Baumann in combination with Choi renders obvious claims 26 and 38, which depend from claims 12 and 30, respectively. As set forth above, Baumann in combination with Choi renders obvious claims 12 and 30. Claims 26 and 38 add “wherein the estimated waiting time is determined using route information available on a computer” and “wherein the route information includes traffic light or traffic congestion information.”

As described with respect to Ground 3, Section VIII.C.11, Baumann discloses that the estimated waiting time is determined using route information, including traffic congestion information, available on a computer. (See EX1007, 2:28-38, 8:28-31, 8:44-61; EX1005, ¶263.)

8. Baumann in combination with Choi renders obvious claims 28 and 40 of the ‘727 Patent

Baumann in combination with Choi renders obvious claims 28 and 40, which depend from claims 12 and 30, respectively. As set forth above, Baumann in combination with Choi renders obvious claims 12 and 30. Claims 28 and 40 add “communicating the estimated fare to a rider upon or after completion of the trip.”

As described with respect to Ground 3, Section VIII.C.12, Baumann discloses communicating the estimated fare to a rider upon or after completion of the trip. Baumann can communicate the estimated fare to a rider via a vehicle display or printer. (See EX1007, 5:47-50, 7:49-50; EX1005, ¶268.)

IX. THE BOARD SHOULD NOT USE ITS DISCRETION TO DENY INSTITUTION UNDER *FINTIV*

Petitioner expects that Patent Owner will ask the Board to exercise its discretion to deny institution despite the strong invalidity showing on the merits. The Board should decline to do so. The following six factors set out in

Fintiv/NHK do not justify denying Uber’s Petition:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and

6. other circumstances that impact the Board's exercise of discretion, including the merits.

Apple Inc. v. Fintiv, Inc., IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020)

(designated precedential May 5, 2020).

The first five factors presume that a district court litigation exists. That is not the case here. The Western District of Texas dismissed Fare's case against Uber on March 14, 2023. As of the filing date of this Petition, Fare has not reasserted the '727 Patent against Uber in another forum. As a result, there are no parallel proceedings. (*See Fintiv* Factors 3-5.) Prior to dismissal, the district court did not conduct a *Markman* hearing, or rule on any substantive issues besides venue. (*See Fintiv* Factor 3). If Fare refiles, that court would be starting the case effectively anew. Accordingly, it is speculative what this unknown court would set as a case schedule or whether it would stay the proceedings. (*See Fintiv* Factors 1 and 2.) Uber is not aware of any circumstances that would impact the Board's exercise of discretion (*Fintiv* Factor 6), other than the merits of this Petition, which weighs against discretionary denial.

Accordingly, the *Fintiv/NHK* factors strongly weigh against denial.

X. CONCLUSION

As demonstrated above, there is a reasonable likelihood that the Challenged Claims are unpatentable. Petitioner requests *Inter Partes* Review of claims 1-4, 7-

8, 11-13, 17-20, 26-31, and 37-41 of the '727 Patent, and requests that these claims be cancelled.

The required fee under 37 C.F.R. §§ 42.15(a) and 42.103 in the amount of \$46,000 is being paid through the Patent Review Processing System. Please assess any fee deficiency or credit to Deposit Account No. 10-0460.

Respectfully submitted,

Dated: March 27, 2023

/Benjamin J. Bradford/
Benjamin J. Bradford, Reg. No. 74,728
Lead Attorney for Petitioner

APPENDIX A

Challenged Claims of the '727 Patent
[1pre] A taxi trip meter system for a taxi, comprising:
[1a] a computer;
[1b] a trip meter connected to said computer, said trip meter for measuring an actual trip distance traveled by said taxi between a starting point and a destination point;
[1c] a location sensor providing geographical location information about said taxi to said computer; and
[1d][i] instructions loaded in said computer instructing said computer
[1d][ii] to calculate an estimated shortest trip distance between said starting point and said destination point
[1d][iii] to compare said estimated shortest trip distance with said actual trip distance, and
[1d][iv] to indicate a distance violation when said estimated shortest trip distance is exceeded by said actual trip distance by a predetermined distance margin.
[2] The taxi trip meter system of claim 1, wherein said location sensor comprises a GPS receiver.
[3] The taxi trip meter system of claim 1, further including a transmitter connected to said computer for transmitting violation information.
[4] The taxi trip meter system of claim 1, further including a display connected to said computer for displaying violation information.
[7pre] A taxi trip distance violation detection method, comprising:
[7a] determining a starting point for a trip;
[7b] determining a destination point for said trip;
[7c] determining an estimated shortest trip distance between said starting point and said destination point;
[7d] determining an actual trip distance traveled by a vehicle after said trip is completed;
[7e] comparing said estimated shortest trip distance with said actual trip distance; and
[7f] indicating a distance violation when said estimated shortest trip distance is exceeded by said actual trip distance by a predetermined distance margin.
[8] The taxi trip distance violation detection method of claim 7, wherein said estimated shortest trip distance comprises a driving distance through known roads.

[11] The taxi trip distance violation detection method of claim 7, further including recording an actual route traveled during said trip for subsequent review for excusable causes for said distance violation.
[12Pre] An automated taxi fare estimating method, comprising:
[12a] using a computer including street information accessible thereon,
[12b][i] the computer including program instructions
[12b][ii] to receive geographical location information from at least one network connected location sensor and
[12b][iii] to access the street information based on the received geographical location information,
[12c][i] the computer program instructions comprising:
[12c][ii] receiving geographical location information from the at least one location sensor;
[12c][iii] determining a starting point for a trip based on the received geographical location information;
[12c][iv] determining a destination point for said trip;
[12c][v] determining an estimated shortest trip distance between said starting point and said destination point based on the street information or on a straight-line distance determined between the starting point and destination point;
[12c][vi] determining an estimated waiting time encountered in traffic during said trip based on the geographical location information and the street information; and
[12c][vii] determining an estimated taxi fare based on said estimated shortest trip distance and said estimated waiting time.
[13] The taxi fare estimating method of claim 12, wherein said estimated shortest trip distance comprises a driving distance through known roads.
[17] The taxi fare estimating method of claim 12, further including recording an actual route traveled during said trip for subsequent review for excusable causes for said fare violation.
[18] The taxi trip meter system of claim 1 wherein the computer is in network communication with the trip meter.
[19] The taxi fare estimating method of claim 12 wherein the estimated taxi fare is determined on a remote computer in network communication with a taxi trip meter.
[20] The taxi fare estimating method of claim 12 wherein the estimated shortest trip distance is determined using the geographical location information.
[26] The taxi fare estimating method of claim 12, wherein the estimated waiting time is determined using route information available on a computer, wherein the route information includes traffic light or traffic congestion information.

[27] The taxi fare estimating method of claim 12, wherein a computer determines the fare from a remote location and communicates the fare over a network connection.
[28] The taxi fare estimating method of claim 12, the method steps further comprising: communicating the estimated fare to a rider upon or after completion of the trip.
[29] The taxi fare estimating method of claim 12, the method steps further comprising: determining an actual fare based upon an actual trip distance or an actual trip duration; and indicating a fare violation if the actual fare exceeds the estimated fare by a predetermined permissible margin.
[30PRE] An automated taxi trip meter system, the system comprising:
[30a] a computer in network communication with at least one location sensor, the computer including street information accessible thereon and program instructions for performing the program steps comprising:
[30b] receiving geographical location information from the at least one location sensor;
[30c] determining a starting point for a trip based on the geographical location information;
[30d] determining a destination point for the trip;
[30e] accessing the street information using the geographical location information;
[30f] determining an estimated shortest trip distance between the starting point and the destination point based on the street information or on a straight-line distance determined between the starting point and destination point;
[30g] determining an estimated waiting time in traffic during the trip based on the street information; and
[30h] determining an estimated fare based on the estimated shortest trip distance and the estimated waiting time.
[31] The taxi trip meter system of claim 30 wherein the estimated waiting time is determined using the geographical location information.
[37] The taxi trip meter system of claim 30, wherein the estimated shortest trip distance is determined using actual street route information available on the computer.
[38] The taxi trip meter system of claim 30, wherein the estimated waiting time is determined using route information available on the computer, wherein the route information includes at least one of traffic light or traffic congestion information.

[39] The taxi trip meter system of claim 30, wherein the computer determines the fare from a remote location and communicates the fare over a network connection.

[40] The taxi trip meter system of claim 30, the program steps further comprising: communicating the estimated fare to a rider upon or after completion of the trip.

[41] The taxi trip meter system of claim 30, the program steps further comprising: determining an actual fare based upon an actual trip distance or an actual trip duration; and indicating a fare violation if the actual fare exceeds the estimated fare by a predetermined permissible margin.

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6 and 42.105, I hereby certify that I caused to be served by USPS via Priority Mail Express and electronic mail this Petition for *Inter Partes* Review of U.S. Patent No. RE46,727, including all exhibits, upon the following party:

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*Patent Owner's Correspondence Address
of record for U.S. Patent No. RE72,727*

A courtesy copy was sent to the Patent Owner via process server at the below address of record.

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A courtesy copy was sent to the below counsel via USPS Priority Mail Express and electronic mail:

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Dated: March 27, 2023

/Benjamin J. Bradford/
Benjamin J. Bradford, Reg. No. 74,728
Lead Attorney for Petitioner

CERTIFICATE OF COMPLIANCE

In accordance with 37 CFR 42.24, as amended, the undersigned certifies that this Petition complies with the applicable type-volume limitations of 37 CFR 42.24(a)(i). Exclusive of the portions exempted by 37 CFR 42.24(a), this Petition contains 12,794 words as counted by the word processing program used for its preparation (Microsoft Word 2016).

Dated: March 27, 2023

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