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In re Patent of:	Koebler et al.	
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Title:	VEHICLE DESTINATION PREDICTION	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES
PATENT NO. 10,829,002 PURSUANT TO 35 U.S.C. §§ 311–319,
37 C.F.R. § 42

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EXHIBITS

TESLA-1001	U.S. Patent No. 10,829,002 (“the ’002 Patent”)
TESLA-1002	Excerpts from the Prosecution History of the ’002 Patent
TESLA-1003	Declaration and Curriculum Vitae of Dr. Vassilios Morellas
TESLA-1004	U.S. Pat. App. Pub. No. 2005/0251325 (“Kudo-325”)
TESLA-1005	U.S. Pat. App. Pub. No. 2004/0128066 (“Kudo-066”)
TESLA-1006	U.S. Pat. App. Pub. No. 2005/0228553 (“Tryon”)
TESLA-1007	U.S. Patent No. 5,471,393 (“Bolger”)
TESLA-1008	U.S. Pat. App. Pub. No. 2005/0125148 (“Van Buer”)
TESLA-1009	U.S. Patent No. 6,484,096 (“Wong”)
TESLA-1010	Complaint, <i>iQar Inc. v. Tesla, Inc.</i> , 1:23-cv-00694, W.D. Tex., June 20, 2023
TESLA-1011	Patent assignment history for Kudo-325
TESLA-1012	Patent assignment history for Kudo-066
TESLA-1013	U.S. Patent No. 6,144,917 (“Walters”)
TESLA-1014	European Pat. App. No. EP 0763712A1 (“Giras”)
TESLA-1015	U.S. Pat. App. Pub. No. 2009/0037089 (“Tkachenko”)
TESLA-1016	U.S. Patent No. 7,163,076 (“Seksaria”)
TESLA-1017	U.S. Patent No. 6,076,623 (“Teraoka”)

TESLA-1018	U.S. Patent No. 5,499,196 (“Pacheco”)
TESLA-1019	Motion to Transfer Venue, <i>iQar Inc. v. Tesla, Inc.</i> , 1:23-cv-00694, W.D. Tex.
TESLA-1020-1049	Reserved
TESLA-1050	Memorandum, Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (USPTO June 21, 2022) (“Director’s Guidance”)
TESLA-1051	Proof of Service of Complaint, <i>iQar Inc. v. Tesla, Inc.</i> , 1:23-cv-00694, W.D. Tex., June 20, 2023

LISTING OF CHALLENGED CLAIMS

Claim 1	
[1pre]	A power management device comprising:
[1a]	a sensor interface configured to receive sensor data samples during operation of a vehicle;
[1b]	a memory configured to store said sensor data samples for different points in time along a route segment traveled by said vehicle; and
[1c-1]	a processor configured to (i) analyze said sensor data samples stored in said memory to detect a pattern and
[1c-2]	(ii) predict a destination of a driver in response to (a) said pattern and (b) historical data associated with operation of said vehicle,
[1c-3]	wherein (i) at least one of said sensor data samples is driver-related and
[1c-4]	(ii) at least one of said sensor data samples comprises telemetry data; and
[1d-1]	wherein the historical data comprises: data, regarding multiple route segments, gathered from the driver's operation of the vehicle on the multiple route segments during multiple trips;

[1d-2]	data, regarding multiple sequences of route segments, gathered from the driver's operation of the vehicle on the multiple sequences of route segments during the multiple trips; and
[1d-3]	data, regarding multiple travel destinations, gathered from the driver's operation of the vehicle to the multiple travel destinations during the multiple trips.
Claim 2	
[2]	The device according to claim 1, wherein said telemetry data comprises map coordinates determined in response to a GPS signal.
Claim 3	
[3]	The device according to claim 1, wherein said telemetry data comprises map coordinates determined by a map service.
Claim 4	
[4]	The device according to claim 1, wherein said destination of said driver is predicted based on statistical destination logic.
Claim 5	
[5]	The device according to claim 1, wherein said processor is further configured to determine that a particular driver is operating said vehicle based on said pattern detected.

Claim 6	
[6]	The device according to claim 1, wherein said telemetry data is used to determine route segments.
Claim 7	
[7]	The device according to claim 6, wherein said pattern comprises which of said route segments said vehicle has traveled.
Claim 8	
[8]	The device according to claim 1, wherein said device is further configured to transmit said predicted destination to a remote database.
Claim 9	
[9]	The device according to claim 8, wherein said remote database is configured to receive a plurality of said predicted destinations and generate guidance information based on said plurality of said predicted destinations.
Claim 10	
[10]	The device according to claim 8, wherein said remote database is configured to (i) receive said sensor data samples and store said

	sensor data samples as said historical data and (ii) present said historical data to said device.
Claim 11	
[11]	The device according to claim 1, wherein said memory is further configured to store said historical data.
Claim 12	
[12]	The device according to claim 1, wherein said historical data comprises information about operation of said vehicle.
Claim 13	
[13]	The device according to claim 1, wherein at least one of said sensor data samples comprises a data sample from an optical sensor.
Claim 14	
[14]	The device of claim 1, wherein the historical data comprises data gathered from multiple trips of the driver's operation of the vehicle.
Claim 15	
[15pre]	A method performed by a processor for predicting a destination of a vehicle, comprising the steps of:
[15a]	(A) monitoring a plurality of sensors to generate sensor data samples during operation of a vehicle;

[15b]	(B) storing said sensor data samples for different points in time along a route segment traveled by said vehicle;
[15c]	(C) analyzing said sensor data samples to detect a pattern; and (D) predicting a destination of a driver in response to (a) said pattern and (b) historical data associated with operation of said vehicle, wherein (i) at least one of said sensor data samples is driver-related and (ii) at least one of said sensor data samples comprises telemetry data;
[15d]	wherein the historical data comprises: data, regarding multiple route segments, gathered from the driver's operation of the vehicle on the multiple route segments during multiple trips; data, regarding multiple sequences of route segments, gathered from the driver's operation of the vehicle on the multiple sequences of route segments during the multiple trips; and data, regarding multiple travel destinations, gathered from the driver's operation of the vehicle to the multiple travel destinations during the multiple trips.
Claim 16	
[16pre]	A vehicle comprising:
[16a]	a power train;
[16b]	a drive train;

[16c]	a sensor interface configured to receive sensor data samples during operation of a vehicle;
[16d]	a storage device configured to store said sensor data samples for different points in time along a route segment traveled by said vehicle; and
[16e]	a processor configured to (i) analyze said sensor data samples stored in said storage device to detect a pattern and (ii) predict a destination of a driver in response to (a) said pattern and (b) historical data associated with operation of said vehicle, wherein (i) at least one of said sensor data samples is driver-related and (ii) at least one of said sensor data samples comprises telemetry data;
[16f]	wherein the historical data comprises: data, regarding multiple route segments, gathered from the driver's operation of the vehicle on the multiple route segments during multiple trips; data, regarding multiple sequences of route segments, gathered from the driver's operation of the vehicle on the multiple sequences of route segments during the multiple trips; and data, regarding multiple travel destinations, gathered from the driver's operation of the vehicle to the multiple travel destinations during the multiple trips.

Claim 17	
[17]	The vehicle according to claim 16, further comprising: a device configured to (i) receive said predicted destination and (ii) adapt an operation of said vehicle based on said predicted destination.

Tesla, Inc. (“Petitioner” or “Tesla”) petitions for *Inter Partes* Review (“IPR”) of claims 1-17 (“the Challenged Claims”) of U.S. Patent No. 10,829,002 (“the ’002 Patent”). Compelling evidence presented in this Petition demonstrates at least a reasonable likelihood that Tesla will prevail with respect to at least one of the Challenged Claims.

I. REQUIREMENTS FOR IPR

A. Grounds for Standing

Petitioner certifies that the ’002 Patent is available for IPR. This petition is being filed within one year of service of a complaint against Tesla. TESLA-1010; TESLA-1051. Tesla is not barred or estopped from requesting review of the Challenged Claims on the below-identified grounds.

B. Challenge and Relief Requested

Tesla requests an IPR of the Challenged Claims on the below grounds. Dr. Morellas provides supporting testimony in his Declaration. TESLA-1003, ¶¶1-295.

Ground	Claim(s)	35 U.S.C. §103
1A	1-16	Kudo-325/Kudo-066
1B	3	Kudo-325/Kudo-066/Bolger
1C	17	Kudo-325/Kudo-066/Tryon

The '002 Patent claims an earliest priority date of 11/17/2005. TESLA-1001, Cover. While Tesla does not concede that 11/17/2005 is the priority date that should be afforded to the '002 Patent, for the purposes of this proceeding, each of the references asserted in this Petition qualifies as prior art under 35 USC §102(a), §102(b), and/or §102(e) (as shown below) even if 11/17/2005 is used as the priority date of the '002 Patent.

Reference	Filing Date	Publication Date
Kudo-325	3/30/2005	10/10/2005
Kudo-066	8/5/2002 (PCT)	7/1/2004
Bolger	1/26/1994	11/28/1995
Tryon	3/30/2004	10/13/2005

C. Claim Construction

No formal claim constructions are necessary because “claim terms need only be construed to the extent necessary to resolve the controversy.” *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011). Petitioner reserves the right to respond to any constructions offered by Patent Owner or adopted by the Board. For this Petition, Petitioner applies prior art in a manner consistent with Patent Owner’s allegations of infringement before the district court.

D. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) relating to the subject matter of the ’002 Patent as of 11/17/2005 would have had a bachelor’s degree in electrical engineering, computer engineering, mechanical engineering, civil engineering (transportation systems), physics, or a related field, and at least four years of experience (or the academic equivalent) in the field of transportation systems. Additional education could substitute for professional experience, and *vice versa*. TESLA-1003, ¶27.

II. THE ’002 PATENT

A. Brief Description

The ’002 Patent claims relate to “predict[ing] a destination of a driver.” TESLA-1001, 27:35-48. The ’002 Patent describes “determin[ing] ... likely destinations based on information provided from environmental inputs, user command inputs, and vehicle operational status inputs,” such as “the weight of the driver, the time of the day, the current location of the vehicle, the direction that the vehicle is facing (or traveling in), the day of the week, and the speed of the vehicle” for the vehicle’s current trip. *Id.*, 12:3-18; *see* FIG. 3B. These inputs, for the vehicle’s current trip, are used to “infer the vehicle’s destination.” *Id.*, 12:25. In this regard, claim 1 relates to analyzing stored sensor data samples to detect a

pattern, *e.g.*, characterizing vehicle travel, which, along with historical data about past trips, is used for destination prediction. TESLA-1003, ¶¶29-31.

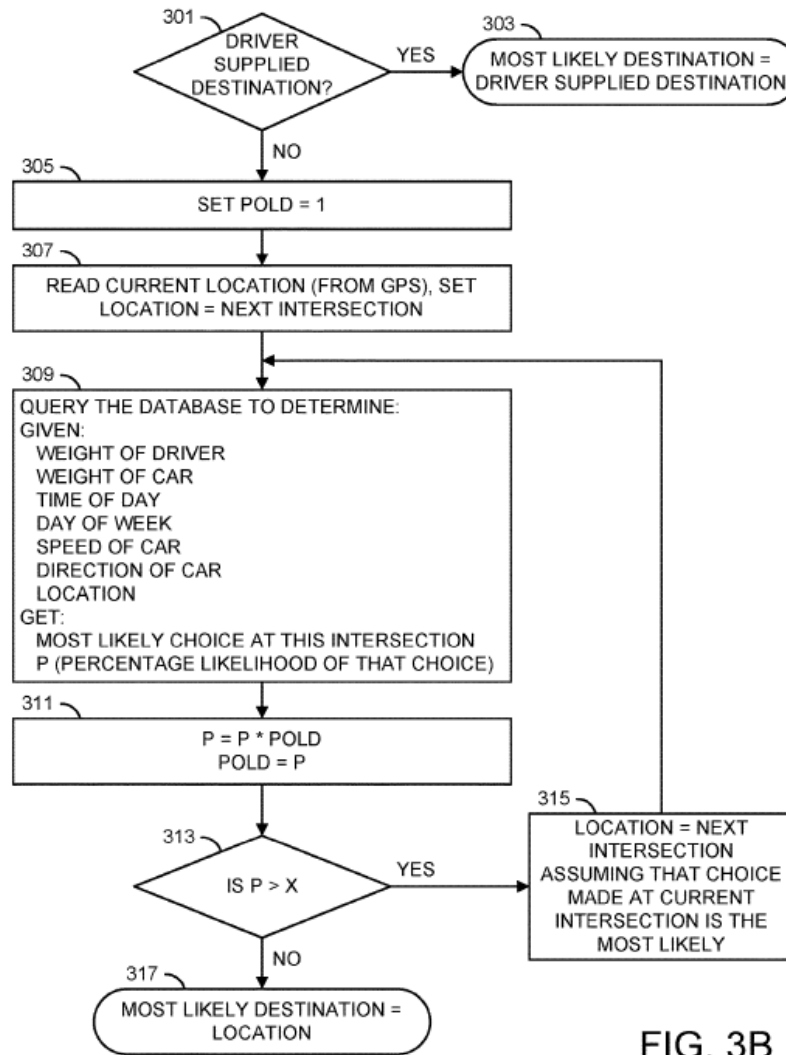


FIG. 3B

Excerpt from '002 Patent, FIG. 3B

B. Prosecution History

The '002 Patent claims were twice rejected as anticipated by Koike (US 6,169,495). TESLA-1002, 112-119. The applicant first responded without

amendment, arguing the limitation “predict a destination of a driver in response to (a) said pattern and (b) historical data associated with operation of said vehicle.” *Id.*, 97-105. After the rejection was maintained (*id.*, 86-93), the applicant again responded without amendment to the independent claims, expanding its previously presented argument. *Id.*, 54-78. The application was allowed following an examiner’s amendment to limitation [1b] (storing sensor data samples for different points in time along a route segment) and adding limitations reciting that the historical data comprises data regarding multiple route segments, sequences of route segments, and destinations ([1d-1]-[1d-3]). *Id.*, 7-17.

III. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. [GROUND 1A] – Claims 1-16 are rendered obvious by Kudo-325/Kudo-066

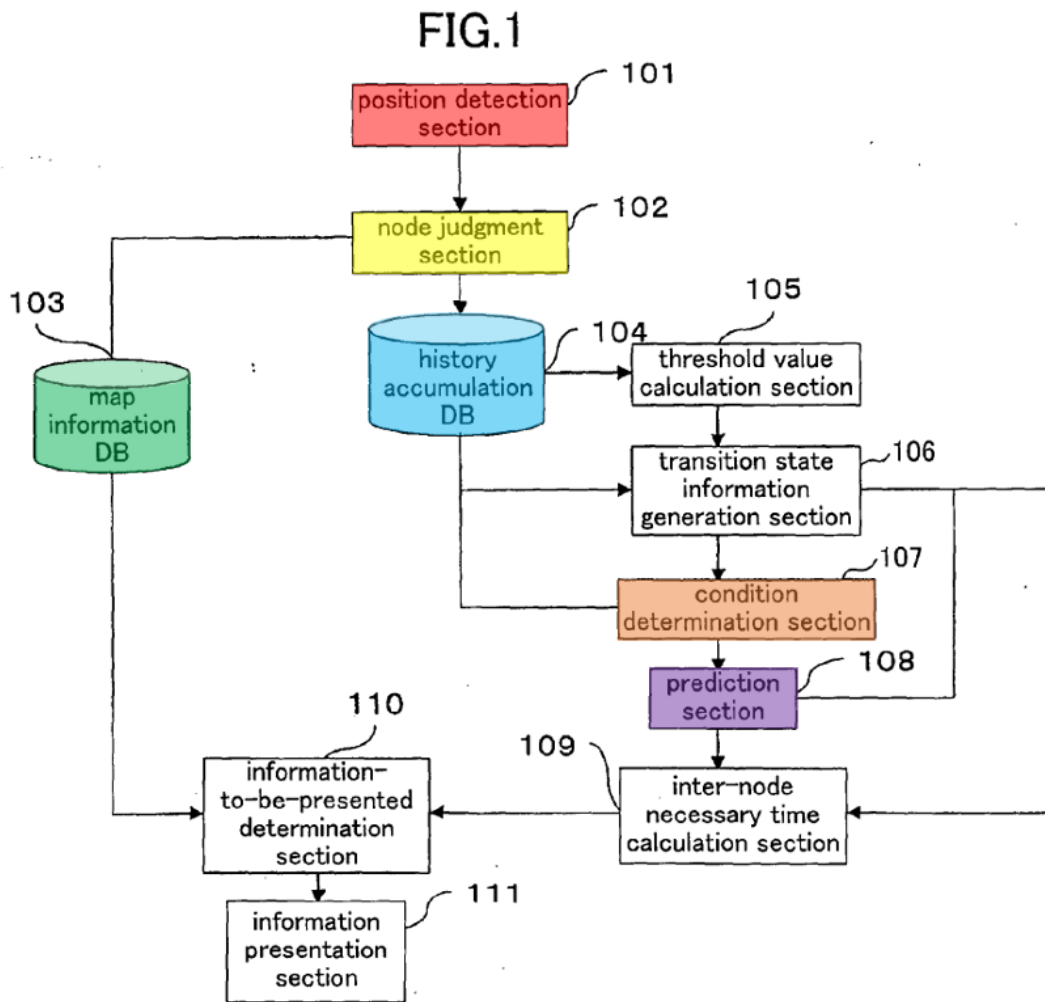
1. Kudo-325¹

Kudo-325 describes using a vehicle’s travel history to “predict[] one or more travel destinations,” accounting for factors such as “time, date, weather, driver, a fellow passenger.” *Id.*, [0013]-[0014]; *see* [0087]; TESLA-1003, ¶32.

¹ Descriptions of the references and combinations thereof are incorporated into each mapping that includes citations to these references. All emphasis is added unless otherwise indicated.

Kudo-325's prediction technology is based on the concept of nodes representing "intersections, landmarks, area names." TESLA-1004, [0081]; *see* [0058]-[0059]. "[I]nformation relating to nodes," *e.g.*, node identifiers and latitude/longitude coordinates, is stored in a map information database. *Id.*, [0081]-[0082]; *see* [0021], FIG. 2; TESLA-1003, ¶33.

In operation, "the current position of the car navigation system is detected" by a "position detection section" (red *infra*). TESLA-1004, [0077], [0090], FIG. 1, FIG. 4; TESLA-1003, ¶34.



Kudo-325, FIG. 1 (annotated)

A node judgement section (yellow) references the map information database (green) to determine “whether the current position is a node or not.” *Id.*, [0090]; *see* FIG. 4. If so, “an ID number indicating the node is accumulated in the history accumulation DB [blue].” *Id.*, [0090]; *see* [0088], FIG. 4. A condition determination section (orange) and prediction section (purple) predict “ a future travel destination” based on “information indicating the current state” of the trip, such as the vehicle’s current position, the current trip’s travel history, date/time,

and driver identity, and based on past trips of the vehicle. *Id.*, [0079], [0096]; *see* FIG. 4. TESLA-1003, ¶¶35-36.

FIG. 3, *infra*, shows travel data “accumulated in the history accumulation DB,” including “pairs of the node numbers and times of passage therethrough” for the nodes traversed by the vehicle. TESLA-1004, [0087]. Other information can be stored, including “information on weather, a driver, or a fellow passenger.” *Id.*, [0088]. These stored data relate to both “current travel” and “past history.” *Id.*, [0096]; TESLA-1003, ¶37.

FIG.3

104

node number	time
L6	8:05 a.m. on July 31
C8	8:06 a.m. on July 31
C12	8:08 a.m. on July 31
C9	8:09 a.m. on July 31
C34	8:11 a.m. on July 31
.	.
.	.
L128	8:53 a.m. on July 31

(a)

node number	time
L128	12:25 p.m. on July 31
C140	12:29 p.m. on July 31
C125	12:36 p.m. on July 31
.	.
.	.
L68	1:33 p.m. on July 31

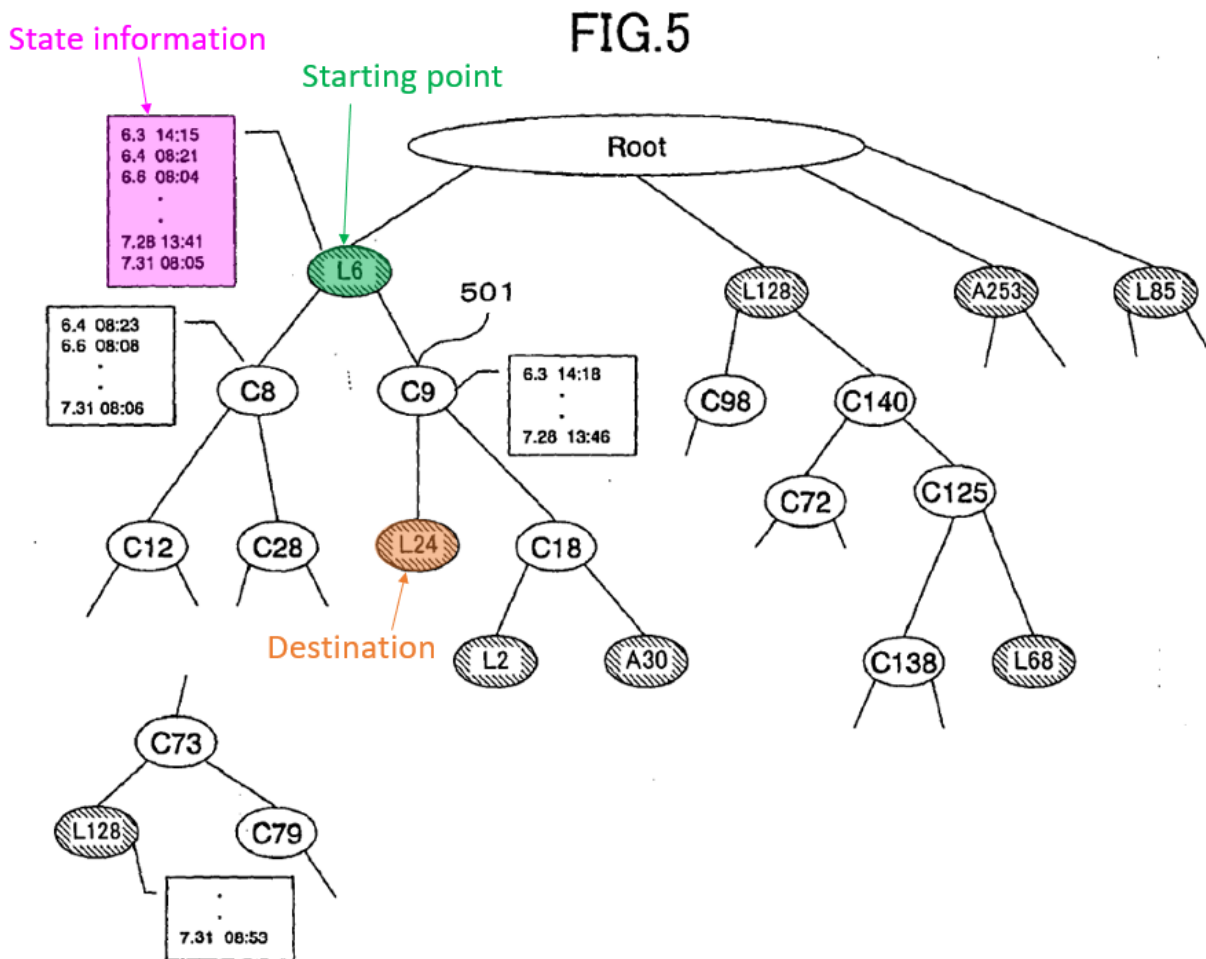
(b)

node number	time
L6	8:05 a.m. on July 31
C8	8:06 a.m. on July 31
C20	8:08 a.m. on July 31
L12	8:10 a.m. on July 31
L12	1:40 p.m. on July 31
C34	1:50 p.m. on July 31
.	.
.	.
L6	9:20 p.m. on July 31

Kudo-325, FIG. 3 (annotated)

Past travel data is used to develop “transition state information” characterizing that past travel. TESLA-1004, [0093]; *see* [0091]-[0092], [0109]. The transition state information has “a tree structure” (FIG. 5, *infra*) in which

“nodes (starting points)” (green) “are arranged at the uppermost level.” *Id.*, [0093]. “[H]istories of past node transition” are expressed via the tree structure, and destinations (orange) “are located at the lowermost level.” *Id.* State information (pink), such as “dates and times” at which the vehicle passed through each node and “information on a driver,” accompanies the nodes. *Id.*, [0093]-[0094]; TESLA-1003, ¶38.



Kudo-325, FIG. 5 (annotated)

To predict the destination of a current trip, “information relating to the current state” of the trip (*e.g.*, “current position,” “date and time”) is acquired from the history accumulation database, along with “past history information” of the current trip (*e.g.*, “a route from departure to the current node”). TESLA-1004, [0096]; *see* FIG. 4. “[C]onditions (categories)” are identified that correspond to the retrieved trip information. *Id.*, [0096]; *see* [0014]. In an example, “the current position is a node ‘C9’; a travel history from departure is ‘L6 to C9’; and the date and time is 2 a.m. on June 3,” and corresponding conditions include “weekday,” “afternoon,” “summer,” “C9,” and “L6 to C9.” *Id.*, [0096]-[0097], [0102]; *see* FIG. 6; TESLA-1003, ¶39.

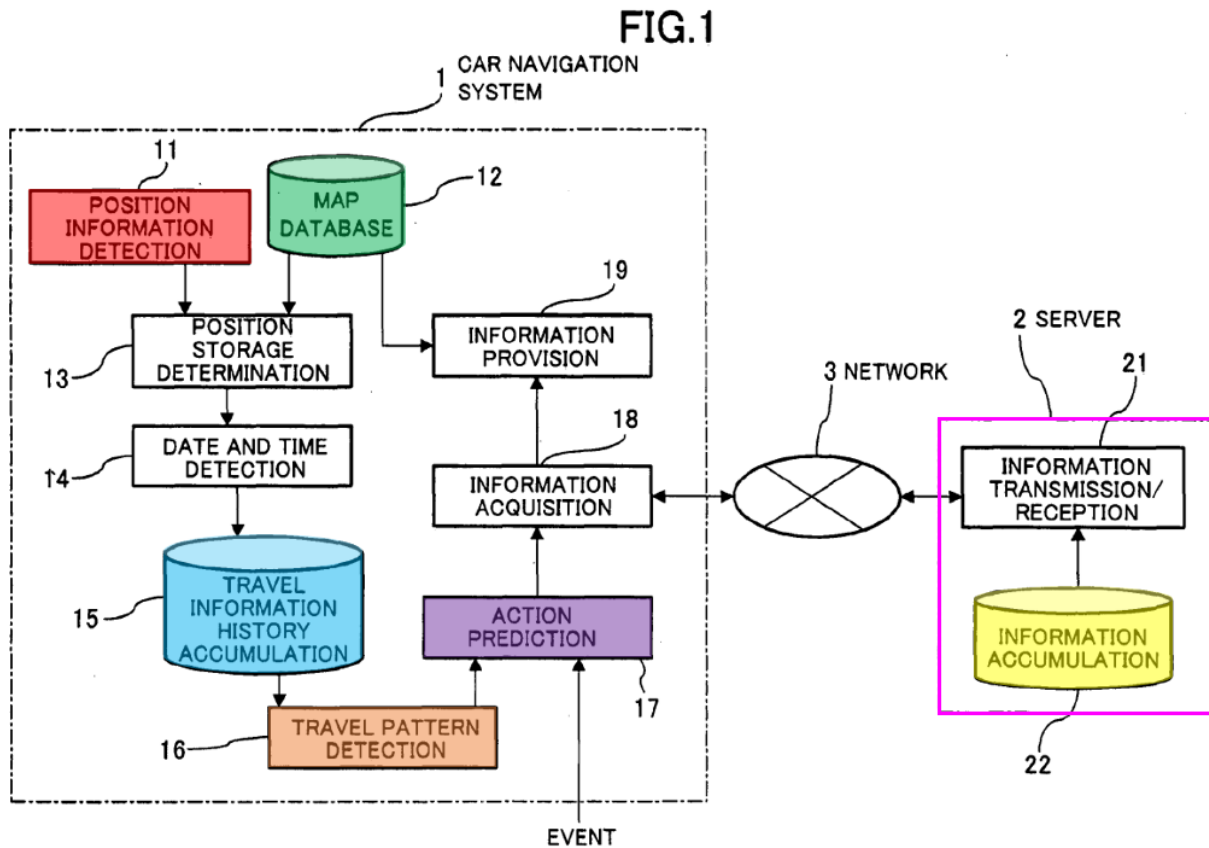
Combinations of conditions are used to calculate probabilities that the current trip will end at each of various nodes. *See* TESLA-1004, [0097]-[0103]. “[A] node satisfying” one combination of conditions (*e.g.*, “weekday and ‘C9’”) “is retrieved from the transition state information,” and “a probability of future transition” is calculated between this node and each of various destinations given the particular combination of conditions. *Id.*, [0097]-[0099]; *see* FIG. 6. “[T]he same operation is repeated” for other combinations of conditions. *Id.*, [0102]; *see* FIG. 6. Based on these probabilities, “a travel destination” is predicted. *Id.*, [0104]; *see* FIG. 4. Information related to the predicted destination, *e.g.*,

commercial or traffic information, is presented to the driver. *Id.*, [0107] ; *see* FIG. 1, FIG. 4; TESLA-1003, ¶¶40-44.

Kudo-325 is analogous art to the '002 Patent: it is from the same field of endeavor (*e.g.*, vehicle navigation) and is reasonably pertinent to the problem the '002 Patent was trying to solve (*e.g.*, assisting with vehicle operation along a route). TESLA-1003, ¶45.

2. Kudo-066

Like Kudo-325, Kudo-066 relates to “predicting a destination of a user.” TESLA-1005, [0061]. Kudo-066’s car navigation system includes a “position information detection means,” *red infra*, for detecting vehicle position using GPS. *Id.*, [0063]. Similar to Kudo-325, if “the detected current position is a node,” *e.g.*, as determined based on a “map database [green],” position information is stored in a travel information history accumulation means (blue). *Id.* The map database, which contains node IDs and coordinates for nodes, is “stored in the server,” pink, such that “when receiving position information such as latitude and longitude from the car navigation system 1, the server notifies the car navigation system 1 of the associated node ID number.” *Id.*, [0068]. A destination is predicted (purple) based on the current travel pattern (orange). *Id.*; TESLA-1003, ¶¶46-47.



Kudo-066, FIG. 1 (annotated)

An “information accumulation means” (yellow) at Kudo-066’s server stores “position-related information,” such as commercial or traffic information, which is provided to the vehicle responsive to the predicted destination being transmitted to the server. *See id.*, [0091], [0094]; TESLA-1003, ¶48.

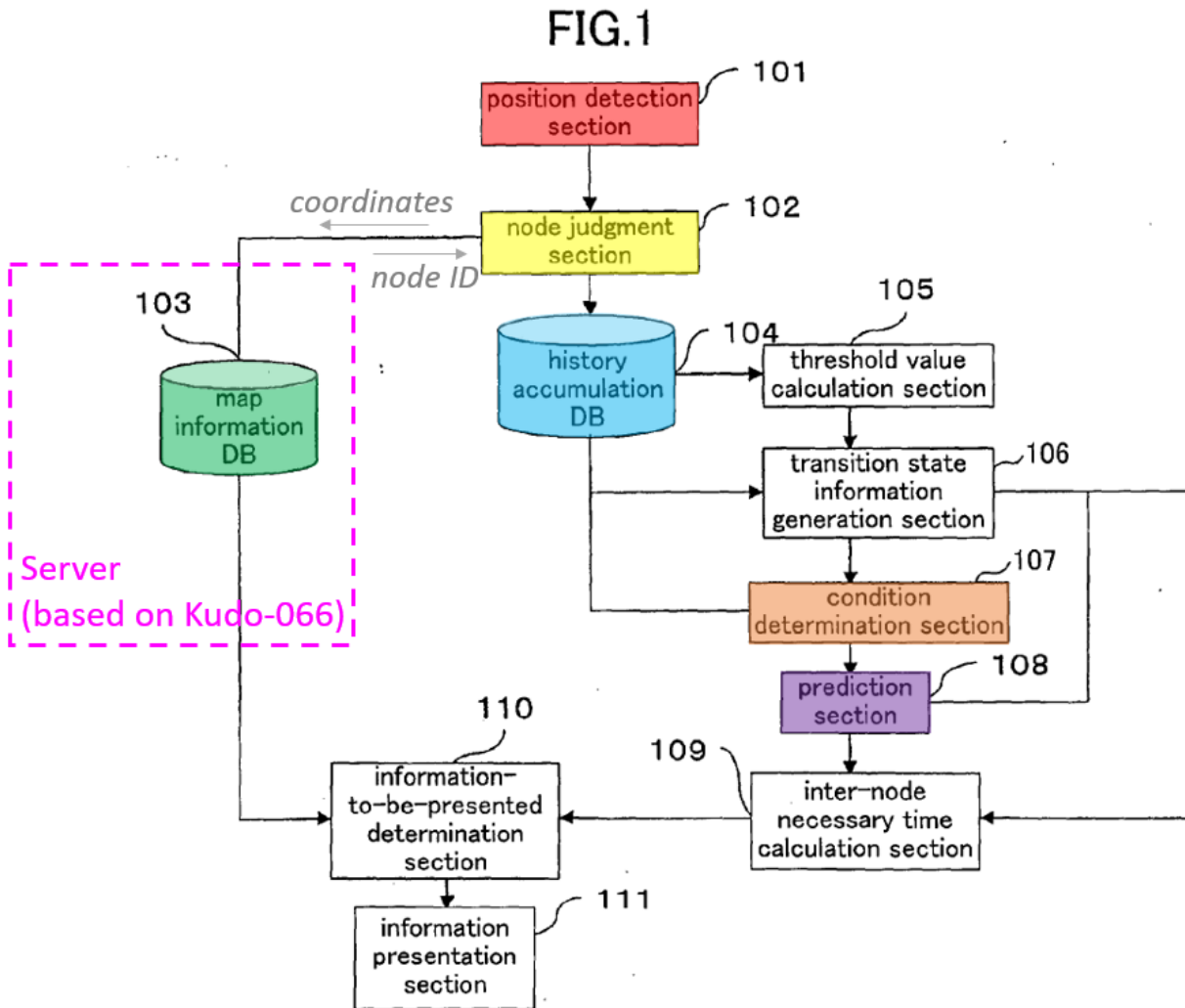
Kudo-066 is analogous art to the ’002 Patent: it is from the same field of endeavor (*e.g.*, vehicle navigation) and is reasonably pertinent to the problem the ’002 Patent was trying to solve (*e.g.*, assisting with vehicle operation along a route). TESLA-1003, ¶49.

3. Kudo-325/Kudo-066 combination

Kudo-325 generally describes an approach to analyzing stored sensor data samples to detect a pattern characterizing a current trip of a vehicle, and using this pattern together with historical data for destination prediction. In combination with Kudo-066, which describes a specific implementation of a similar destination prediction system in which the relied-upon sensor data samples constitute telemetry data the claims are rendered obvious. TESLA-1003, ¶50.

Destination prediction in the combination

In the combination, “the current position of the car navigation system is detected” by a “position detection section” (red *infra*) of a car navigation system. TESLA-1004, [0090]. Optionally, position detection is implemented by GPS, based on Kudo-066. TESLA-1005, [0071]; TESLA-1003, ¶51.



Kudo-325/Kudo-066 figure based on Kudo-325, FIG. 1^{2,3}

² This figure, as well as other composite figures herein, illustrates an exemplary configuration that a POSITA would have found obvious. Other, similar configurations also would have been obvious, and render the Challenged Claims unpatentable for similar reasons as those discussed herein.

Also based on Kudo-325, a node judgment section (yellow) determines “whether the current position is a node or not” by accessing a map information database. TESLA-1004, [0090]. Kudo-325 provides no specific detail about the location of this database. TESLA-1004, [0075] (describing that certain functionality “may be provided in a server on a network”); TESLA-1003, ¶52. Kudo-066, describing a similar system, provides such details. *See* TESLA-1005, [0065]; TESLA-1003, ¶53. Based on Kudo-066’s teachings, a POSITA optionally would have implemented the map database (green) at a server (pink). *See* TESLA-1004, [0081]-[0082], FIG. 2; TESLA-1005, [0065], FIG. 2; TESLA-1003, ¶53. In this implementation, “position information” detected by the position detection section (*e.g.*, by GPS) is provided to the server, which accesses the server-based map database to determine “whether the current position is a node or not.” TESLA-1005, [0068]; TESLA-1004, [0090]; TESLA-1003, ¶54. If so, the server “notifies the car navigation system 1 of the associated node ID number.” TESLA-1005, [0068]; TESLA-1003, ¶54.

Further aspects of the prediction process in the combination are based on Kudo-325. *See* §III.A.1; TESLA-1003, ¶55. If the current position is a node, the

³ As discussed *infra*, the implementation of the map information database at the server is optional.

node ID is “accumulated in [a] history accumulation DB,” blue, along with information such as “time, date, weather, and the like.” TESLA-1004, [0090]; *see* [0087], FIG. 3; TESLA-1005, [0072]-[0073], FIG. 4. A destination is predicted based on current trip information (*e.g.*, location, current trip travel history, time/date, weather, driver, etc.) and travel history. *See* TESLA-1004, [0079], [0096]; TESLA-1005, [0063]; TESLA-1003, ¶55.

Reasons for implementing the map information database at a server

A POSITA would have been motivated to house the map information database at a server, based on Kudo-066. TESLA-1003, ¶¶56-67.

First, a POSITA would have been motivated to pursue this implementation because doing so is merely the application of known techniques (housing a map database at a server) to a known system (Kudo-325’s car navigation system) to yield predictable results (a car navigation system with a server-based map database). *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-421, 82 USPQ2d 1385, 1395-97 (2007); *MPEP 2143*; TESLA-1003, ¶57. Indeed, Kudo-066 shows that using a server-based map database in the context of a system similar to Kudo-325’s was a known configuration for such systems. TESLA-1003, ¶57. Indeed, that these two systems are similar is evidenced by their naming of common inventors and listing of the same assignee. *See* TESLA-1004, Cover; TESLA-1005, Cover; TESLA-1011; TESLA-1012.

Second, a POSITA would have been motivated to pursue this implementation because: (1) the accuracy of a server-housed map database can be maintained more easily and efficiently than a vehicle-housed local map database; and (2) on-demand provision of map information minimizes the likelihood that stale data will be used for destination prediction, as explained by Dr. Morellas. TESLA-1003, ¶¶58-60. Moreover, with a server-housed map database, the complexity of coordinating timing of server-provided map updates with execution of a destination prediction process may be avoided. TESLA-1003, ¶59. And these advantages are compounded for fleets of vehicles implementing destination prediction processes reliant on stored map information, as further discussed by Dr. Morellas. TESLA-1003, ¶60.

Third, storing map information database at a server rather than locally at the vehicle advantageously reduces per-vehicle local hardware costs, as explained by Dr. Morellas. TESLA-1003, ¶61.

Fourth, a POSITA would have been motivated to pursue this implementation because doing so would have been obvious to try: server-based data storage is one of a finite number of known, predictable solutions for data storage (*e.g.*, local or remote), and a POSITA would have had a reasonable expectation of success, as discussed in the next paragraph. *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶62.

A POSITA would have expected success because Kudo-325 and Kudo-066 both describe generally similar approaches to destination prediction. *See* TESLA-1004, [0077], [0090]; TESLA-1005, [0063]; TESLA-1003, ¶¶63-64. Moreover, a POSITA would have expected success because a server-implemented map database is consistent with Kudo-325's indications that functionality "may be provided in a server on a network," and that "node information may be stored on a network." TESLA-1004, [0075], [0141]; TESLA-1003, ¶65. A POSITA also would have expected success because implementation of the combination involves common techniques and devices, *e.g.*, server-based databases. TESLA-1003, ¶66. Finally, a POSITA would have expected success because housing a database on a server was conventional and predictable, and presents no unexpected results. TESLA-1003, ¶67.

Reasons for implementing position detection using GPS

A POSITA would have been motivated to detect vehicle position using GPS, based on Kudo-066. TESLA-1003, ¶¶68-75.

First, a POSITA would have been motivated to pursue this implementation because doing so is merely the application of known techniques (GPS detection of position) to a known system (Kudo-325's car navigation system) to yield predictable results (a car navigation system with GPS-based position detection). *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶69. While

Kudo-325 describes detection of vehicle position, it does not describe a specific implementation. The similarity of the configurations of Kudo-325's and Kudo-066's systems would have encouraged a POSITA to look to Kudo-066's teachings of GPS for relevant details. TESLA-1003, ¶69.

Second, a POSITA would have been motivated to use GPS for position detection because of performance advantages (*e.g.*, "accuracy and repeatability") of GPS. TESLA-1008, [0016]; TESLA-1003, ¶70.

Third, a POSITA would have been motivated to pursue this implementation because doing so would have been obvious to try: GPS is one of a finite number of known, predictable solutions for position detection, and a POSITA would have had a reasonable expectation of success, as discussed in the next paragraph. *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶71.

A POSITA would have expected success because of the similarities of Kudo-325 and Kudo-066, discussed *supra*. TESLA-1003, ¶¶72-73. Moreover, a POSITA would have expected success because implementation of the combination involves common techniques and devices, *e.g.*, integration of a GPS chip into a vehicle. TESLA-1003, ¶74. A POSITA also would have expected success because GPS-based position detection was conventional and predictable, and presents no unexpected results. TESLA-1003, ¶75.

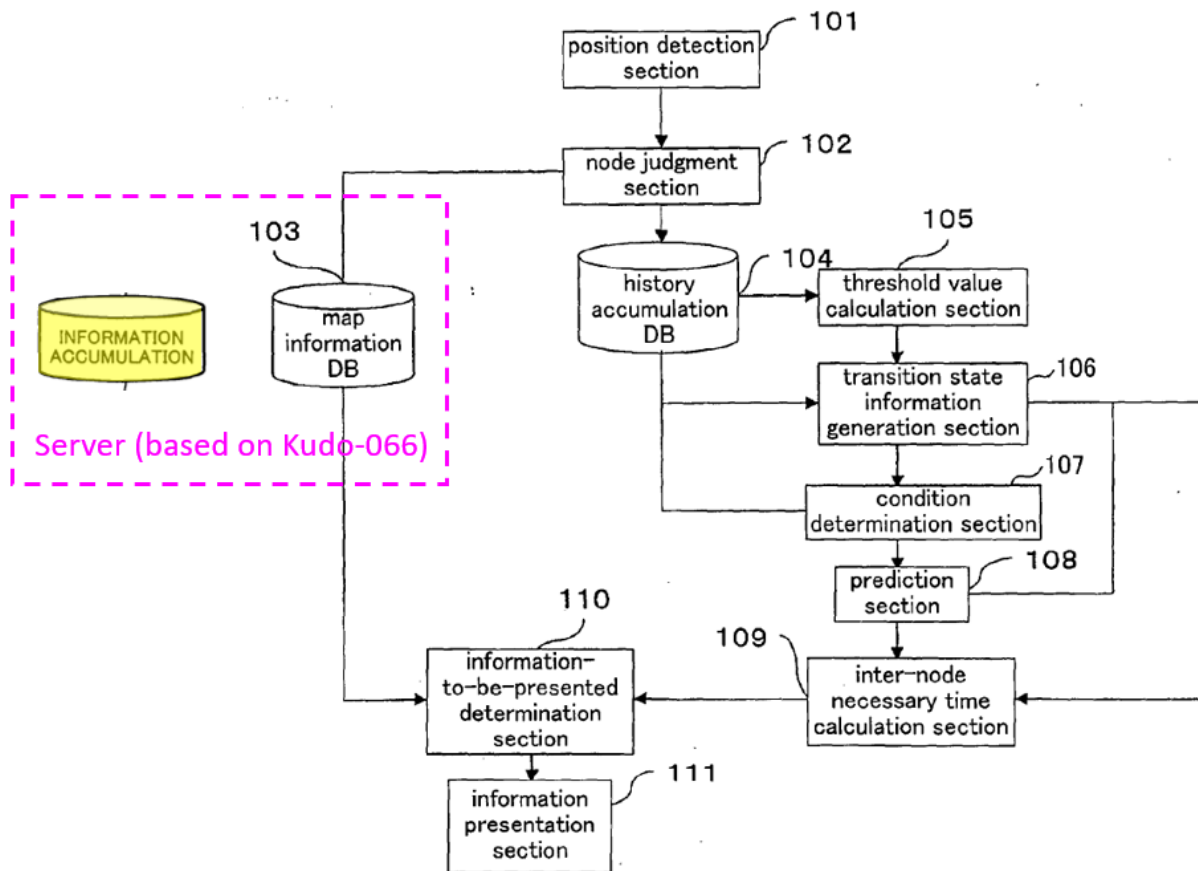
Information relevant to predicted destinations is housed at the server in the combination

Kudo-325's car navigation system "determines ... information to be presented to a user relating to the node predicted by the prediction section."

TESLA-1004, [0080]; *see* [0067]-[0068], [0106], FIG. 1. Kudo-325 indicates that this can be performed at a server: "information indicating a predicted travel destination or travel route is uploaded to a server on the network from the car navigation system, the relating information is selected by the server, and then, only information selected in the server is received by the car navigation system." *Id.*, [0107]; TESLA-1003, ¶76.

A POSITA implementing Kudo-325's server-based information retrieval would have found further implementation details in Kudo-066's similar teachings. TESLA-1003, ¶77. Specifically, a POSITA would have implemented, at the server (pink *infra*), an "information accumulation means [yellow]" for storing commercial (*e.g.*, shop discount notifications) and/or traffic information "to be transmitted to the car navigation system." TESLA-1005, [0064], [0092]-[0093], [0150]; TESLA-1003, ¶78.

FIG. 1



Kudo-325/Kudo-066

In operation, a predicted destination “is uploaded to a server ... from the car navigation system.” TESLA-1004, [0107]; *see* [0067]-[0068]. Based on Kudo-325, “information relating to [the predicted] destination” “is selected by the server.” *Id.*, [0107]. In more detail, based on Kudo-066, the server searches “the information accumulation means ... to find information regarding the received position information,” *e.g.*, commercial/traffic information. TESLA-1005, [0091]; *see* [0092]-[0093], [0095], [0150]; TESLA-1003, ¶79. This “information selected

in the server” is returned to the vehicle for presentation to the driver, based on Kudo-325 and consistent with Kudo-066’s functionality. TESLA-1004, [0106]-[0107]; *see* TESLA-1005, [0094]; TESLA-1003, ¶79.

A POSITA would have been motivated to implement an information accumulation means at the server, based on Kudo-066. TESLA-1003, ¶¶80-88.

First, a POSITA would have been motivated to pursue this implementation because doing so is merely the application of known techniques (server-based storage of locally-relevant information) to a known system (Kudo-325’s car navigation system) to yield predictable results (a car navigation system with relevant information stored at a server). *See KSR*, 550 U.S. 398, 415-421 (2007); TESLA-1003, ¶81. While Kudo-325 describes providing a predicted destination to a server and receiving, in response, information about that predicted destination (*see* TESLA-1004, [0107]), it does not provide specific implementation details. The similarity of the configurations of Kudo-325’s and Kudo-066’s systems would have encouraged a POSITA to look to Kudo-066’s relevant teachings for those details. TESLA-1003, ¶81.

Second, a POSITA would have been motivated to pursue this implementation because a server-housed database can be updated in real time, *e.g.*, to reflect changes in traffic or to reference new commercial offers. *See* TESLA-1005, [0093]-[0094], [0105]; TESLA-1003, ¶82.

Third, a POSITA would have been motivated to pursue this implementation because doing so would have been obvious to try: server-based data storage is one of a finite number of known, predictable solutions for data storage (*e.g.*, local or remote), and a POSITA would have had a reasonable expectation of success, as discussed in the next paragraph. *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶83.

A POSITA would have expected success because both Kudo-325 and Kudo-066 both describe generally similar approaches to providing a driver with information relevant to a predicted destination. *See* TESLA-1004, [0107]; TESLA-1005, [0093]-[0094], [0105]; TESLA-1003, ¶¶84-85. Moreover, a POSITA would have expected success because a server-implemented information accumulation database is consistent with Kudo-325's teaching that "information indicating a predicted destination or travel route is uploaded to a server ... and then, only information selected in the server is received by the car navigation system." TESLA-1004, [0107]; TESLA-1003, ¶86. A POSITA also would have expected success because implementation of the combination involves common techniques and devices, *e.g.*, server-based databases. TESLA-1003, ¶87. Finally, a POSITA would have expected success because housing a database on a server was conventional and predictable, and presents no unexpected results. TESLA-1003, ¶88.

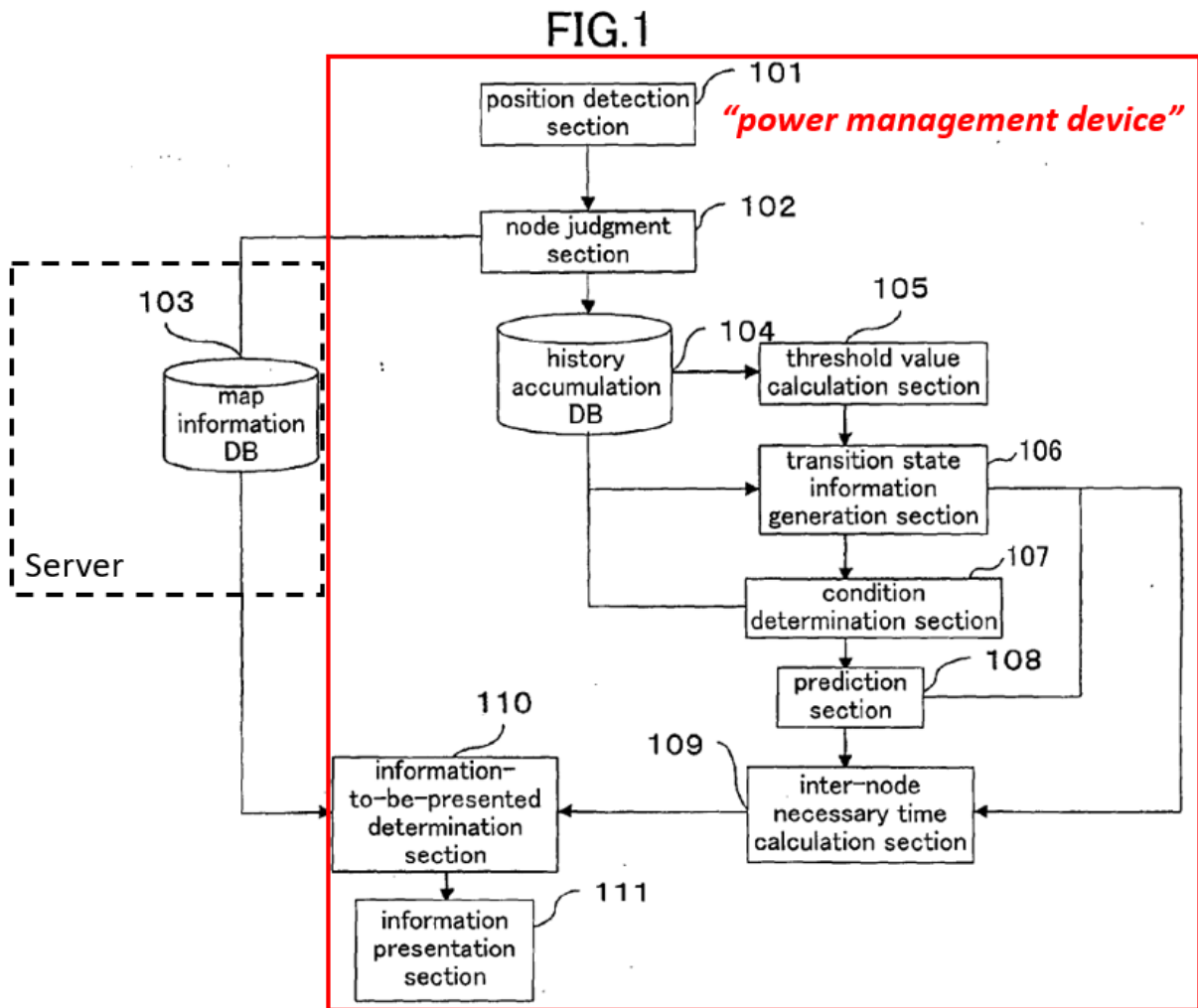
4. Analysis

[1pre]

[1pre] is not limiting. Nothing in [1pre] breathes life into the claims: nothing in [1pre] limits any feature of claim 1 and no feature of claim 1 relies on the “power management device” of [1pre] for antecedent basis. TESLA-1003, ¶89.

Nevertheless, to the extent the preamble is deemed to be limiting, Kudo-325/Kudo-066 renders it obvious. TESLA-1003, ¶90. The combination “car navigation system” (red *infra*) corresponds to ***a power management device***⁴ because the system uses its predicted destination to determine whether a “necessary time” to travel to a predicted destination is “longer ... than the past average necessary time in the route predicted...” TESLA-1004, [0077], [0179]; *see* [0068]. If it is, information about alternative routes is presented to the driver, enabling the driver to control operation of the vehicle (impacting power consumption of the vehicle) based on the provided information. *Id.* For instance, driving an alternative route with a different transit time affects power consumption by the vehicle. TESLA-1004, [0179]; TESLA-1003, ¶90.

⁴ Claim language is denoted in bold italics.



[1a]

In the combination, Kudo-325 describes an “information acquisition system” that receives sensor data samples, and thus has *a sensor interface configured to receive sensor data samples*, as explained *infra*. TESLA-1004, [0077]; *see* FIG. 1; TESLA-1003, ¶¶91-92.

Position information corresponds to “sensor data samples”

In the combination, position information specifying vehicle location corresponds to *sensor data samples*. TESLA-1003, ¶93.

The Kudo-325/Kudo-066 system includes “a position detection section that detects information on the current position of the car navigation system,” *e.g.*, GPS-detected latitude/longitude. TESLA-1004, [0077]; *see* [0090], FIG. 1, FIG. 4; TESLA-1005, [0071]; *see* [0063], Abstract. Current position information, *e.g.*, latitude/longitude, uniquely corresponds to and represents a particular quantum of position information collected by a position sensor (*e.g.*, GPS) at a particular time. TESLA-1004, [0077]; TESLA-1005, [0071]; TESLA-1003, ¶94.

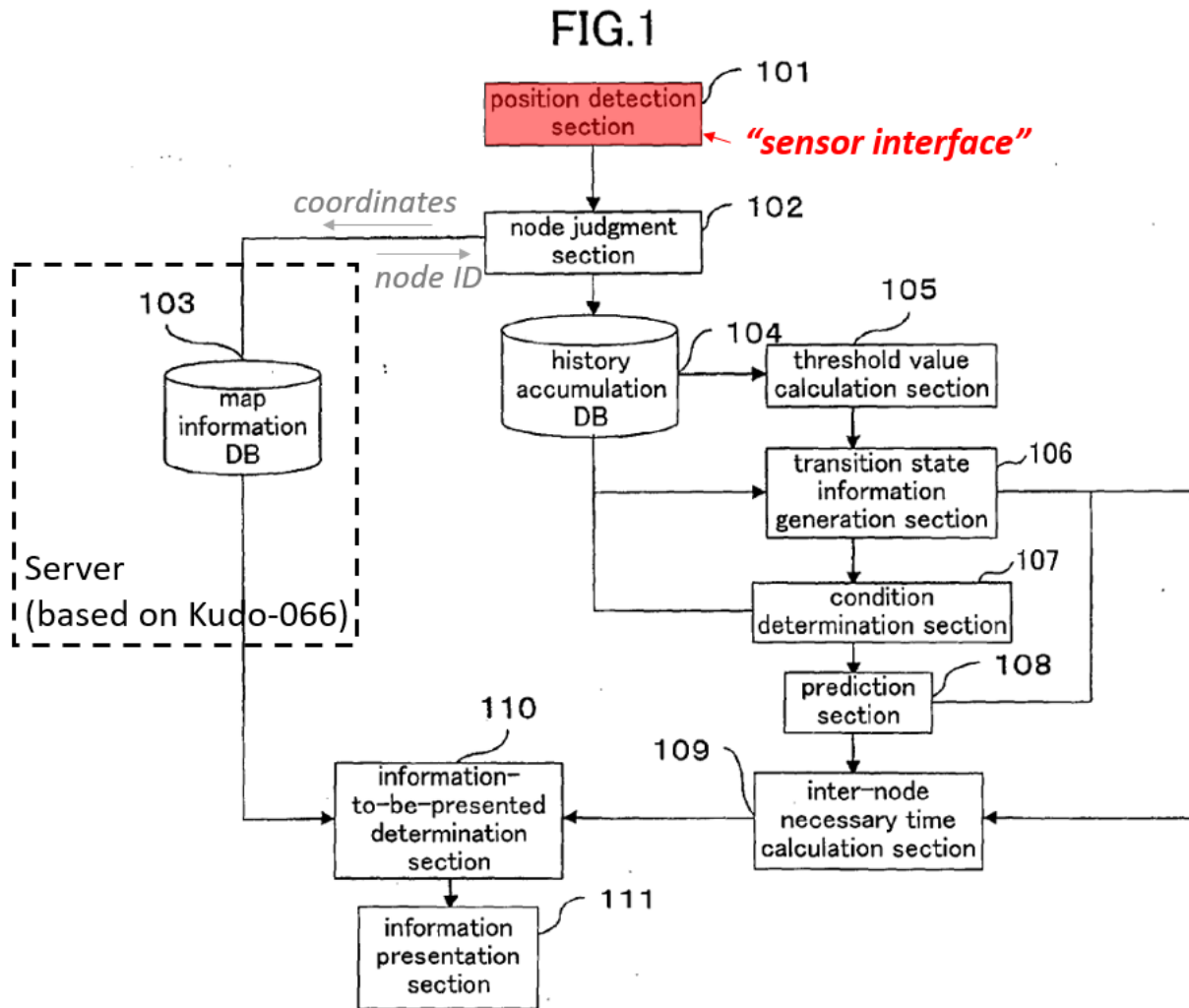
In the combination, “position information such as latitude and longitude” detected by the position detection section is provided to a map information database (*e.g.*, at a server, based on Kudo-066). *See* TESLA-1004, [0090]; TESLA-1005, [0068]; TESLA-1003, ¶95. This database stores node numbers (each “assigned to a node in one-to-one correspondence”) are “together with information indicating the positions such as latitude/longitude information of representative points.” TESLA-1004, [0082]; *see* [0084], FIG. 2; TESLA-1003, ¶95. If “the current position [is] a node,” as determined based on the mapping between node ID and coordinates, the node ID is returned, *e.g.*, the server “notifies the car navigation system 1 of the associated node ID number” for the current

position. TESLA-1004, [0090]; *see* [0081]-[0082]; TESLA-1005, [0068]; *see* TESLA-1004, [0090], [0141], [0078], [0138]. The node ID numbers (when the vehicle position is at a node) correspond to ***sensor data samples***, because the node ID for a given node uniquely corresponds to and represents that same particular quantum of position sensor information as the latitude/longitude coordinates for that node. TESLA-1003, ¶96. Indeed, the node ID is simply one convenient form for representing sensed vehicle position. TESLA-1003, ¶96.

More generally, regardless of the form of the data (*e.g.*, latitude/longitude, node ID, or machine-readable data), position information, when the vehicle is located at a node, corresponds to ***sensor data samples*** because each of these forms of information uniquely corresponds to and represents a quantum of detected position sensor information (*e.g.*, latitude/longitude and node ID each corresponds to discrete raw data detected by a position sensor) at a particular time. TESLA-1003, ¶97.

The combination system receives position information (***sensor data samples***) through the “position detection section,” *red infra* (a ***sensor interface***). *See* TESLA-1004, [0077], [0090]; TESLA-1005, [0063], [0071], Abstract; TESLA-1003, ¶98. These position sensor data samples are converted into node IDs for more convenient processing and storage. *See* TESLA-1005, [0068]; TESLA-1003, ¶99. The position detection section corresponds to a ***sensor***

interface because it receives data samples (latitude/longitude) conveying current vehicle positions, which data are reformatted as node IDs representing the same data. TESLA-1003, ¶100.



Kudo-325/Kudo-066

Position information (*sensor data samples*) is received *during operation of a vehicle*: "the current position of the car navigation system is detected," e.g., position information is received while the vehicle is located at that position.

TESLA-1004, [0090]; TESLA-1003, ¶101. Additionally, position information for both “current position” and “travel history from departure” are recorded. *Id.*, [0096]; *see* [0087], FIG. 3. The “travel history from departure” is the set of previous “current position[s]” of the vehicle since departure. TESLA-1004, [0096]; TESLA-1003, ¶101. A POSITA would have recognized that to record travel history for a current trip (*e.g.*, the node IDs for multiple “current position[s]” during the trip), the position information (*sensor data samples*) would have been received during travel (*during operation of the vehicle*). TESLA-1004, [0096]; TESLA-1003, ¶101.

Alternatively/additionally, a POSITA would have understood that to receive position information (*sensor data samples*) the vehicle would have been powered on (*during operation of the vehicle*). TESLA-1003, ¶102.

Still alternatively/additionally, a POSITA would have found it obvious to use software and/or hardware interfaces with the combination’s “information acquisition system” to facilitate receiving position data during operation of a vehicle. TESLA-1003, ¶103.

Time/date information corresponds to “sensor data samples”

Alternatively/additionally, each of time information and date information corresponds to *sensor data samples*.⁵ TESLA-1003, ¶¶104-105. In the combination, “information on time [and] date ... is accumulated” in the history accumulation database along with position information. TESLA-1004, [0090]; *see* [0087] (“In the example of FIG. 3, pairs of the node numbers and times of passage therethrough are stored chronologically”), [0094], [0096], [0078], FIG. 3, FIG. 5. Time and date information may be received in a form that is readily decipherable to a human or as raw data; either or both of these forms correspond to *sensor data samples* because each form uniquely corresponds to and represents a quantum of detected sensor information (*e.g.*, time/date). TESLA-1003, ¶106.

A POSITA would have understood the car navigation system to have *a sensor interface configured to receive* time/date information (*sensor data samples*), *e.g.*, a clock implemented in a vehicle-based computer, to enable this information to be obtained and stored, as disclosed. TESLA-1004, [0077]; TESLA-1003, ¶107.

⁵ The '002 Patent regards time and date as sensor data samples. *See* TESLA-1001, 22:8-17; TESLA-1003, ¶104.

Time/date information (*sensor data samples*) is received *during operation of a vehicle*. TESLA-1003, ¶108. As discussed *supra* for position information, both “current position” of the vehicle and its “travel history from departure” are recorded and stored together with corresponding time/date information. *See* TESLA-1004, [0096], [0087]; TESLA-1003, ¶108. A POSITA would have understood that to record time/date information for both current position and “travel history from departure,” the time/date information (*sensor data samples*) would have been received during vehicle travel at each position (*during operation of the vehicle*). TESLA-1003, ¶108.

Driver identity information corresponds to “sensor data samples”

Still alternatively/additionally, driver identity information corresponds to *sensor data samples*. TESLA-1003, ¶109. The combination includes “means for acquiring information for specifying a user such as a driver.” TESLA-1004, [0140]; *see* [0014], [0088]. This “information specifying a user” (*e.g.*, an image of a driver captured by an “on-board camera”) uniquely corresponds to and represents a particular quantum of user identification sensor (*e.g.*, camera) information collected at a particular time. *Id.*; TESLA-1003, ¶109.

A POSITA would have understood that this acquired “information for specifying a user” can be processed to identify the driver. TESLA-1004, [0140]; TESLA-1003, ¶110. For instance, when “an on-board camera” is used, image

processing algorithms are employed to perform “person judgment” to identify the driver. TESLA-1004, [0140]; *see* [0088], [0094], [0014]; TESLA-1003, ¶110. A driver identifier, determined by processing the image, corresponds to a *sensor data sample*, because it uniquely corresponds to and represents that same particular quantum of sensor information as the image, and as the raw data. *See* TESLA-1004, [0140]; TESLA-1003, ¶110. Indeed, a driver identifier is simply one convenient form for representing that image. TESLA-1003, ¶110.

The “on-board camera” of the combination system corresponds to a *sensor interface* because it receives a data sample (an image of the driver) conveying driver identity, which is then reformatted as a driver identifier representing the same data sample. TESLA-1004, [0140]; TESLA-1003, ¶111.

A POSITA would have understood that to receive driver identity information (*sensor data samples*), *e.g.*, from a camera, the vehicle would have been powered on (*during operation of a vehicle*). TESLA-1003, ¶112.

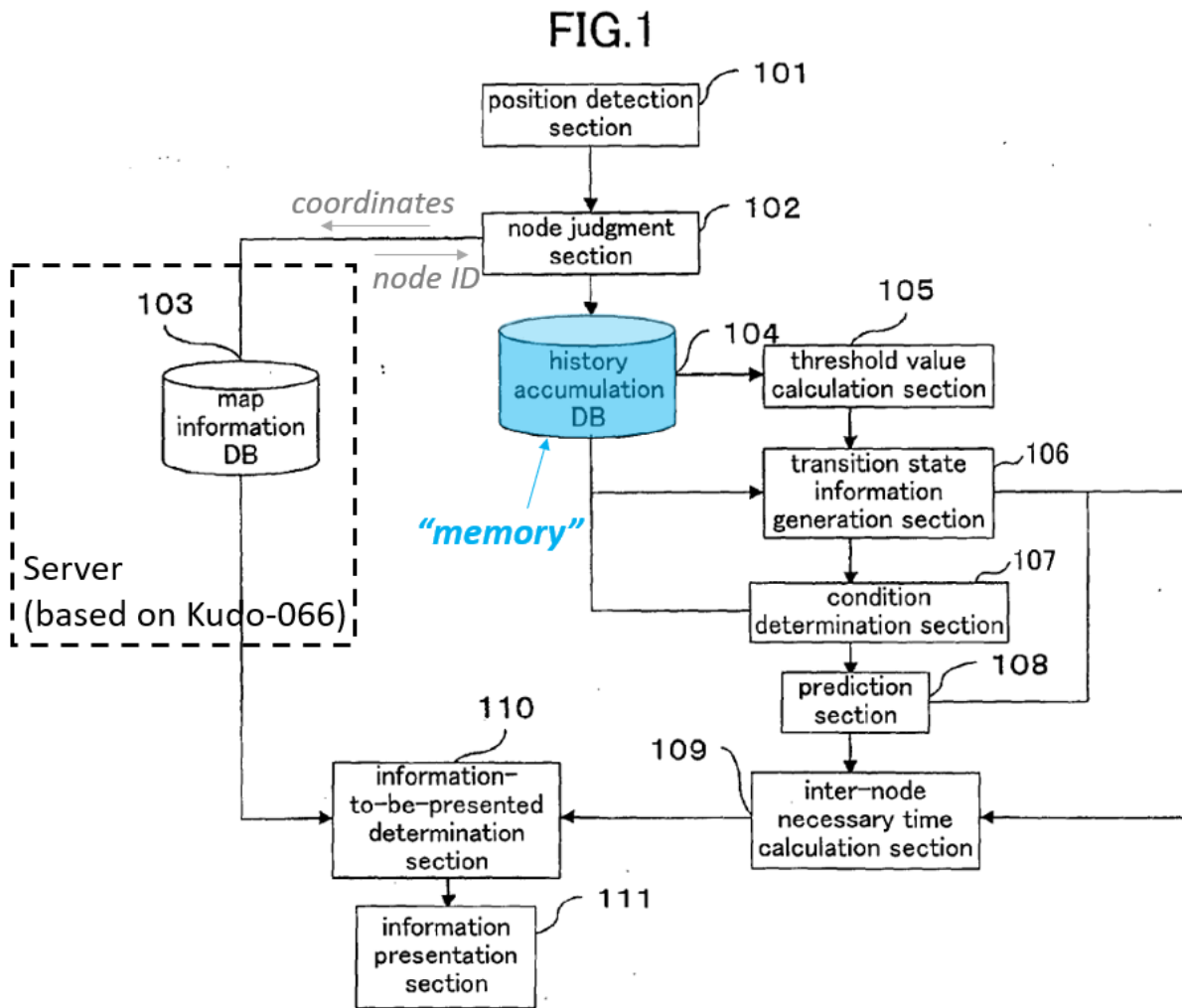
Moreover, a POSITA also would have recognized that driver identity information (*sensor data samples*) is received *during operation of a vehicle*, *e.g.*, because driver identity is used to generate destination predictions for a current vehicle trip (*during operation of the vehicle*). *See* TESLA-1004, [0140]; TESLA-1003, ¶113. A POSITA would have recognized the relevance of identifying the

driver during the trip such that the prediction can be specific to that driver. *See* TESLA-1013, 2:36-44; TESLA-1003, ¶113.

[1b]

The Kudo-325/Kudo-066 system includes “a history accumulation database (DB)” (*a memory*), *blue infra.* TESLA-1004, [0078]; TESLA-1003, ¶¶114-115.

The history accumulation database (the *memory*) “accumulates a travel route obtained from a history of the position information of the automobile,” which, as discussed below, corresponds to *storing said sensor data samples for different points in time along a route segment traveled by said vehicle.* TESLA-1004, [0078]; *see* [0013], [0017], [0057], [0060], [0051], [0072]-[0073]; TESLA-1003, ¶116.



Kudo-325/Kudo-066

The memory stores position and time/date information

First, the history accumulation database (*memory*) stores position information, e.g., node IDs (*store sensor data samples*): if “the current position [is] a node, an ID number indicating the node is accumulated in the history accumulation database.” TESLA-1004, [0090]; see FIG. 3, *infra*; [0078], [0087],

[0096], [0013], [0017], [0051], [0057], [0060], [0072]-[0073], [0138], FIG. 4 (“accumulate history”); TESLA-1003, ¶¶117, 119.

Second, the history accumulation database (*memory*) stores time/date information (*store sensor data samples*): “collateral information on time, date... is accumulated in combination” with position information, *e.g.*, stored in the history accumulation database. TESLA-1004, [0090]; *see* FIG. 3, *infra*; [0087]-[0088] (“pairs of the node numbers and times of passage therethrough are stored chronologically” in the history accumulation database), [0014], [0052], [0094]; TESLA-1003, ¶¶118-119.

“sensor data samples for
different points in time”

FIG.3

104		(a)		(b)	
node number	time	node number	time	node number	time
L6	8:05 a.m. on July 31	L128	12:25 p.m. on July 31	L6	8:05 a.m. on July 31
C8	8:06 a.m. on July 31	C140	12:29 p.m. on July 31	C8	8:06 a.m. on July 31
C12	8:08 a.m. on July 31	C125	12:36 p.m. on July 31	C20	8:08 a.m. on July 31
C9	8:09 a.m. on July 31	.	.	L12	8:10 a.m. on July 31
C34	8:11 a.m. on July 31	.	.	L12	1:40 p.m. on July 31
.	.	L68	1:33 p.m. on July 31	C34	1:50 p.m. on July 31
.	.			.	.
L128	8:53 a.m. on July 31			L6	9:20 p.m. on July 31

Excerpt from Kudo-325, FIG. 3 (annotated)

During travel, the vehicle passes through a sequence of nodes. *See* TESLA-1004, [0081]-[0082], [0087] (“the user departed from, passed through ... a node L6

at 8:05 a.m. on July 31, a node C8 at 8:06 a.m. on the same day, and a node C12 at 8:11 a.m. on the same day”), [0096], [0057], FIG. 3, FIG. 5. Based on this disclosure, a POSITA would have understood that a path from one node to the next (e.g., L6-C8, C8-C12) corresponds to *a route segment traveled by the vehicle*. TESLA-1003, ¶¶120-121.

In the combination, the node IDs and time/date information (*sensor data samples*) are stored in the history accumulation database *for different points in time along a route segment traveled by the vehicle*, e.g., for times when the vehicle was located at the starting node and ending node of each transited route segment. See TESLA-1004, [0087], [0077], [0090], [0057], FIG. 3; TESLA-1003, ¶122. Two representative entries, blue in FIG. 3, *supra*, correspond to *sensor data samples* (node IDs and time/date) *for different points in time* (8:05 and 8:06 a.m.) *along a route segment traveled by the vehicle* (L6-C8). See TESLA-1004, [0087]; TESLA-1003, ¶123.

The memory is configured to store driver identity information

The history accumulation database (*memory*) stores driver identity information (*store sensor data samples*). See TESLA-1004, [0088] (“information on ... a driver ... may be stored”), [0094], [0014], [0140]; TESLA-1003, ¶124.

The driver identity information, together with position and/or time/date information (*sensor data samples*), are stored *for different points in time along a*

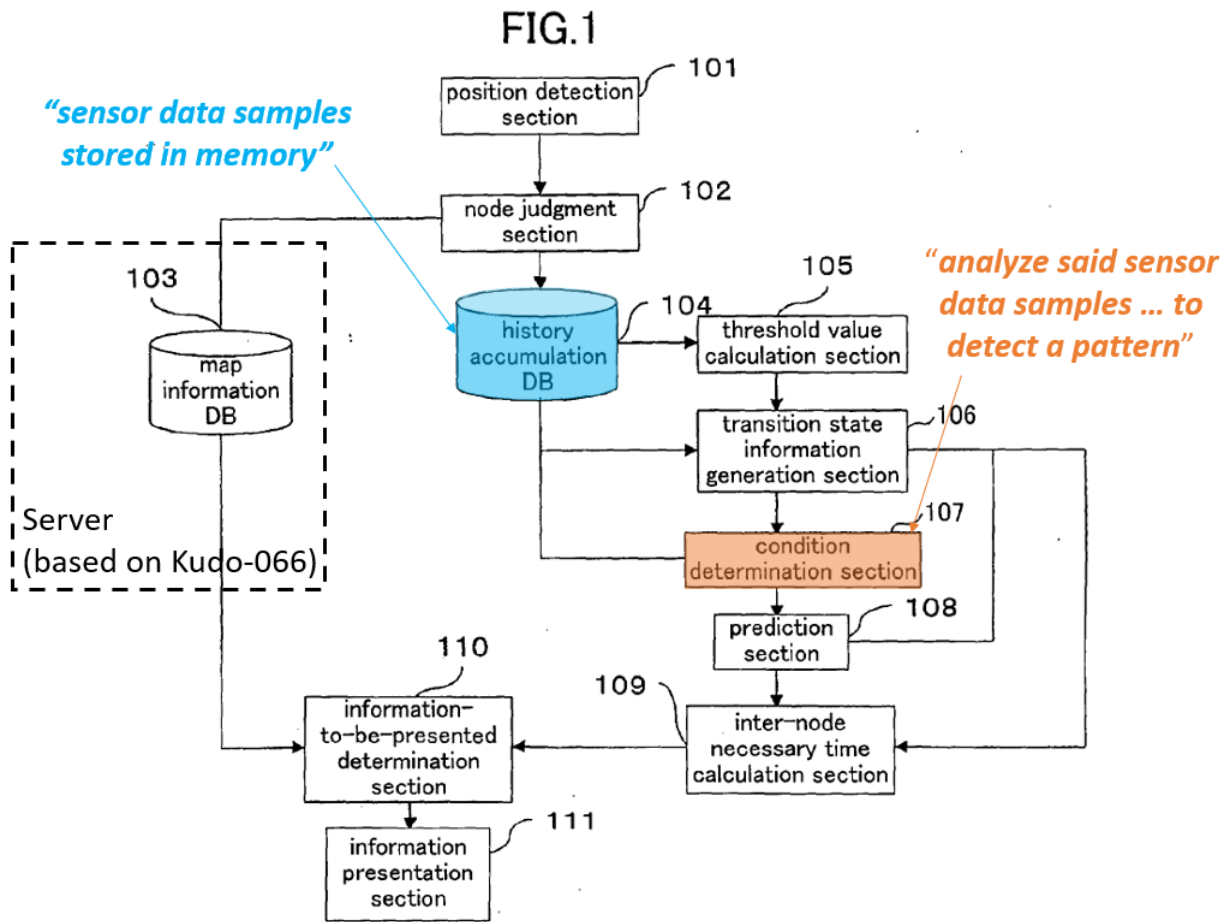
route segment: at least one sensor data sample is stored for each of multiple points in time along a route segment. TESLA-1003, ¶125. For instance, position and time/date information are stored for starting and ending nodes of each segment (***for different points in time along a route segment***), while the driver identity is also stored. TESLA-1004, [0077], [0087], [0090], [0096], FIG. 3, FIG. 5; TESLA-1003, ¶125.

Optionally, a POSITA would have understood that driver identity information is stored along with node ID and time/date for each node (***for different points in time along a route segment***). TESLA-1004, [0088]; TESLA-1003, ¶126. Kudo-325 describes that “collateral information ... is accumulated [stored] in combination” with node ID. TESLA-1004, [0090]; *see* FIG. 3 (illustrating storage of node ID and collateral time/date information). TESLA-1003, ¶126. Driver identity is another example of “collateral information” and thus a POSITA would have recognized that it is also stored along with node ID for each node, *i.e.*, for starting and ending nodes of each segment (***for different points in time along a route segment***). TESLA-1004, [0090]; *see* [0087]-[0088], [0094] (“In FIG. 5, the dates and times ... are recorded as state information. Key information ... such as the aforementioned information on a driver ... may be recorded in addition. Also, the state information is recorded in some of the nodes in FIG. 5, but is recorded in all the nodes actually.”), [0014]; TESLA-1003, ¶126.

[1c-1]

As discussed below, in the combination, at least some functionality described for Kudo-325's condition determination section corresponds to *analyzing the sensor data samples stored in memory to detect a pattern*. TESLA-1003, ¶¶127-133.

In the combination, the condition determination section (orange *infra*) “acquires information relating to the current state by referencing the history accumulation database” (*memory*). TESLA-1004, [0096]; *see* [0051], [0072]. This acquired information includes information about the vehicle's current trip, including “a route from departure to the current node,” current position (*e.g.*, node ID), and time/date (*sensor data samples stored in memory*). *Id.*, [0096]; TESLA-1003, ¶128.



Based on the “travel history from departure” and “date and time conditions” for the current trip (e.g., based on information from the history accumulation database (*analyzing the sensor data samples stored in memory*)), “conditions (categories) such as ‘weekday,’ ‘afternoon,’ and ‘summer’ can be extracted by referencing tables as indicated in FIG. 28” (*detect a pattern*, e.g., conditions characterizing vehicle travel, e.g., characterizing the current trip). TESLA-1004, [0096]; see [0079], [0093], [0013]-[0014] (identifying “morning,” “time between 6

a.m. and 10 a.m., and “time between 8 a.m. and 9:30 a.m.” as conditions corresponding to a current time of 8:30 a.m., and identifying “weekday” and “weekend” as conditions that corresponding to a current day of “Friday”), [0136], [0017]- [0018], [0051]-[0052], [0072], [0110]-[0111], [0115]-[0120], [0127]-[0133], [0219], FIG. 28, FIG. 5; TESLA-1003, ¶129. The determined conditions for the current trip (*pattern*) are used to interrogate a database of historical data to predict the destination. *See* [1c-2]; TESLA-1004, [0096]-[0104]; TESLA-1003, ¶129. Determining conditions for a current trip corresponds to *detecting a pattern*, *e.g.*, because the determined conditions are a pattern characterizing aspects of the trip, such as location and time/date. *See* TESLA-1004, [0013]-[0014], [0051]-[0052], [0096]-[0097], [0102]; TESLA-1003, ¶130. These conditions are determined (*detect a pattern*) by identifying conditions corresponding to current trip information acquired from the history accumulation database, *e.g.*, by *analyzing the sensor data samples stored in said memory*.⁶ TESLA-1003, ¶130.

⁶ Alternatively/additionally, the acquiring, from the history accumulation database, of the set of sensor data samples for use in determining conditions itself corresponds to *detecting a pattern*. *See* [5]; TESLA-1004, [0096]; TESLA-1003, ¶¶182-188.

In a specific example, for a current trip in which “the current position is a node ‘C9’; a travel history from departure is ‘L6 to C9’; and the date and time is 2 a.m. on June 3” (*sensor data samples stored in memory*), conditions including “weekday,” “afternoon,” “summer,” “C9,” and “L6 to C9” (*a pattern*) are determined. TESLA-1004, [0096]-[0097], [0102]; *see* [0115]; TESLA-1003, ¶131.

“[I]nformation on a driver” (*sensor data samples stored in memory*) can be “[k]ey information serving as a condition for retrieval” (*detect a pattern*), *e.g.*, in addition to position and time/date. TESLA-1004, [0094]; *see* [0088], [0014]; TESLA-1003, ¶132. Based on this described role of driver information, a POSITA would have understood that one or more of the conditions (*pattern*) can characterize stored driver identity information (*analyzing sensor data samples stored in memory*). *See* TESLA-1004, [0079], [0093], [0096], [0014], FIG. 5; TESLA-1003, ¶132. As for conditions related to position and time/date, discussed *supra*, conditions related to driver identity are used in destination prediction. *See* TESLA-1004, [0014], [0088], [0094], [0140]; TESLA-1003, ¶132.

A POSITA would have understood that the analysis of sensor data samples is performed by *a processor*. TESLA-1003, ¶133. Kudo-325 describes that destination prediction (which involves “an information acquisition system” that analyzes stored data to determine conditions and predict destinations; *see* TESLA-1004, [0077]) is implemented by a computer: “a program for allowing a computer

... to execute an information acquisition method.” TESLA-1004, [0019]; *see* [0074]-[0075], claim 24. It was well-known that computers contained processors, and that data analysis for pattern detection was a standard function of processors. TESLA-1003, ¶133. In light of Kudo-325’s disclosure and the conventional nature of processors, a POSITA would have recognized that a computer implementing the “information acquisition method” of the combination corresponds to *a processor* implementing this method, including *analyzing* stored data (*sensor data samples*) to determine conditions (*detect a pattern*). TESLA-1003, ¶133.

[1c-2]

Travel history corresponds to “historical data”

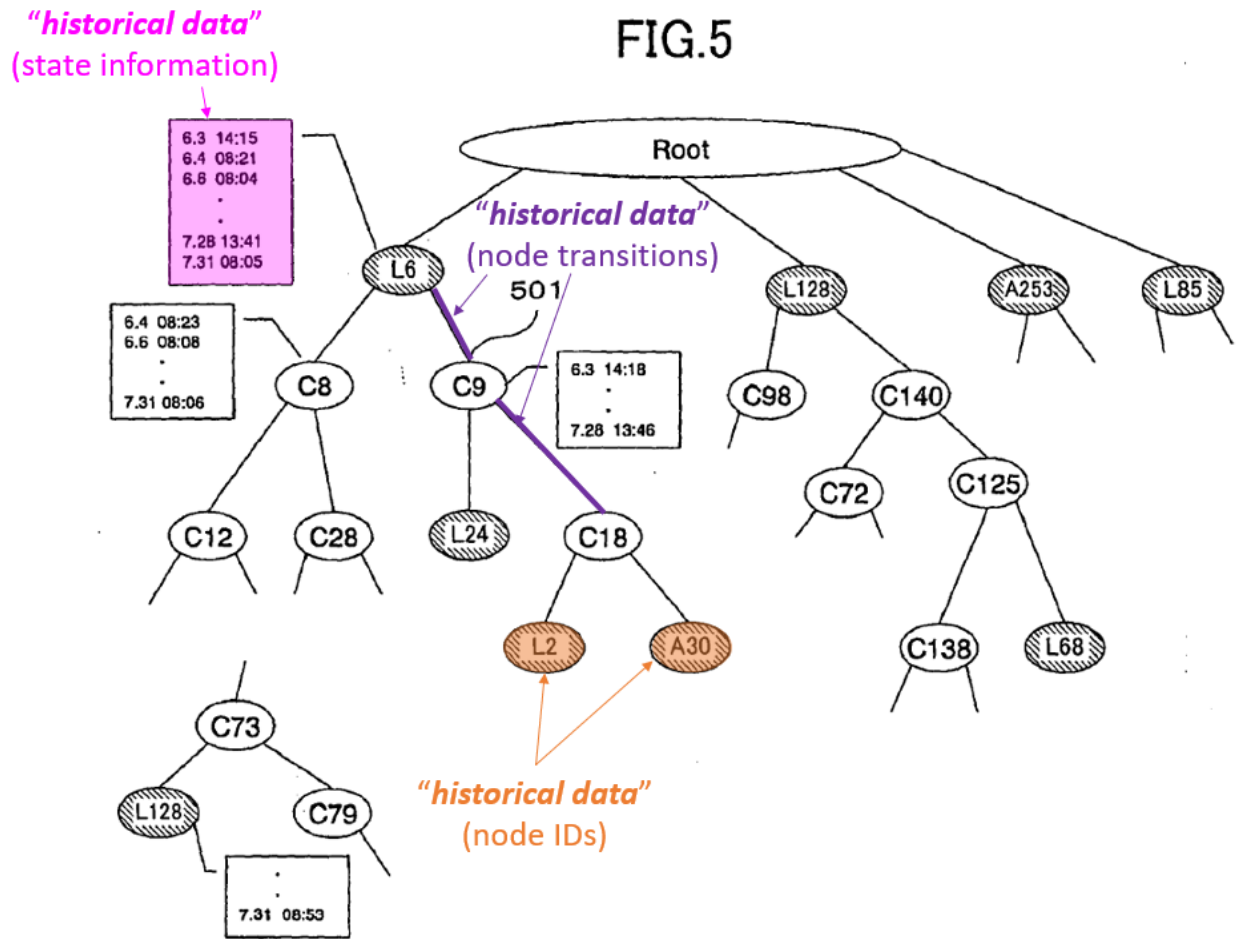
In the combination, a history accumulation database stores “a travel route obtained from a history of the position information of the automobile.” TESLA-1004, [0078]. The stored travel history corresponds to *historical data associated with operation of the vehicle*, *e.g.*, because it characterizes past spatial/temporal positions of the vehicle (*e.g.*, node IDs and time/date for previous trips). *See* TESLA-1004, [0087] (describing that in the history accumulation database, “pairs of node numbers and times of passage therethrough are stored chronologically”), [0087], [0096] (“A field for storing information relating to the current travel is present in the history accumulation DB 104 in addition to a field for storing the past history information”), [0013], [0017], [0051], [0072], [0091]-[0092], FIG. 3;

TESLA-1003, ¶¶134-135. Additionally, “information on weather, a driver, or a fellow passenger may be stored” (*historical data associated with operation of the vehicle*) in the history accumulation database. TESLA-1004, [0088]; *see* [0014], [0052]; TESLA-1003, ¶135.

Also in the combination, Kudo-325 describes generating transition state information “utilizing ... the nodes accumulated in the history accumulation DB,” *e.g.*, utilizing the *historical data*. TESLA-1004, [0109]; *see* [0053] (“generating transition state information indicating past position transition of the mobile body from the travel history”), [0073], [0091]-[0092], [0223]; TESLA-1003, ¶136. For instance, if a given node’s frequency of appearance in the history accumulation database “exceeds [a] threshold value,” transition state information is generated for that node “by utilizing the data in the history accumulation DB.” TESLA-1004, [0091]; *see* [0109], FIG. 4; TESLA-1003, ¶136. That is, the transition state information is based on, and is representative of, the *historical data*. TESLA-1003, ¶136. And because the transition state data was generated from and thus contains some or all of the data in the history accumulation DB (*see* TESLA-1004, [0053], [0073], [0091]-[0093], [0109]), the transition state information itself alternatively/additionally corresponds to *the historical data*. TESLA-1003, ¶136.

FIG. 5, *infra*, illustrates “transition state information.” TESLA-1003, ¶137. As shown, the transition state information includes “nodes (starting points) ...

from which a travel starts ...; histories of past node transition ...; and nodes (destinations),” all indicating historical position information of the vehicle. TESLA-1004, [0093]. Information about these nodes (*e.g.*, node IDs, node transition sequences) corresponds to ***historical data associated with operation of the vehicle*** because this information reflects vehicle positions during past trips. TESLA-1003, ¶137; *see* TESLA-1004, [0051], [0053], [0072]-[0073]. The transition state information also includes “state information” such as time/date for past trips of the vehicle. TESLA-1004, [0093]. The time, date, and frequency information for the nodes also corresponds to ***historical data associated with operation of the vehicle*** because it characterizes past operation of the vehicle, *e.g.*, when and how often, in the past, the vehicle was located at certain nodes. TESLA-1003, ¶137. In addition, the transition state information includes “information on a driver,” which also corresponds to ***historical data associated with the operation of the vehicle*** because it indicates the driver operating the vehicle during past trips. TESLA-1004, [0094]; TESLA-1003, ¶137. Notably, this information (*e.g.*, information on vehicle position, time/date, frequency, and driver; ***historical data associated with the operation of the vehicle***) is also present in the data stored in the history accumulation database because the transition state data was generated from and thus includes that data. TESLA-1003, ¶137.



Excerpt from Kudo-325, FIG. 5 (annotated)

Kudo-325/Kudo-066 render obvious predicting a destination based on the pattern and the historical data

Generally, the combination “information acquisition system” “predict[s] one or more travel destinations or routes where the mobile body will advance” (***predict a destination.***” TESLA-1004, [0013]; *see* [0051], [0017] (“a prediction section that performs retrieval on the travel history under the condition for retrieval and predicts one or more travel destinations for which the mobile body will advance based on the retrieval result”), [0018], [0056], [0061], [0072]; TESLA-1003, ¶138.

As discussed in the following paragraphs, the combination system predicts a destination for a driver is in response to (a) conditions for the current trip (*the pattern*); *see* [1c-1]]⁷ and (b) transition state information (*historical data*).

TESLA-1003, ¶138.

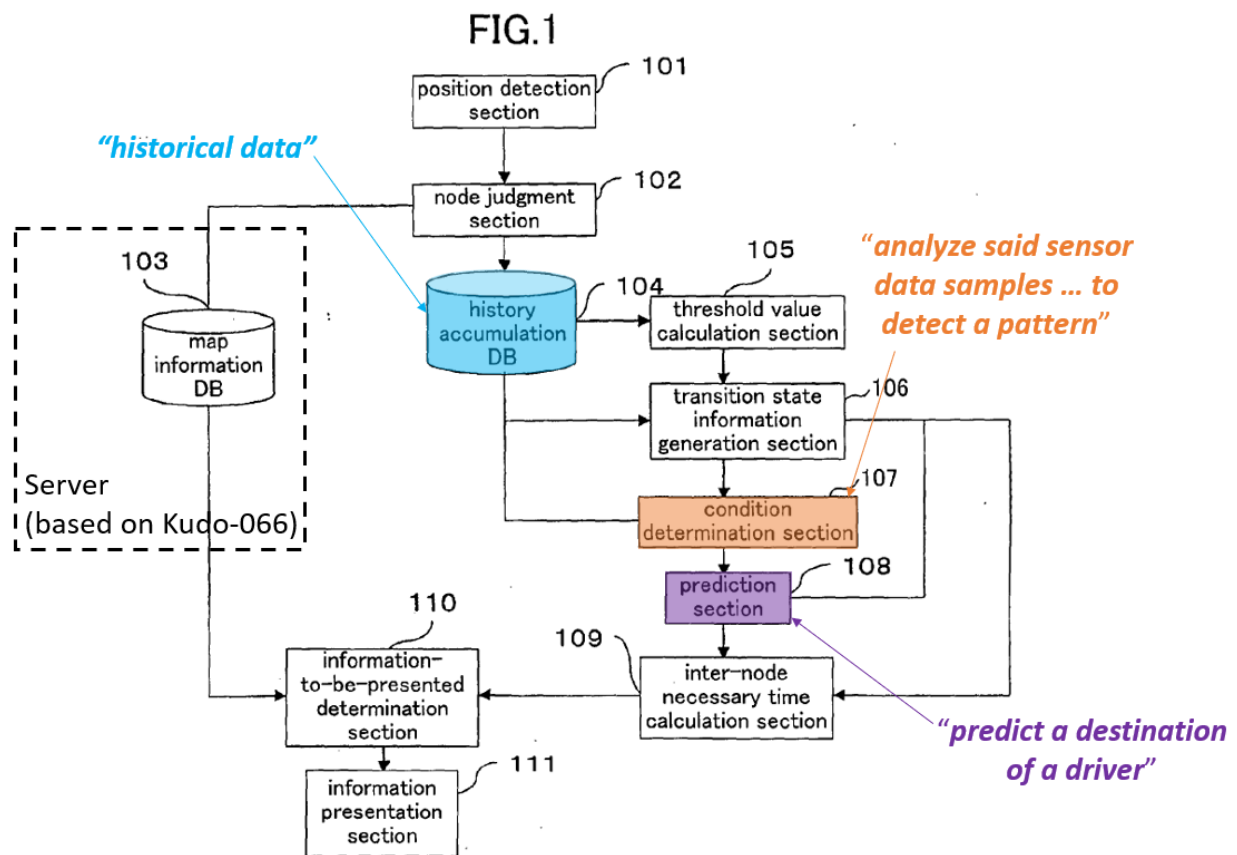
In the combination, Kudo-325 describes that upon retrieval of the conditions for the current trip (*the pattern*), “the condition determination section 107 selects” various combinations of conditions (*e.g.*, “weekday and C9,” “weekday and C9 and afternoon,” “weekday and ‘L6 to C9’ and summer”). TESLA-1004, [0097], [0102]; *see* FIG. 6, [0013]-[0014], [0017]-[0018], [0051]-[0052], [0072]; TESLA-1003, ¶139. For each combination, a starting node (*e.g.*, C9) “is retrieved from the transition state information” (*the historical data*), and “a probability of transition” from the starting node to a “transition candidate node” “located at the lowermost

⁷ To the extent the set of sensor data samples used for determining the conditions for a current trip corresponds to the *pattern*, Kudo-325, in the combination, describes predicting a destination in response to the pattern and historical data, *e.g.*, in that conditions for the trip are determined based on the pattern (*e.g.*, based on the set of sensor data samples; *see* [1c-1]), and the destination is predicted according to those conditions and historical data (*see* [1c-2]). TESLA-1003, ¶¶182-188.

level” of the transition state information (*e.g.*, a potential destination node) is calculated. *Id.*, [0097]; *see* [0013] (“determining, as a condition for retrieval, a kind and a category of a key at retrieval from the travel history; and ... performing retrieval on the travel history under the condition for retrieval”), [0014], [0053], [0073], FIG. 6; TESLA-1003, ¶139. The probability for a given destination node is calculated using “a frequency of appearance” of the starting node in the transition state information (***historical data***) under the particular combination of conditions (***pattern***) and “a frequency that a transition candidate node” (*e.g.*, the destination node) satisfies that combination of conditions. *Id.*, [0098]-[0099]; TESLA-1003, ¶139. This process is repeated for multiple possible destination nodes. *See* TESLA-1004, [0102]; TESLA-1003, ¶139. That is, probabilities for destination nodes are calculated using (a) conditions for the current trip (***in response to the pattern***) and (b) transition state information (***in response to the historical data***). TESLA-1003, ¶139.

Kudo-325 also describes that “the prediction section 108 [purple *infra*] predicts a travel destination where the automobile will advance,” *e.g.*, ***predicts a destination***. TESLA-1004, [0104]; *see* [0013], [0017]-[0018], [0051], [0056], [0061], [0072]-[0073], FIG. 4; TESLA-1004, ¶140. Specifically, “a future transition destination node is determined by referencing the transition state information generated from the travel history.” *Id.*, [0104]. The selection of the

predicted destination node (*predicting a destination*) is based on the calculated probability values for the various potential destination nodes, which, as discussed *supra*, uses (a) the conditions for the current trip (*in response to the pattern*) and (b) the transition state information (*in response to the historical data*). See TESLA-1004, [0104]; TESLA-1003, ¶¶140-141.



More specifically, destination prediction for a current trip is specific to the driver for the current trip (*predict a destination of the driver*). TESLA-1003, ¶142. For instance, Kudo-325 describes that “history accumulation data for each

user” (e.g., each driver) is accumulated and used to “enable[] appropriate prediction according to a user ... even in the case where a plurality of users use the same car navigation system.” TESLA-1004, [0140]; *see* [0014], [0088], [0094]; TESLA-1003, ¶142.

A POSITA would have understood that destination prediction in the combination (*predict a destination of the driver*) is performed by *a processor*, e.g., given Kudo-325’s disclosure of a computer-implemented approach (*see* TESLA-1004, [0019], [0074]-[0075], claim 24), that it was well-known that computers contained processors, and that making predictions was a standard function of processors. *See* [1c-1]; TESLA-1003, ¶143.

[1c-3]

In the combination, vehicle position information such as node IDs (*sensor data samples*) is *driver-related* because it specifies a spatial position of the driver. *See* TESLA-1004, [0077], [0090], FIG. 3; TESLA-1003, ¶¶144-145.

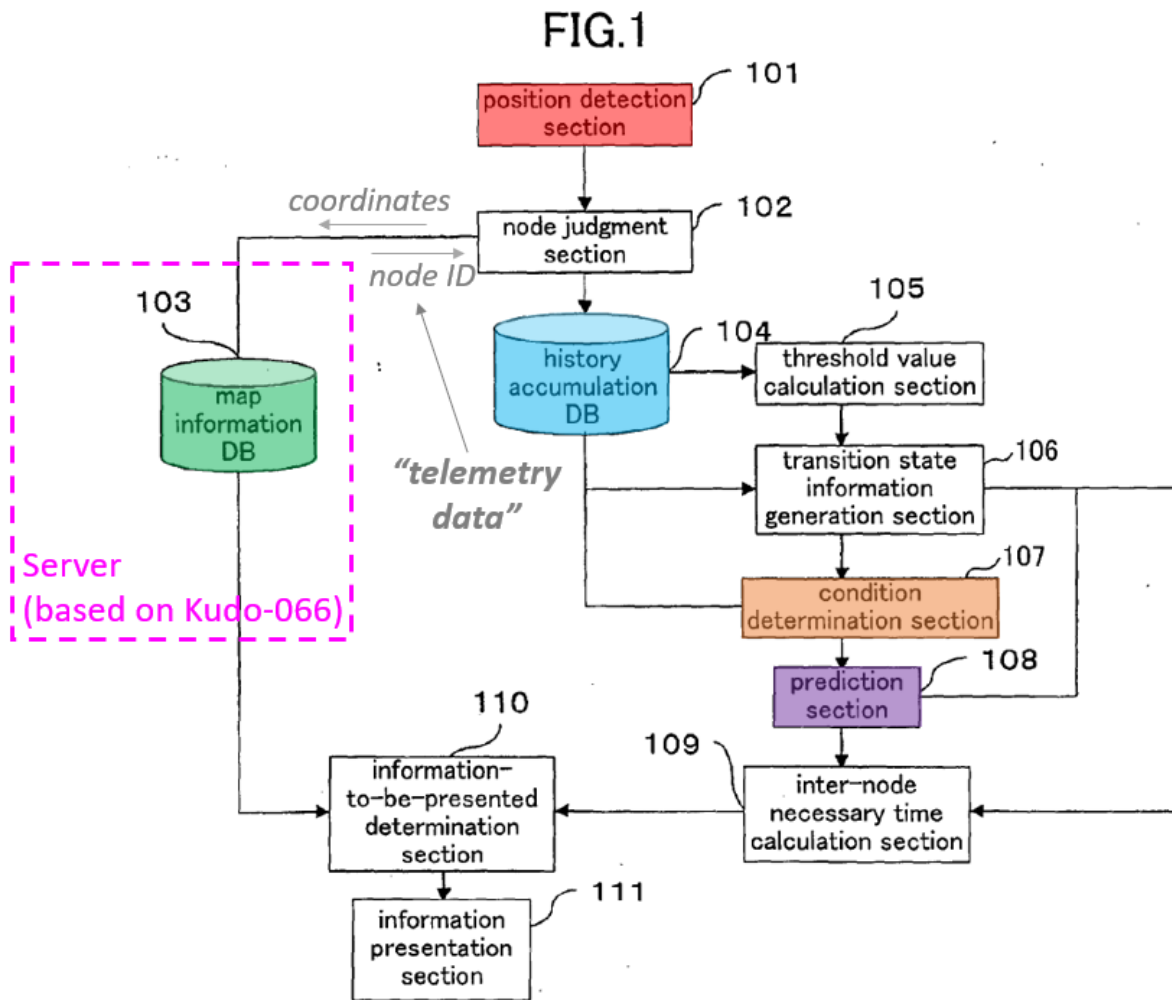
Alternatively/additionally, time/date information (*sensor data samples*) is *driver-related* because it specifies a temporal position of the driver. *See* TESLA-1004, [0087], FIG. 3; TESLA-1003, ¶146.

Still alternatively/additionally, driver identity information (*sensor data samples*) is *driver-related* because it specifies an identity of the driver. *See* TESLA-1004, [0140]; TESLA-1003, ¶147.

[1c-4]

In the combination, vehicle position information such as node ID (*sensor data samples*) corresponds to *telemetry data*. TESLA-1003, ¶¶148-149.

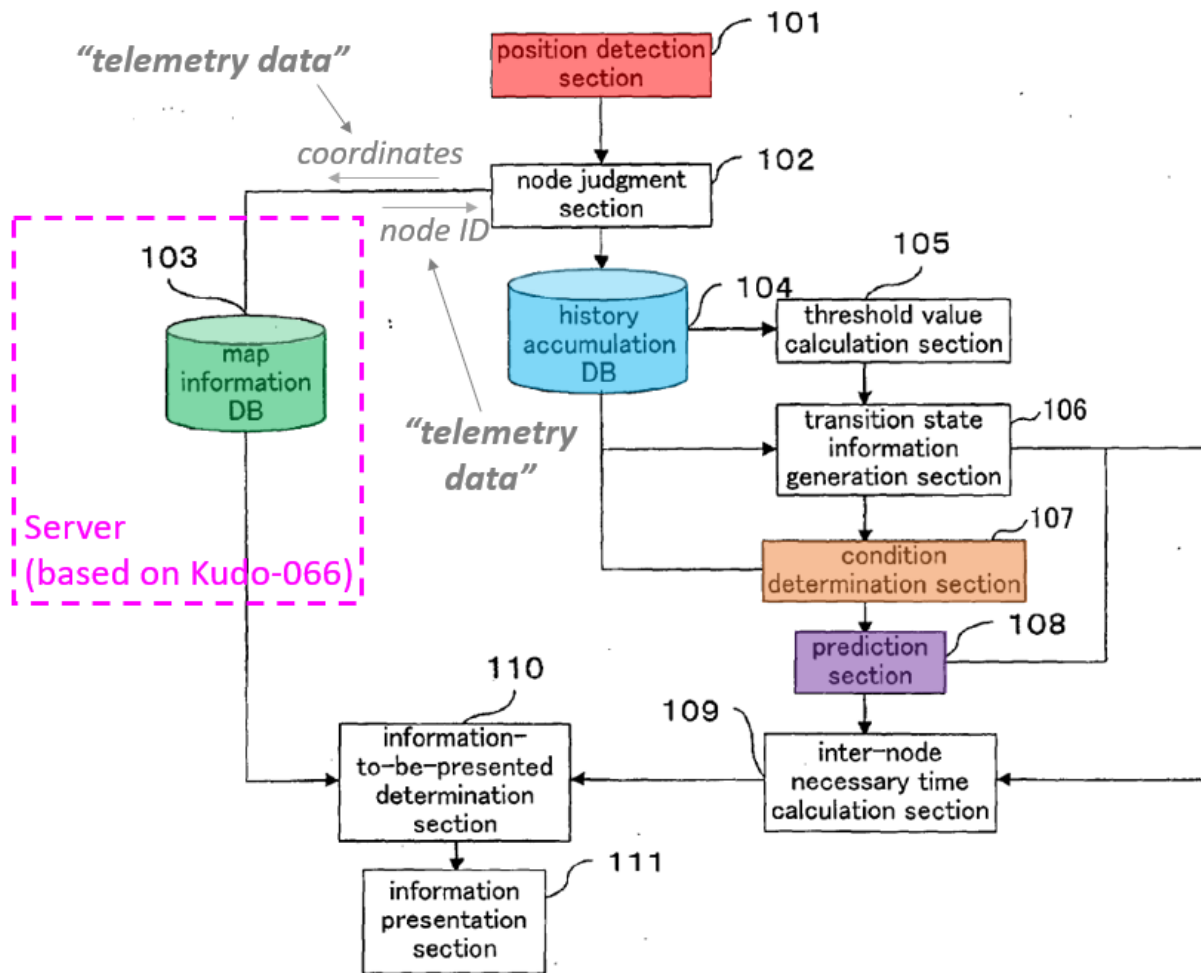
Specifically, “the current position of the car navigation system is detected” by a “position detection section” (red *infra*). TESLA-1004, [0090]. When the map database is implemented at a server (pink) based on Kudo-066, detected position information (*e.g.*, latitude/longitude) is provided to the server-based map database (green) to determine whether the current position is a node. *See* TESLA-1005, [0068]; TESLA-1004, [0077], [0090], [0141]; TESLA-1003, ¶149. If so, the server “notifies the car navigation system 1 of the associated node ID number” (*sensor data samples*). TESLA-1005, [0068]; TESLA-1003, ¶149. That is, the node ID number is stored in a database remote from the car navigation system where the position coordinates are measured, and is wirelessly communicated from the server to the car navigation system. TESLA-1003, ¶149. Thus, the node IDs (*sensor data samples*) correspond to *telemetry data* because they represent measurement data (indicative of vehicle location) communicated over a distance (between server and vehicle). TESLA-1003, ¶149.



Alternatively/additionally, when vehicle location is detected by GPS based on Kudo-066, the GPS-determined coordinates correspond to *telemetry data* (gray *infra*) because they represent measurement data (indicative of vehicle location) communicated over a distance (between vehicle and GPS satellite). See TESLA-1005, [0071], Abstract, [0063]; TESLA-1003, ¶150. The detected GPS coordinates are provided to the map database, which returns the corresponding

node ID; as such, when the map database is implemented as a remote database, illustrated *infra*, the GPS coordinates also correspond to ***telemetry data*** because they represent measurement data communicated over a distance (between vehicle and server). See TESLA-1005, [0068]; TESLA-1004, [0090]; [1a]; [2] (“wherein said telemetry data comprises map coordinates determined in response to a GPS signal”); TESLA-1003, ¶150. Furthermore, the node ID corresponding to a set of GPS coordinates thus corresponds to ***telemetry data*** because the node ID uniquely corresponds to and represents those GPS-determined coordinates, which themselves correspond to ***telemetry data***. TESLA-1003, ¶150.

FIG.1



Kudo-325/Kudo-066

Data indicating vehicle position may satisfy both the recited driver-related ([1c-3]) and telemetry ([1c-4]) sensor data samples: the Federal Circuit has held that “a single element, feature, or mechanism can ordinarily satisfy multiple claim limitations...” *Google LLC v. Pers. Audio, LLC*, 743 Fed. Appx. 978, 985 (Fed. Cir., 2018).

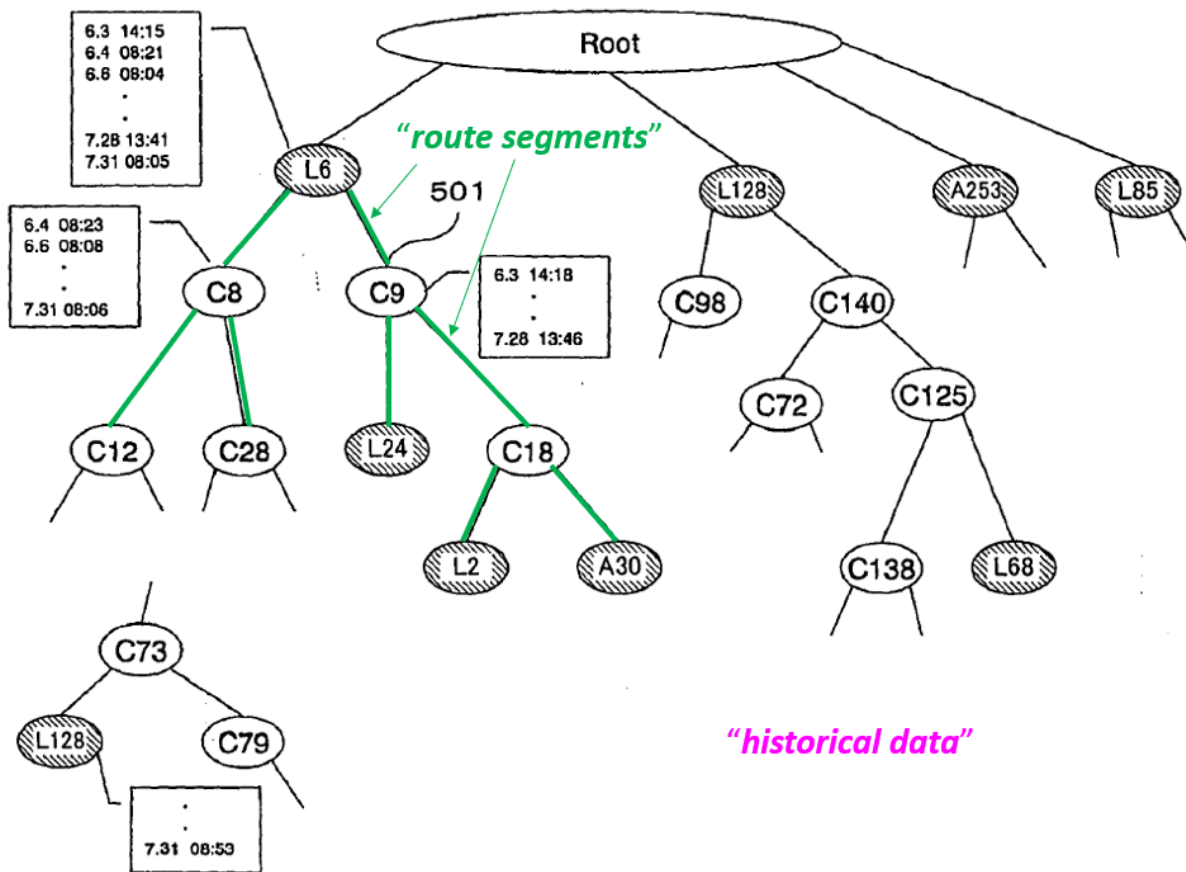
[1d-1]-[1d-3]

In the combination, Kudo-325's transition state information (*see* FIG. 5, *infra*) corresponds to **historical data**. *See* [1c-2]; TESLA-1003, ¶¶151-152.

Alternatively/additionally, the transition state information contains some or all of the same data that is stored in the history accumulation database, which also corresponds to **historical data**. *Id.*

Kudo-325's transition state information includes “nodes (starting points) ... from which a travel starts” and “histories of past node transition from the respective nodes as base points, which indicate histories of travels among intersections.” TESLA-1004, [0093]; *see* [0087], [0057] (“the travel history is accumulated in a form of inter-node transition”). Additionally, the transition state information includes “nodes (destinations) ... where the travel ends.” TESLA-1004, [0093]. Each connection between a pair of nodes corresponds to a **route segment**, *e.g.*, because it represents a portion (*e.g.*, segment) of a route extending from a starting node to a destination node. TESLA-1003, ¶153. Thus, connections between nodes in the transition state information (*e.g.*, connections (examples outlined in green) between nodes) correspond to **multiple route segments** ([1d-1]). TESLA-1003, ¶153.

FIG.5

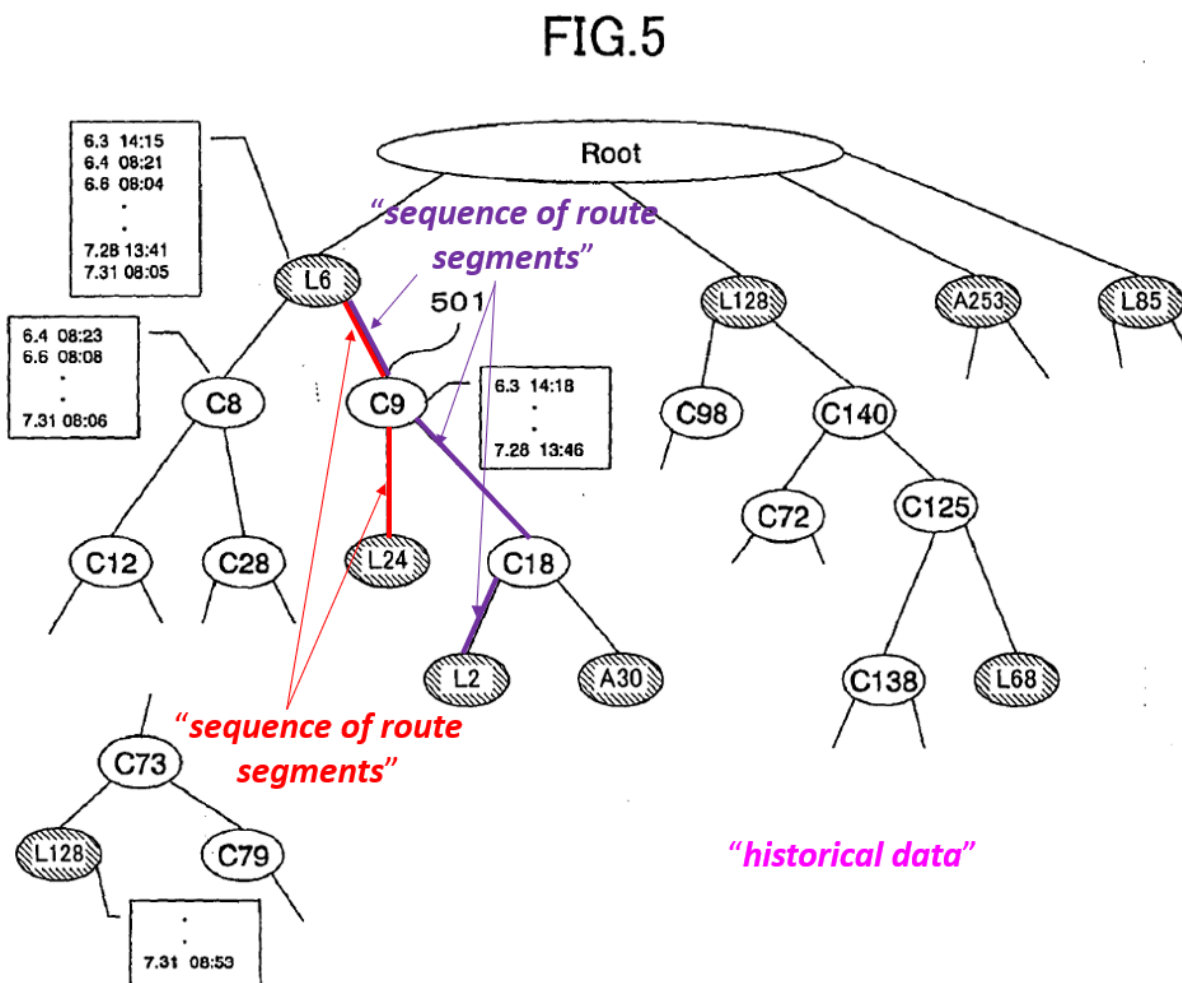


Excerpt from Kudo-325, FIG. 5 (annotated)

The sequences of segments that constitute trips from starting to destination nodes correspond to *sequences of route segments* ([1d-2]). TESLA-1004, [0093]; see [0087]; TESLA-1003, ¶¶159-160. For instance, a trip from L6 to L24 includes a sequence of two segments (red *infra*): L6-C9 and C9-L24. Another trip, from L6 to L2, includes a sequence of three segments (purple): L6-C9, C9-C18, and C18-L2. TESLA-1003, ¶160. Alternatively/additionally, sequences that do not extend

from uppermost-level to lowermost-level nodes (*e.g.*, L6-C9 and C9-C18)

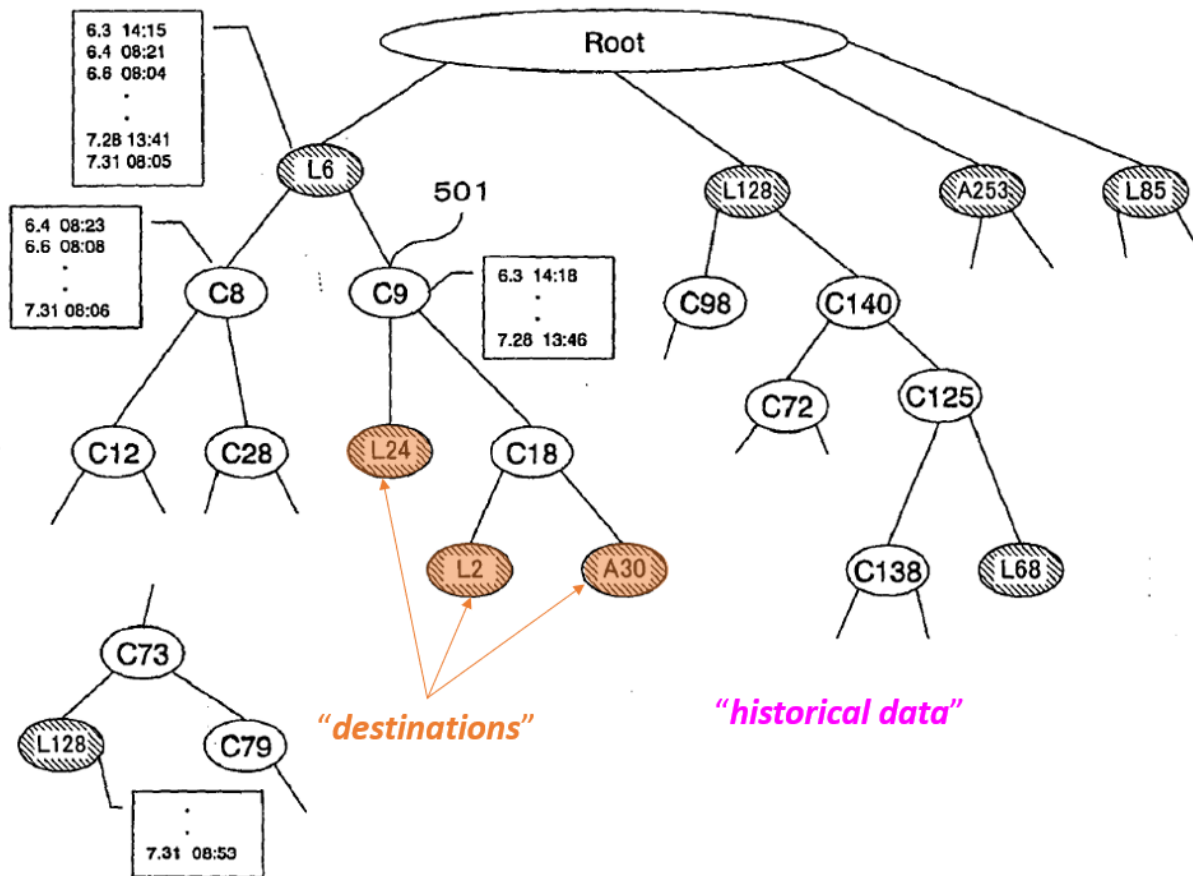
correspond to *sequences of route segments* ([1d-2]). TESLA-1003, ¶160.



Excerpt from Kudo-325, FIG. 5 (annotated)

Moreover, the destination nodes of the transition state information (e.g., L24, L2, and A30, orange *infra*), correspond to **multiple travel destinations** ([1d-3]). TESLA-1004, [0093]; see [0087]; TESLA-1003, ¶¶166-167.

FIG.5



Excerpt from Kudo-325, FIG. 5 (annotated)

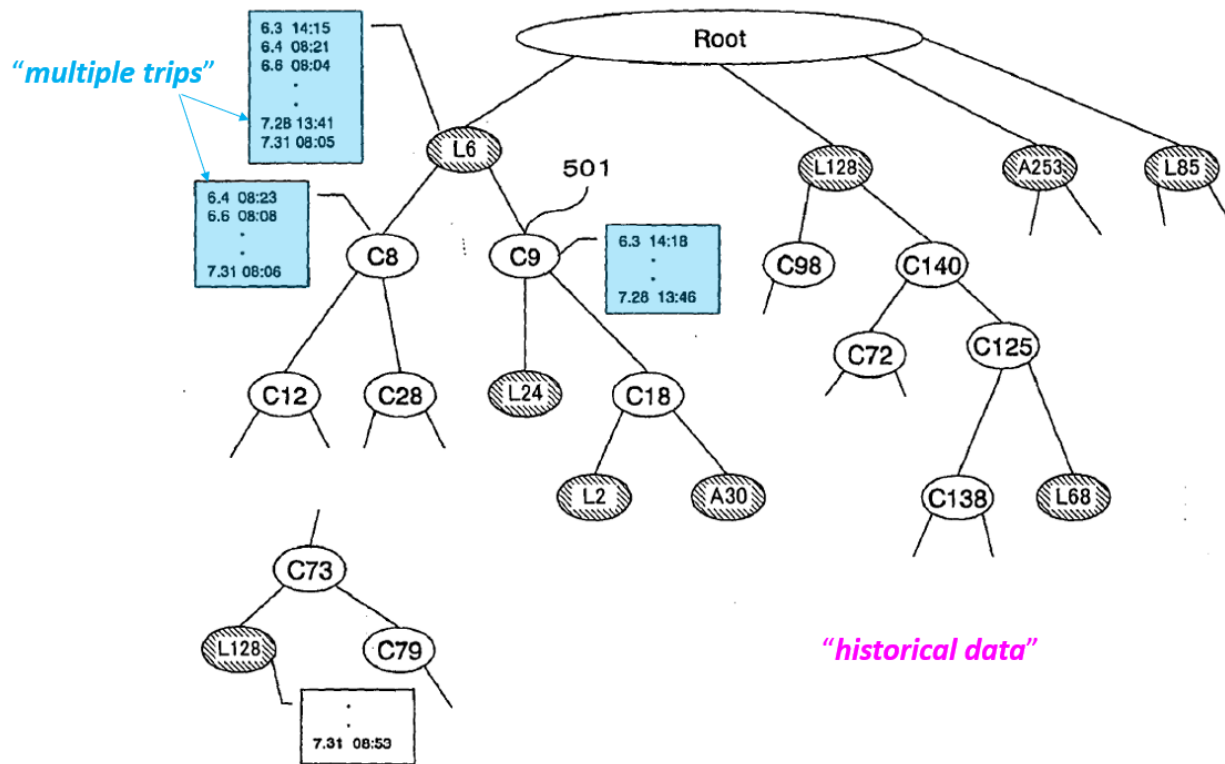
The transition state information (*historical data*) includes *data regarding the multiple route segments* ([1d-1]), *multiple sequences of route segments* ([1d-2]), and *travel destinations* ([1d-3]). TESLA-1003, ¶¶154, 161, 168. The node IDs for nodes at the starts and ends of route segments are an example of such data for route segments and sequences of route segments; node IDs for destination nodes are an example of such data for travel destinations. See TESLA-1004, [0093], FIG. 5; TESLA-1003, ¶¶154, 161, 168. Moreover, Kudo “dates and times”

and “information on a driver and a fellow passenger” are “recorded in all the nodes” of the transition state information. TESLA-1004, [0094]. Date/time and driver/passenger information for nodes at the starts and ends of route segments or for destination nodes are another example of this data. TESLA-1003, ¶¶154, 161, 168. Additionally, “the number of pieces of the accompanying state information offers to respective frequencies of departure from, passing through and arrival at” each node. TESLA-1004, [0093]. This frequency information—*e.g.*, the frequency with which the vehicle was located at starts and ends of route segments or at destination nodes—is another example of this data. TESLA-1003, ¶¶154, 161, 168.

The transition state information (*historical data*) represents *multiple trips* from a starting point to a destination. TESLA-1003, ¶¶155, 162, 169. Each trip is composed of one or more route segments (*route segments*) extending between a starting node “arranged at the uppermost level” of the FIG. 5 diagram and a destination node (*travel destinations*) “located at the lowermost level of the respective branches,” with at least some trips having a sequence of multiple segments (*sequences of route segments*). TESLA-1004, [0093]; TESLA-1003, ¶¶155, 162, 169. For instance, one trip depicted in FIG. 5, from L6 to L24, involves operation of the vehicle on a sequence of two route segments: L6 to C9 and C9 to L24. TESLA-1003, ¶¶155, 162, 169.

Alternatively/additionally, in the combination, Kudo-325 describes that the transition state information includes data that *was gathered from operation of the vehicle during multiple trips*. TESLA-1003, ¶¶156, 163, 170. State information (blue *infra*) indicates that the vehicle was at L6 on 6/3 at 14:15 and at C9 at 14:18, e.g., data gathered from one *trip* on *the route segment* L6-C9. A second *trip* on that same *route segment* occurred on 7/28. Similarly, the transition state information indicates *multiple trips* on the L6-C8 route segment (6/4, 6/6, 7/31). TESLA-1003, ¶156. Thus, the transition state information (*historical data*) includes *data gathered from operation of the vehicle on multiple route segments during multiple trips*. TESLA-1003, ¶156. Moreover, a POSITA would have recognized that at least some of those trips on the L6-C9 route segment continue on to the C9-L24 segment to end at L24, while other of those L6-C9 trips continue on to the C9-C18 segment to end at L2 or A30 (*multiple sequences of route segments, and to multiple destinations, during multiple trips*). TESLA-1003, ¶¶163, 170.

FIG.5



Excerpt from Kudo-325, FIG. 5 (annotated)

That the transition state information includes *data gathered from operation of the vehicle during multiple trips* is further supported by Kudo-325's description of generating the transition state information based on node appearances exceeding a threshold, as explained by Dr. Morellas. TESLA-1003, ¶¶157, 164, 170, citing TESLA-1004, [0091]-[0092], [0109], FIG. 4.

A POSITA would have understood that the data regarding route segments, sequences of route segments, and destinations in the transition state information (*the historical data*) was gathered from *the driver's operation* of the vehicle.

TESLA-1003, ¶¶158, 165, 171. The historical data includes “information on ... a driver,” thus reflecting the driver’s operation of the vehicle. TESLA-1004, [0088]; *see* [0014], [0104]; [1c-2]; TESLA-1003, ¶¶158, 165, 171.

In the combination, *a destination is predicted in response to the pattern and the historical data (data regarding the multiple route segments, sequences of route segments, and destinations)* (*see* [1c-2]). A “probability of transition” from a current node to each of multiple possible destination nodes (*travel destinations*) is calculated using transition state information, *i.e.*, *historical data regarding multiple travel destinations* are used for destination prediction. *See* TESLA-1004, [0100], [0102]; TESLA-1003, ¶172. Moreover, transitions from current node to possible destination nodes involve at least one route segment (*e.g.*, if “the current position is a node ‘C9,” the transition to L2 involves segments C9-C18 and C18-L2), and sometimes involve a sequence of route segments (*e.g.*, the C9-C18-L2 sequence). TESLA-1004, [0096]. Thus, *historical data regarding multiple route segments* and *multiple sequences of route segments* are used for destination prediction. TESLA-1003, ¶172.

Alternatively/additionally, the “travel history from departure” (a segment or sequence of segments) constitutes a condition based on which a predicted destination is identified. *See* TESLA-1004, [0096]. Each of multiple “node[s] satisfying the condition [are] retrieved”—*e.g.*, nodes having that same travel

history—and used for destination prediction, *e.g.*, **historical data regarding multiple route segments** and **sequences of route segments** are used to retrieve nodes for destination prediction. *Id.*, [0097]; *see* [0098]-[0104]; TESLA-1003, ¶173.

[2]

In the combination, “position information (latitude and longitude)” is detected “using ... a GPS.” TESLA-1005, [0071]; *see* Abstract, [0063]. Latitude/longitude coordinates correspond to **map coordinates determined in response to a GPS signal**. TESLA-1003, ¶174. Moreover, either or both of these GPS-determined coordinates and the corresponding node ID correspond to **telemetry data**. *See* [1c-4]; TESLA-1003, ¶174.

[3]

In the combination, node IDs (**telemetry data**; *see* [1c-4]) are determined based on a mapping between node ID and current “position information (latitude and longitude).” *See* [1a]; TESLA-1004, [0081]-[0082], [0084], [0090], FIG. 2; TESLA-1005, [0071]; *see* Abstract, [0063]; TESLA-1003, ¶175. The node ID (**telemetry data**) corresponds to **map coordinates** because it uniquely corresponds to and represents the vehicle’s latitude/longitude coordinates. *See* [1c-4]; TESLA-1003, ¶176. The server-implemented map information database (*see* TESLA-1005, [0068]) corresponds to **a map service** because it provides a service

translating one representation of map information (coordinates) into a different representation of that same information (node ID). TESLA-1003, ¶177. The node ID (*telemetry data*) is thus *determined by a map service*, e.g., by the map information database. *Id.*

[4]

Like the '002 Patent, which uses “statistical destination logic” to predict a destination “by generating a series of statistically weighted (e.g., likely) destinations based on any, all, or some inputs,” the Kudo-325/Kudo-066 system determines probabilities for potential destinations based on current trip characteristics and identifies a predicted destination based on these probabilities, e.g., *predicts the destination based on statistical destination logic*. TESLA-1001, 12:5-17; *see* 12:18-27; TESLA-1003, ¶¶178-180. Specifically, “a probability of transition toward” a given node “is calculated” for each of multiple possible destination nodes based on “the transition state information,” e.g., based on a collection of data (statistics). TESLA-1004, [0097]; *see* [0054]-[0056], [0073]. These transition probabilities take into account the vehicle’s “current position,” “travel history from departure,” “date and time,” and/or driver identity. *Id.*, [0096]; *see* [0014], [0088], [0097]-[100], [0102]. Based on these probabilities, “a future transition destination node is determined” (*statistical destination logic*). TESLA-1004, [0104]; TESLA-1003, ¶181.

[5]

In the combination, position, time/date, and/or driver identity information (*sensor data samples*) are received and stored in memory. *See* [1a]-[1b].

Specifically, driver identity information includes “information for specifying a user such as a driver,” *e.g.*, an image captured by an “on-board camera.” TESLA-1004, [0140]; *see* [0014], [0088]. A POSITA would have understood this image to be stored in memory (*sensor data samples stored in memory*; *see* [1b]) for later “person judgment” (facial recognition). TESLA-1004, [0140]; TESLA-1003, ¶189.

The set of sensor data samples used for determining conditions for the current trip corresponds to the *pattern*.⁸ *See* [1c-1]; TESLA-1003, ¶¶190. In this context, the *pattern* includes an image of the driver. *Id.* Also in the combination, “person judgment” is performed on the image (*pattern*) to determine the driver’s identity (*determine that a particular driver is operating said vehicle based on said pattern detected*). *Id.*

⁸ This is consistent with the disclosure of the ’002 Patent, as discussed by Dr. Morellas. TESLA-1003, ¶¶182-188.

[6]

The combination car navigation system determines “whether the current position is a node or not by referencing the map information DB.” TESLA-1004, [0090]; TESLA-1003, ¶¶191-192. Route segments extend between nodes; thus, determining that the current position is a node indicates that the vehicle is transiting from one segment to another, thereby determining the route segment just transited by the vehicle (*determining a route segment*). See [1d-1]; TESLA-1004, [0093], [0094], [0087], FIG. 5, FIG. 3. For instance, when “the current position is a node ‘C9’; [and] a travel history from departure is ‘L6 to C9,’” the vehicle has just transited L6-C9, *i.e.*, the L6-C9 segment is determined. TESLA-1004, [0096]; TESLA-1003, ¶192. Moreover, determining whether the current position is a node (*determining a route segment*) involves using position information such as coordinates or node IDs (*telemetry data is used*). TESLA-1003, ¶193.

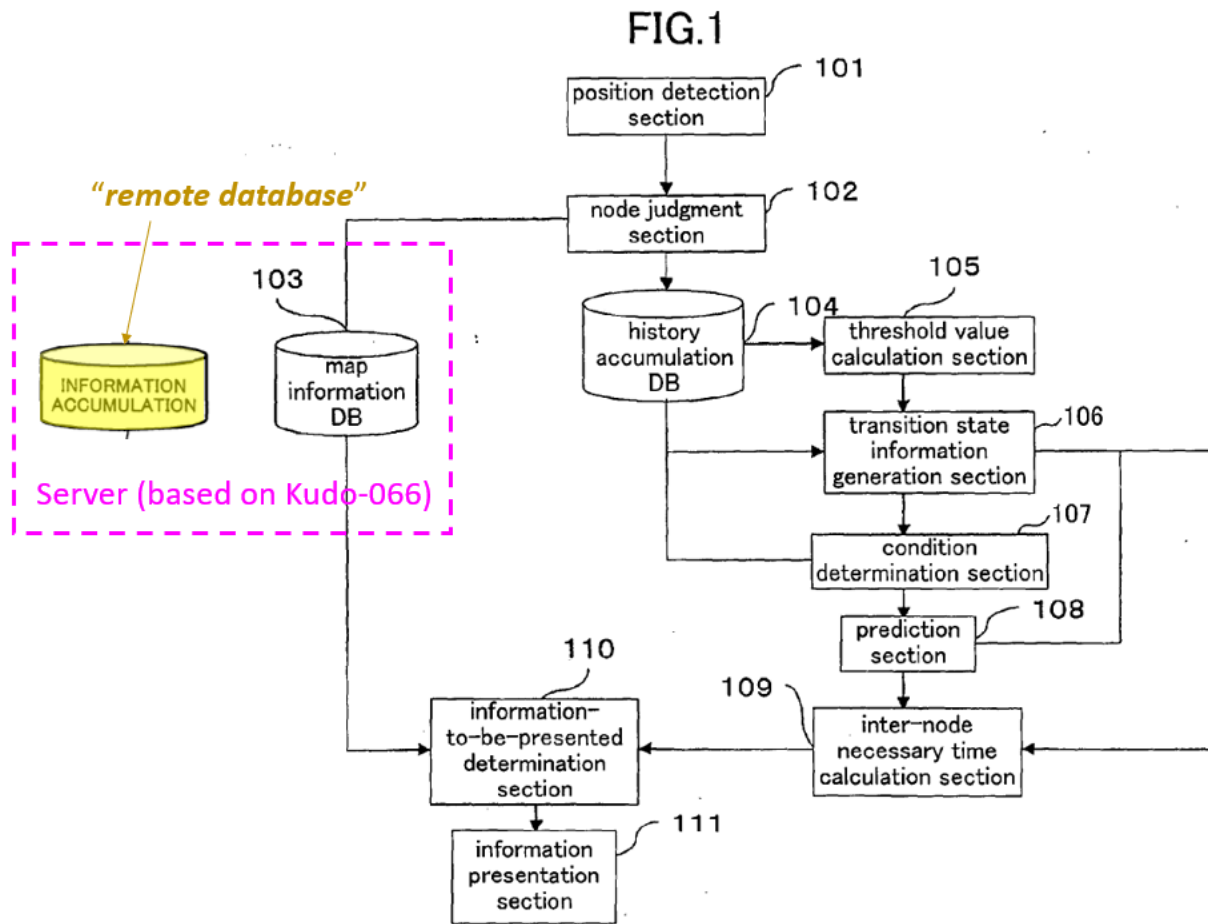
[7]

The *pattern* corresponds to conditions characterizing aspects of travel (*e.g.*, the current trip). See [1c-1]; TESLA-1004, [0013], [0017]-[0018], [0051]-[0052], [0072], [0079], [0093], [0096]-[0097], [0102], [0115]-[0120]; TESLA-1003, ¶194. The conditions (the *pattern*) include “a travel history from departure,” *e.g.*, *which route segments said vehicle has traveled*. TESLA-1004, [0096]; see [0102]; TESLA-1003, ¶194.

[8]

The information accumulation means corresponds to a remote database

In the combination, based on Kudo-066, the server (pink *infra*) houses an “information accumulation means [yellow] for storing information to be transmitted to the car navigation system,” *e.g.*, commercial and/or traffic information. TESLA-1005, [0064]; *see* [0092]-[0095], [0150]; TESLA-1004, [0067]-[0069], [0107], [013]; TESLA-1003, ¶¶195-196. The information accumulation means is ***remote*** because it is housed at the server, and it corresponds to a ***database***, because a database is a conventional way to store large volumes of data in an easily accessible manner. TESLA-1003, ¶197.



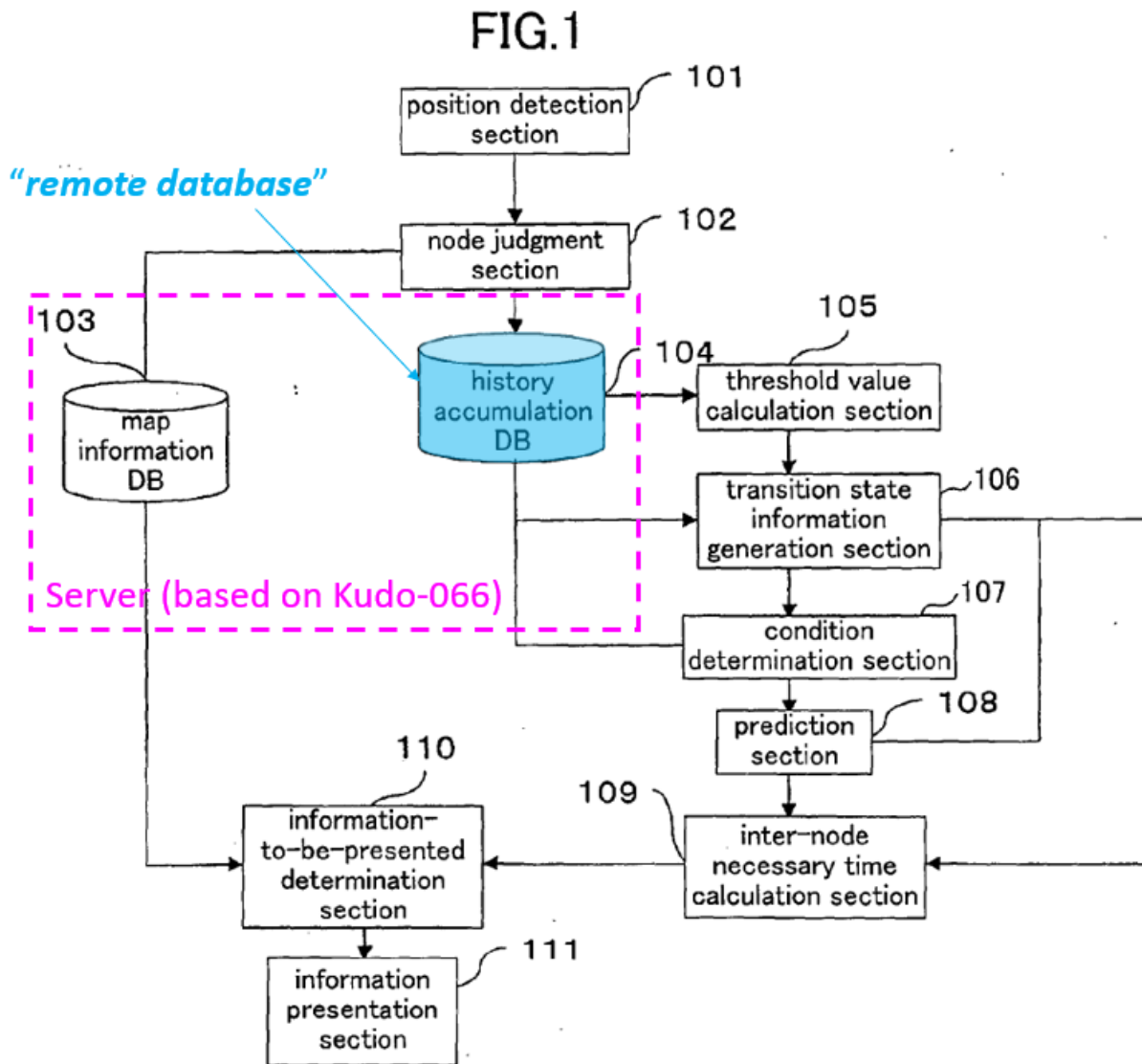
Kudo-325/Kudo-066

Also in the combination, the “information indicating a predicted travel destination or travel route is uploaded to a server on the network from the car navigation system” (*said device is further configured to transmit said predicted destination*), based on Kudo-325. TESLA-1004, [0107]. Following the direction of Kudo-325, “information relating to [the predicted] destination” “is selected by the server.” *Id.* In more detail, based on Kudo-066, the server “receives the position information” and “information accumulated in the information

accumulation means 22 is searched so as to find information regarding the received position information.” TESLA-1005, [0091]; *see* [0092]-[0095], [0150]; TESLA-1003, ¶198. This “information selected in the server” is returned to the car navigation system for presentation to the user. TESLA-1004, [0107]; *see* [0013], [0015]-[0017], [0051], [0062]-[0072], [0106]-[0107]; TESLA-1005, [0094]; TESLA-1003, ¶198. A POSITA would have understood that for the information accumulation means to be searched for this information, the predicted destination would be provided to the information accumulation means (*remote database*), *e.g.*, as a search query (*transmit the predicted destination to a remote database*). TESLA-1003, ¶199.

The historical accumulation database corresponds to a remote database

Alternatively/additionally, in the combination, the history accumulation database (blue *infra*) is implemented at the server (pink), based on Kudo-325’s teachings that “a part of the functions that a car navigation system has may be provided in a server on a network.” TESLA-1004, [0075]; TESLA-1003, ¶200. Indeed, Kudo-325 explicitly contemplates storage of historical data at the server: “the history information accumulated in the history DB 104 is uploaded to the server.” TESLA-1004, [0108]. In this configuration, the server-hosted history accumulation database corresponds to a *remote database*. TESLA-1003, ¶200.



Consistent with the functionality of Kudo-325's history accumulation database, "when the current position is judged as a node", "the node is stored" in the history accumulation database, *e.g.*, the node ID is provided to the server-housed history accumulation database for storage. TESLA-1004, [0078]; *see* [0090]. When the current location of the vehicle matches the predicted destination

(e.g., when the vehicle reaches the end of its trip), the node ID that is provided to and stored in the server-housed history accumulation database corresponds to the node ID for the predicted destination (*transmit said predicted destination to a remote database*). TESLA-1003, ¶201.

A POSITA would have been motivated to implement the history accumulation database of the combination at the server. TESLA-1003, ¶¶202-209.

First, a POSITA would have been motivated to pursue this implementation because remotely stored historical data allows a driver's unique travel history to be accessible to multiple vehicles, e.g., such that destination prediction can be employed by a driver regardless of the vehicle the driver is operating. TESLA-1003, ¶203.

Second, a POSITA would have been motivated to pursue this implementation because doing so is merely the application of known techniques (housing an historical accumulation database at a server) to a known system (the Kudo-325/Kudo-066 car navigation system) to yield predictable results (a car navigation system in which historical data are stored remotely from the vehicle). *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶204.

Third, a POSITA would have been motivated to pursue this implementation because doing so would have been obvious to try: server-based data storage is one of a finite number of known, predictable solutions for data storage (local or remote

storage), and a POSITA would have had a reasonable expectation of success in pursuing this option, as discussed in the next paragraph. *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶205.

A POSITA would have expected success because a server-implemented historical accumulation database is consistent with Kudo-325's indication that "a part of the functions that a car navigation system has may be provided in a server on a network." TESLA-1004, [0075]; TESLA-1003, ¶¶206-207. A POSITA also would have expected success because implementation of the combination involves common techniques and devices, *e.g.*, server-based databases. TESLA-1003, ¶208. Moreover, a POSITA would have expected success because housing a database on a server was conventional and predictable, and presents no unexpected results. TESLA-1003, ¶209.

[9]

In the combination, the information accumulation means receives a predicted destination (*remote database is configured to receive a predicted destination*) and, in return, provides information relevant to that destination, such as "road/traffic information." TESLA-1004, [0107]; *see* [8]; TESLA-1005, [0105], [0066]-[0068], [0070],[0150], Abstract; TESLA-1003, ¶¶210-211. Traffic information corresponds to *guidance information* because it provides guidance to the driver regarding expected traffic, which may influence the driver's actions

(e.g., the driver may choose to take a different route). TESLA-1003, ¶212.

Providing traffic information from the information accumulation means corresponds to ***generating guidance information*** because relevant traffic information is retrieved and processed for output (***generated***), e.g., responsive to a query. TESLA-1003, ¶213.

A POSITA would have understood that receiving traffic information relevant to a predicted location occurs multiple times, e.g., for multiple trips taken by a vehicle. This corresponds to ***the remote database receiving a plurality of said predicted destinations*** (the predicted destination for each trip) and ***generating guidance information based on said plurality of said predicted destinations*** (generating traffic information based on each predicted destination). TESLA-1003, ¶214. Indeed, there is nothing inventive or unexpected about duplicating a known process (providing a predicted location to a remote database, and receiving traffic information in return), and consequently performing this process multiple times would alternatively/additionally have been obvious to the POSITA. *See In re Harza*, 274 F.2d 669, 671 (CCPA 1960).

Alternatively/additionally, in the combination, Kudo-325 describes that multiple predicted locations can be determined, as explained by Dr. Morellas. TESLA-1003, ¶215, citing TESLA-1004, [0104]. Based on Kudo-066, which also describes determining multiple predicted destinations (*see* TESLA-1005, [0149]),

the multiple predicted destinations are transmitted to the server (*the remote database receiving multiple a plurality of said predicted destinations*). *See id.* (“the information acquisition means 18 transmits, to the server 2, information on routes to the respective predicted destinations”); TESLA-1003, ¶215.

Further based on Kudo-066, “the server 2 searches traffic information accumulated in the information accumulation means 22 to find information concerning the route” (*e.g.*, traffic information) to each predicted destination (*generating guidance information based on said plurality of said predicted destinations*). TESLA-1005, [0150]; *see* [0151]-[0152]; TESLA-1003, ¶216. This traffic information is provided to the car navigation system, which “calculates estimated travel time required to reach each of the possible destinations.” TESLA-1005, [0151].

A POSITA would have been motivated to provide traffic information for each of multiple predicted destinations, based on Kudo-066, to provide the driver with information about expected traffic, thus improving user experience and helping the driver to use their time productively. TESLA-1003, ¶217.

[10]

In some implementations, the historical accumulation database (*remote database*) is housed at the server. *See* [8]; TESLA-1004, [0075]; TESLA-1003, ¶¶218-219. Consistent with Kudo-325’s history accumulation database, “when the

current position is judged as a node,” “the node is stored” in the history accumulation database, *e.g.*, the node ID (*sensor data samples*) is provided to the server-housed history accumulation database for storage (*said remote database is configured to receive said sensor data samples and store said sensor data samples*). TESLA-1004, [0078]; *see* [0090]. Also based on Kudo-325, other information, such as time/date and/or driver identity information (*sensor data samples*), are stored in the history accumulation database (*receive and store sensor data samples*). *See* TESLA-1004, [0014], [0087]-[0088], [0090], [0094], FIG. 3; TESLA-1003, ¶219. The sensor data samples stored in the historical accumulation database also correspond to *historical data* (*see* [1c-2]). *See* TESLA-1004, [0078], [0087]-[0088], [0091]-[0092], [0096], FIG. 3; TESLA-1003, ¶220.

“[T]he transition state information generation section” of the combination system (*the device*) “generates transition state information ... by utilizing the data in the history accumulation DB.” TESLA-1004, [0092]; *see* [0053], [0073], [0109], FIG. 1; TESLA-1003, ¶221. When the history accumulation database is housed at the server, a POSITA would have understood data in the history accumulation database (*historical data*) to be provided to the car navigation system (*present said historical data to said device*) to enable generation of transition state information. TESLA-1003, ¶221.

[11]

Travel history data stored in the history accumulation database (*memory*; *see* [1b]) corresponds to *historical data*, *e.g., the memory is configured to store the historical data*. *See* [1c-2]; TESLA-1003, ¶222.

[12]

Travel history data stored in the history accumulation database (*historical data*) include “pairs of node numbers and times of passage therethrough.” *See* [1c-2]; TESLA-1004, [0087]; *see* [0096], [0013], [0017], [0051], [0072], [0091]-[0092], FIG. 1. Node numbers and/or date/time information correspond to *information about operation of the vehicle*: they are information about the vehicle’s spatial and/or temporal position (operation). TESLA-1003, ¶223. The history accumulation database (*historical data*) also stores “information on ... a driver, or a fellow passenger,” which corresponds to *information about operation of the vehicle*: they are information about the vehicle’s driver/ passenger (operation). *See* [1c-2]; TESLA-1004, [0088]; *see* [0014], [0052]; TESLA-1003, ¶223.

[13]

In the combination, a driver identifier (*sensor data sample*) is determined based on “person judgment by an on-board camera,” *e.g., an optical sensor*. *See* [1a]; TESLA-1004, [0140]; TESLA-1003, ¶224. The image and/or the

corresponding driver identifier (*sensor data sample*) corresponds to *a data sample from an optical sensor* because the driver identifier and the image uniquely correspond to and represents a particular quantum of optical sensor information. TESLA-1003, ¶224.

[14]

The transition state information (*historical data*) includes *data gathered from multiple trips of the driver's operation of the vehicle*. See [1d-1]-[1d-3]; TESLA-1004, FIG. 5; TESLA-1003, ¶225. Alternatively/additionally, the transition state information (*historical data*) includes *data gathered from multiple trips of the driver's operation of the vehicle*, in light of Kudo-325's description of generating transition state information. See [1d-1]-[1d-3]; TESLA-1004, [0091]-[0092], [0109]; see FIG. 4; TESLA-1003, ¶226.

[15pre]

To the extent the preamble is deemed to be limiting, Kudo-325/Kudo-066 renders it obvious. See [1c-1]-[1c-4]; TESLA-1003, ¶227.

[15a]

The combination car navigation system *monitors sensors*, e.g., position (e.g., GPS), time/date, and/or driver identity (on-board camera) sensors *to generate sensor data samples* (e.g., position, time/date, and/or driver identity information). See [1a]; TESLA-1003, ¶228.

[15b]-[15d]

See [1b]-[1d-3]; TESLA-1003, ¶¶229-231.

[16pre]

In the combination, Kudo-325 discloses a vehicle “on which the car navigation system is boarded.” TESLA-1004, [0077]; *see* [0214]; TESLA-1003, ¶232.

[16a]-[16b]

In the combination, Kudo-325 discloses a vehicle, *e.g.*, an automobile. *See* [16pre]; TESLA-1004, [0077]. A POSITA would have understood that an automobile includes *a power train* and *a drive train*: these are standard elements of an automobile. *See* TESLA-1006, [0024], FIG. 1; TESLA-1016, [0016]; TESLA-1017, 2:8-20 ; TESLA-1003, ¶233.

[16c]-[16f]

See [1a]-[1d-3]; TESLA-1003, ¶¶234-237.

B. [GROUND 1B] – Claim 3 is rendered obvious by Kudo-325/Kudo-066/Bolger

1. Bolger

Bolger describes use of “dead reckoning techniques for determining [an] automobile’s location.” TESLA-1007, 1:9-11. destination. To mitigate inaccuracies of dead reckoning, Bolger describes “reconcil[ing] the dead-reckoned coordinates to the corresponding road way coordinates projected upon the road

map database” to produce normalized coordinates. “ *Id.*, 1:62-2:3; *see* 1:47-51, 2:10-14. Vehicle location is used for determining a “navigation route” to a destination. *Id.*, 1:51-55; TESLA-1003, ¶¶238-240.

Bolger is analogous art to the ’002 Patent: it is from the same field of endeavor (*e.g.*, vehicle navigation) and is reasonably pertinent to the problem the ’002 Patent was trying to solve (*e.g.*, assisting with vehicle operation along a route). TESLA-1003, ¶241.

2. Kudo-325/Kudo-066/Bolger combination

In the combination, position detection is implemented by determining normalized location coordinates using both dead reckoning and a map service, based on Bolger. *See* TESLA-1007, 2:10-14; TESLA-1003, ¶¶242-243. These normalized coordinates are provided to the server to determine “whether the current position is a node or not,” consistent with Kudo-325/Kudo-066. *See* §III.A.3; TESLA-1003, ¶¶242-243.

A POSITA would have been motivated to determine vehicle position using a combination of dead reckoning and roadway projected coordinates. TESLA-1003, ¶¶244-251.

First, a POSITA would have been motivated to use dead reckoning, *e.g.*, in addition to or instead of GPS, because this dead reckoning is operational even when GPS is unavailable. *See* TESLA-1009, 1:22-30; TESLA-1003, ¶245.

Second, more specifically, a POSITA would have been motivated to use both dead reckoning and roadway projected coordinates to determine vehicle location because of the improvements in accuracy afforded by this approach. *See* TESLA-1007, 1:40-43, 2:37-38; TESLA-1003, ¶246.

Third, a POSITA would have been motivated to pursue this implementation because doing so is merely the application of known techniques (use of dead reckoning and roadway maps to determine vehicle position) to a known system (the Kudo-325/Kudo-066 car navigation system) to yield predictable results (a car navigation system implementing dead reckoning and roadway maps for position detection). *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶247.

Fourth, a POSITA would have been motivated to pursue this implementation because doing so would have been obvious to try, in that determining position using dead reckoning and roadway maps is one of a finite number of known, predictable solutions for position detection, and a POSITA would have had a reasonable expectation of success in pursuing this option, as discussed in the next paragraph. *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶248.

A POSITA would have expected success because while both Kudo-325 and Kudo-066 describe the general concept of determining a vehicle's position, neither

requires a specific implementation for detecting position. *See* TESLA-1004, [0077], [0090]; TESLA-1005, [0063]; TESLA-1003, ¶¶249-250. Moreover, a POSITA would have expected success because implementation of the Kudo-325/Kudo-066/Bolger combination involves common techniques and devices, *e.g.*, systems for dead reckoning and capability for communicating with a map service. TESLA-1003, ¶251.

3. Analysis

[3]

In the combination, normalized coordinates (*map coordinates*) for the vehicle's position are determined based on a "best match between the road map database location and the dead reckoning path location," based on Bolger. TESLA-1007, 2:10-14; *see* Abstract, 7:31-33, 8:13-15, 1:33-38, 1:62-64, claim 1; TESLA-1003, ¶¶252-253. The road map database corresponds to *a map service*. *See id.*, Abstract, 2:32-33, 4:17-5:30. The normalized coordinates of the vehicle's position thus correspond to *map coordinates determined by a map service*. TESLA-1003, ¶253.

Also in the combination, these map coordinates are provided to a server, which returns "the associated node ID number" corresponding to the map coordinates. TESLA-1005, [0068]; TESLA-1003, ¶254. The node ID (*telemetry*

data; *see* [1c-4]) corresponds to *map coordinates* because it uniquely corresponds to and represents those coordinates. TESLA-1003, ¶254.

C. [GROUND 1C] – Claim 17 is rendered obvious by Kudo-325/Kudo-066/Tryon

1. Tryon

Tryon describes “an energy management system” for “control[ing] a hybrid vehicle system.” TESLA-1006, [0023]. Tryon’s system includes a “route computer system,” red in FIG. 1, *infra*, that “predict[s] the ultimate destination of the vehicle” (purple in FIG. 12, also *infra*). TESLA-1006, [0027]; *see* [0058]-[0059]. Based on this predicted destination, the route computer system “control[s] the hybrid vehicle system” (blue) “to accomplish a particular objective ... such a[s] minimizing fuel consumption.” *Id.*, [0027]; *see* [0041]; TESLA-1003, ¶¶255-257.

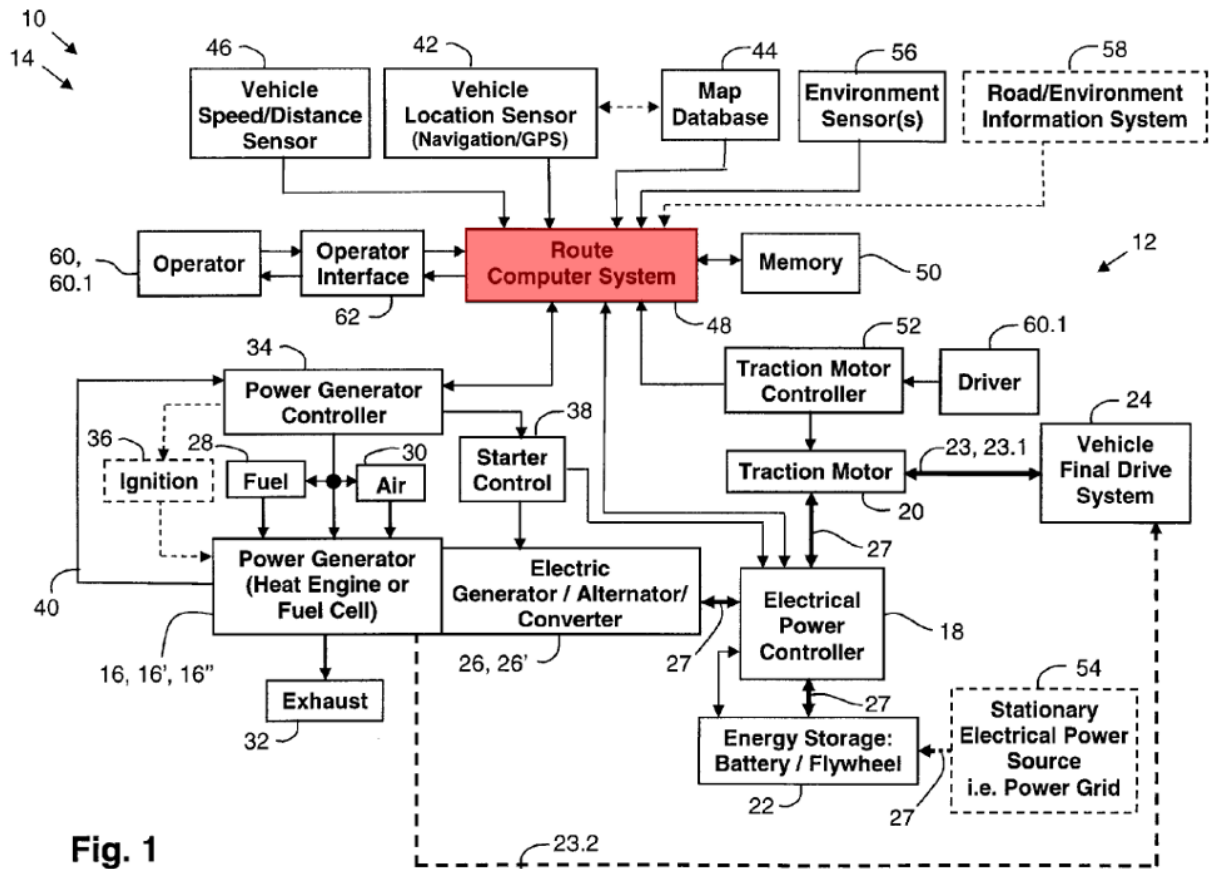
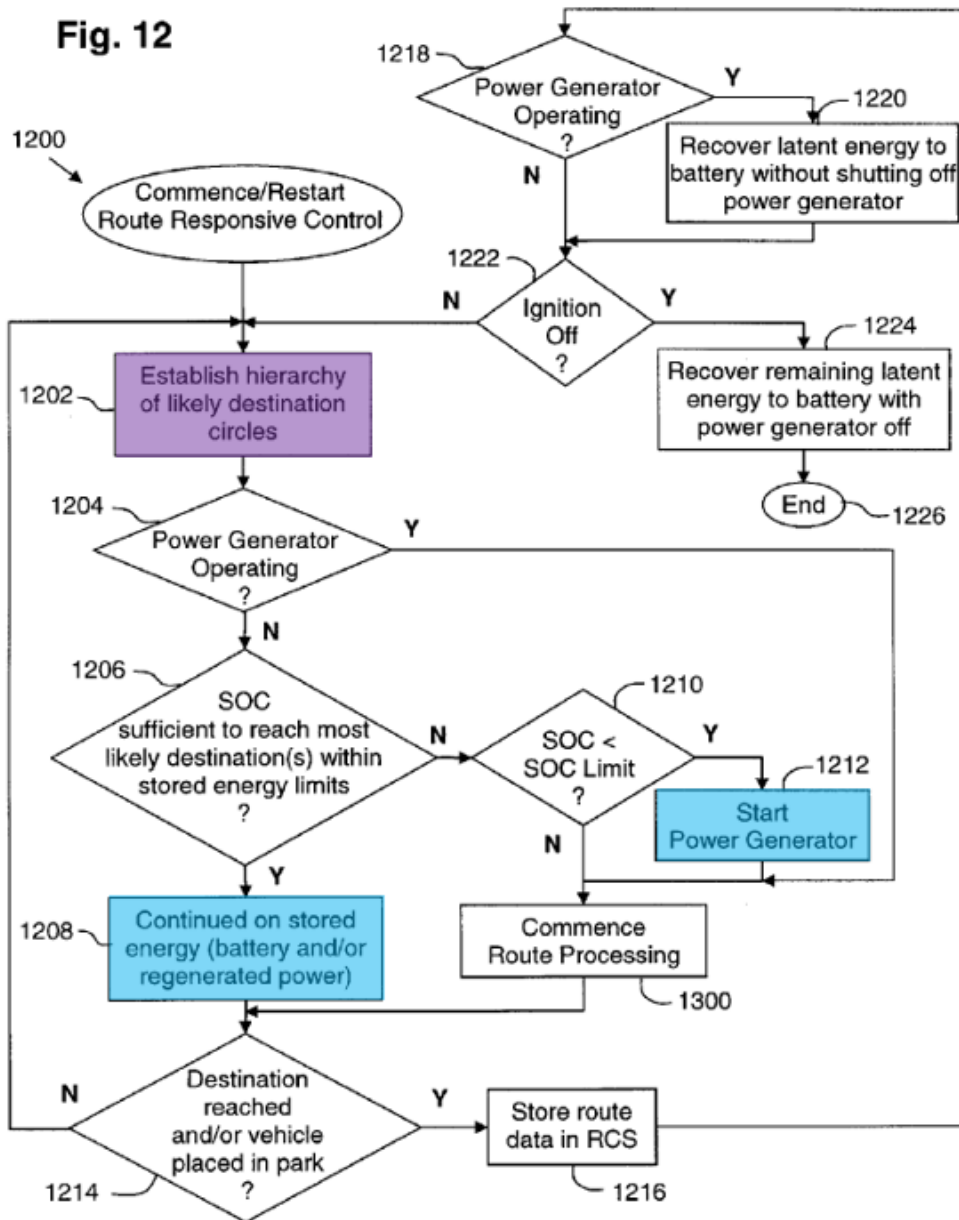


Fig. 1

Excerpt from Tryon, FIG. 1 (annotated)

Specifically, if the “amount of stored energy ... is sufficient to reach the most likely destination,” “the vehicle 14 continues the trip on stored energy” (1208, blue). TESLA-1006, [0069]. Otherwise, “the power generator 16 is started so as to generate sufficient electric power 27 to continue operating the vehicle” (1212, blue). *Id.*; TESLA-1003, ¶258.

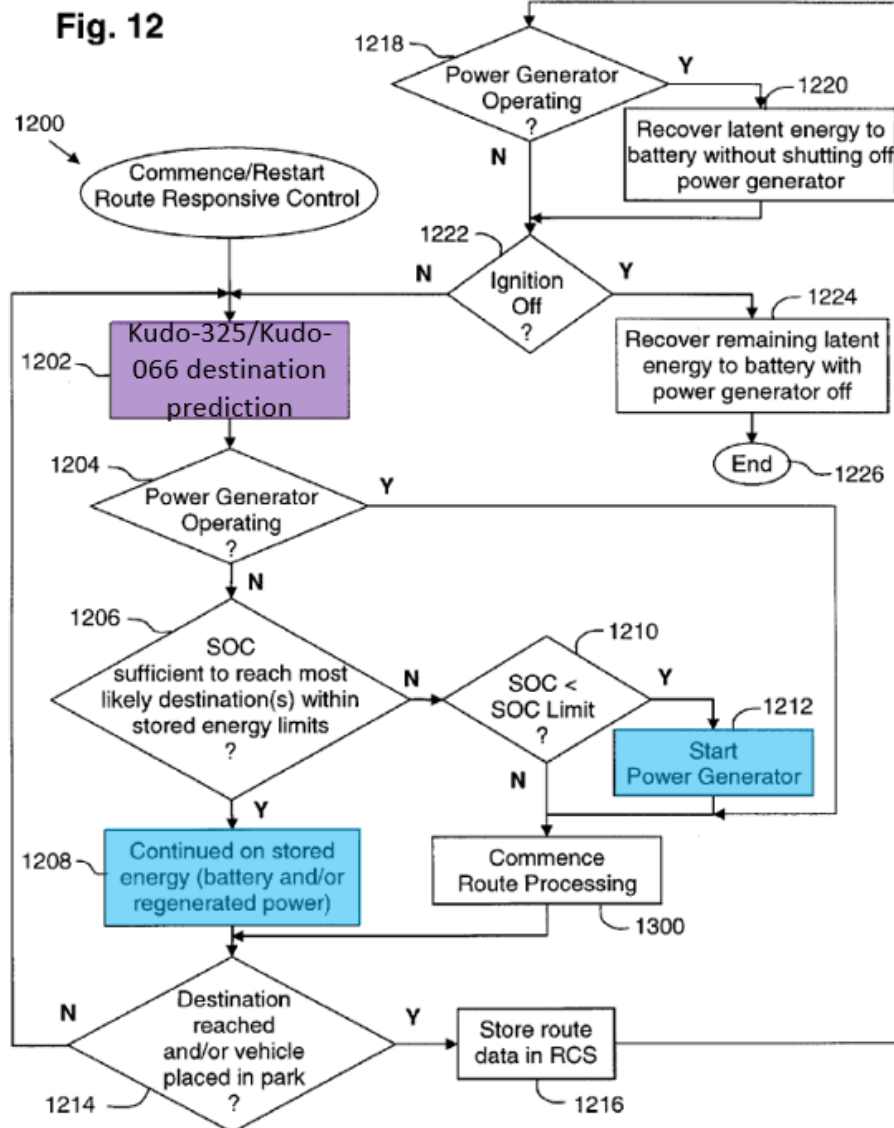


Excerpt from Tryon, FIG. 12 (annotated)

Tryon is analogous art to the '002 Patent: it is from the same field of endeavor (*e.g.*, vehicle navigation) and is reasonably pertinent to the problem the '002 Patent was trying to solve (*e.g.*, assisting with vehicle operation along a route). TESLA-1003, ¶259.

2. Kudo-325/Kudo-066/Tryon combination

In the combination, the Kudo-325/Kudo-066 car navigation system is implemented as part of a “route computer system” of a hybrid vehicle, based on Tryon. *See* TESLA-1006, [0023]-[0024]. The car navigation system predicts travel destinations (purple *infra*) as described for Kudo-325/Kudo-066. *See* §III.3; TESLA-1003, ¶¶260-262. Based on these predicted destinations, the operation of the hybrid vehicle system is controlled, based on Tryon, *e.g.*, to operate on stored energy or to generate electric power (blue). *See* TESLA-1006, [0027], [0069]; TESLA-1003, ¶262.



Kudo-325/Kudo-066/Tryon composite figure based on Tryon, FIG. 12

A POSITA would have been motivated to make use of Kudo-325/Kudo-066's predicted destinations to control hybrid vehicle operation. TESLA-1003, ¶¶263-270.

First, a POSITA would have been motivated to pursue this implementation to achieve fuel efficiency, as described by Tryon and discussed by Dr. Morellas. TESLA-1003, ¶264, citing TESLA-1006, [0040].

Second, a POSITA would have recognized that reliance on predicted destinations for vehicle control allows for future conditions along the route to that destination to be accounted for, which in turn provides “improved overall operating efficiency.” *See* TESLA-1006, [0079]-[0080]; TESLA-1003, ¶265.

Third, a POSITA would have been motivated to pursue this implementation because doing so is merely the application of known techniques (controlling hybrid vehicle operation based on predicted destinations) to a known system (the Kudo-325/Kudo-066 system for predicting destinations) to yield predictable results (a hybrid vehicle whose operation is controlled based on predicted destinations). *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶266.

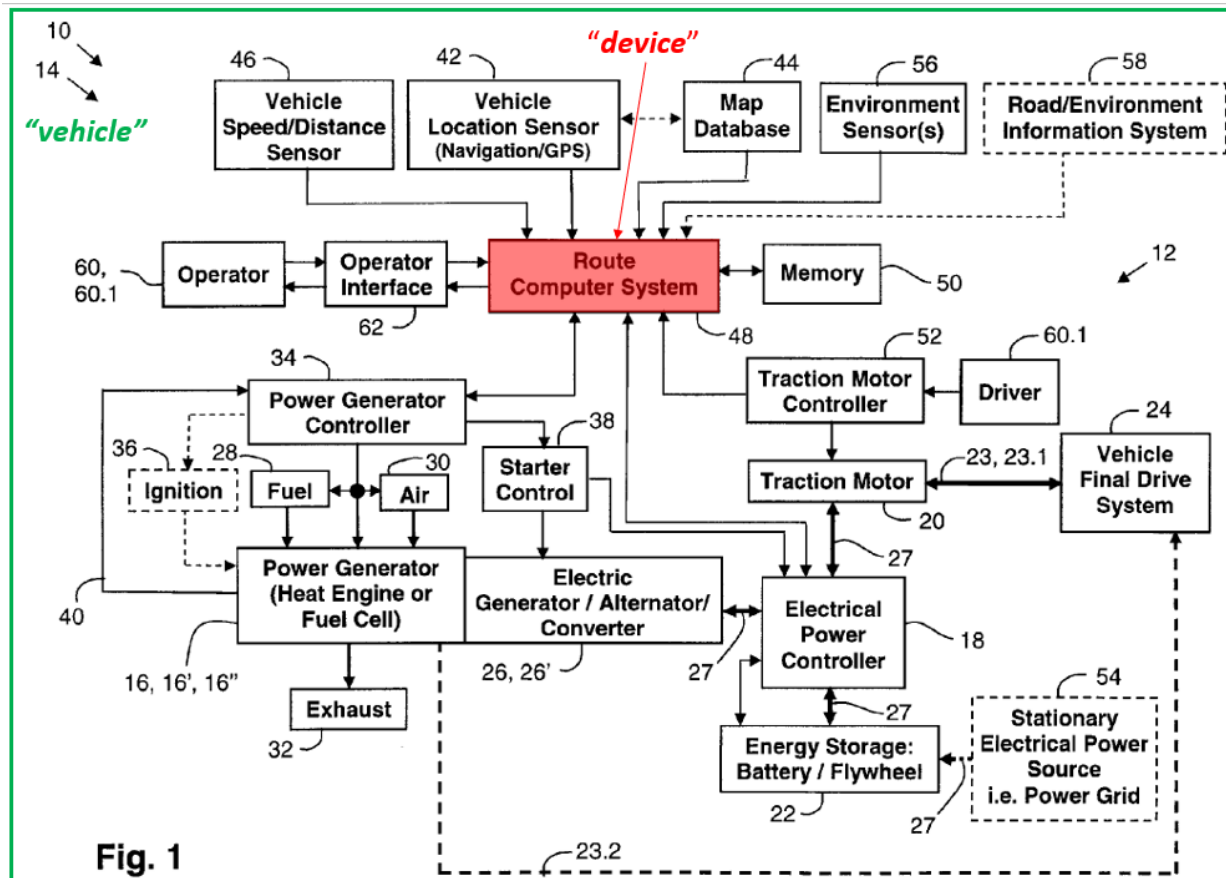
Fourth, a POSITA would have been motivated to pursue this implementation because the combination instantiates use of a known technique (controlling hybrid vehicle operation based on predicted destinations) to improve a similar system, *e.g.*, improving fuel efficiency of a vehicle having destination prediction capabilities. *See KSR*, 550 U.S. 398, 415-421 (2007); MPEP 2143; TESLA-1003, ¶267.

A POSITA would have expected success because Tryon's approach to vehicle control based on predicted destination (*see* TESLA-1006, [0069]) is agnostic to the particular approach used to predict the destination. TESLA-1003, ¶¶268-269. Moreover, a POSITA would have expected success because implementation of the combination involves common techniques and devices, *e.g.*, implementation of hybrid vehicle control system. TESLA-1003, ¶270.

3. Analysis

[17]

In the combination, the Kudo-325/Kudo-066 car navigation system is implemented in a "route computer system" (*device*; red *infra*) based on Tryon in system for control of a hybrid *vehicle* (green). TESLA-1006, [0027]; *see* Abstract; TESLA-1003, ¶¶271-272.

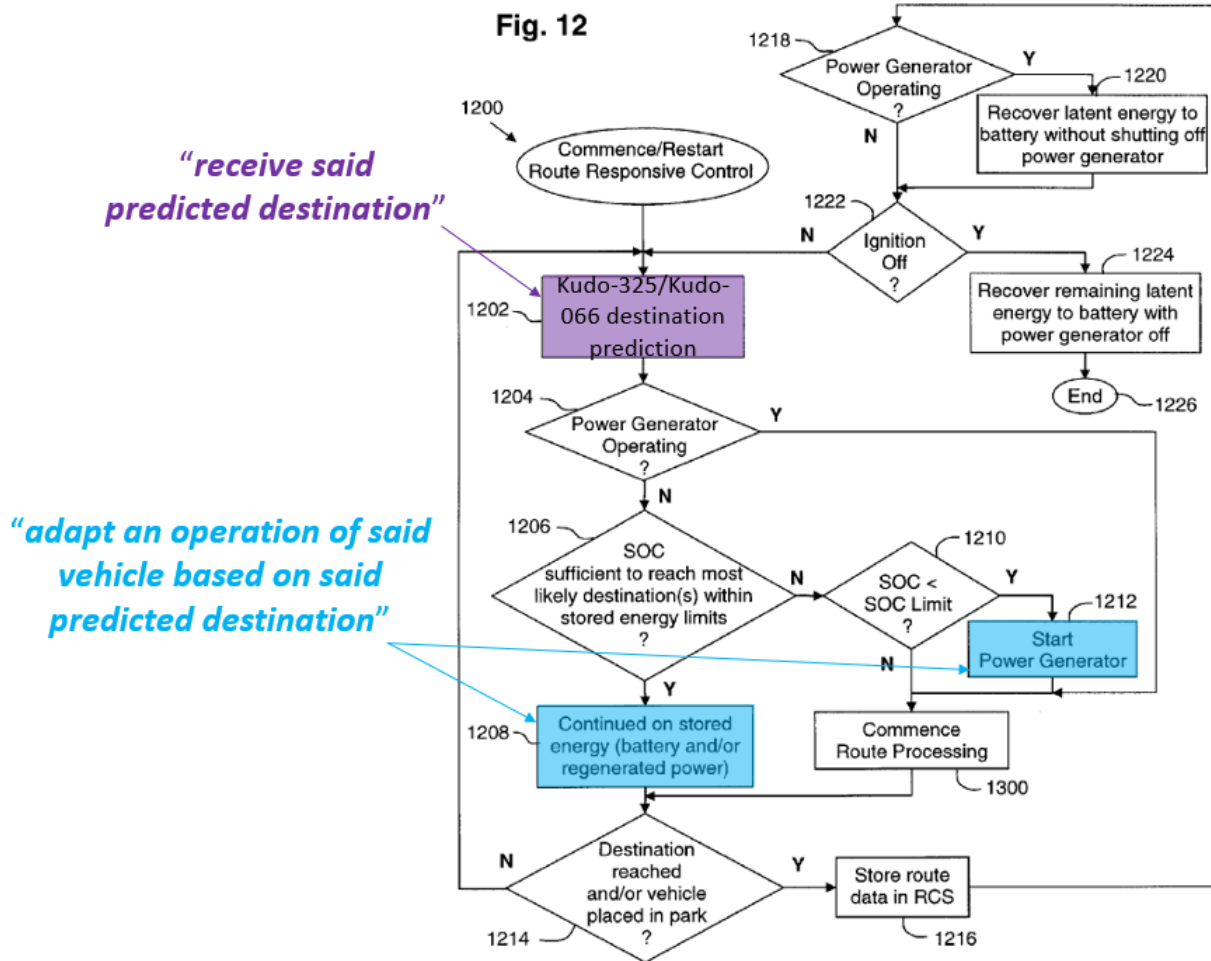


Excerpt from Tryon, FIG. 1 (annotated)

The car navigation system of the combination predicts travel destinations for the vehicle, (purple *infra*) as discussed *supra* for Kudo-325/Kudo-066. See §III.3; TESLA-1003, ¶273. Based on these predicted destinations, the route computer system “control[s] the hybrid vehicle system 12 in accordance with the energy and other requirements associated with the remainder of the trip.” TESLA-1006, [0027]; TESLA-1003, ¶273. A POSITA would have understood that for the route computer system (a *device*) to control a vehicle based on predicted destinations, the computer system would have received the predicted destination (*configured to*

receive said predicted destination), e.g., as an output from the destination

prediction process. TESLA-1003, ¶273.



Kudo-325/Kudo-066/Tryon

Based on these predicted destinations, the computer system (*device*) controls operation of the vehicle on stored energy or electric power (blue *supra*). See TESLA-1006, [0027] ("if a destination can be predicted, [the route computer system] provides for controlling the hybrid vehicle system 12 in accordance with

the energy and other requirements associated with the remainder of the trip”),
[0041], Abstract, [0069]; TESLA-1003, ¶¶274-275. This control corresponds to
adapting an operation of the vehicle based on the predicted destination because
vehicle operation of the vehicle (e.g., which power source to use) depends on
predicted destination (e.g., whether there is sufficient stored energy to reach its
destination). TESLA-1003, ¶275.

IV. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

A. 35 U.S.C. §325(d) – Discretionary Denial under 325(d) is not warranted

Discretionary denial under the Board’s §325(d) *Advanced Bionics* analysis is
not warranted. *See Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte
GmbH*, IPR2019-01469, Paper 6, 8-9 (PTAB Feb. 13, 2020) (precedential)
(“*Advanced Bionics*”).

None of the prior art references advanced in this Petition was previously
before the Office.

To the extent it is argued that the same or substantially the same art or
arguments were previously presented to the Office, the second prong is not
met. *Advanced Bionics*, 8-10.

B. The *Fintiv* Factors favor Institution and No Denial under 35 U.S.C. §314(a)

Consistent with Congressional intent, the goals of *Fintiv*, and the interim guidance issued by Director Vidal on June 21, 2022 (“Director’s Guidance” or TESLA-1050), Tesla asks the Board to consider the challenges raised in this Petition. IPR2020-00019, Pap. 11, at 6 (PTAB Mar. 20, 2020)(“*Fintiv*”)(precedential). For the reasons noted below, a holistic analysis of the *Fintiv* factors favors institution.⁹

1. Factor 1: Institution Will Enable a Stay

Factor 1 is currently neutral because neither Tesla nor iQar have requested a stay in co-pending litigation in the Western District of Texas (*iQar Inc. v. Tesla, Inc.*, 1-23-cv-00694, (W.D. Tex.)(“WDTX Litigation”). Moreover, the Board does “not attempt to predict” how an appeals or district court might adjudicate a future motion to stay. *Fintiv*, 12; IPR2019-01393, Pap. 24, at 7 (PTAB June 16, 2020) (“*Sand Revolution*”)(informative); IPR2020-01019, Pap. 12, at 14 (PTAB Dec. 1,

⁹ Apart from Tesla’s showing that *Fintiv* favors institution, the *Fintiv* framework should not be followed because it is legally invalid. The framework (1) exceeds the Director’s authority, (2) is arbitrary and capricious, and (3) was adopted without notice-and-comment rulemaking.

2020)(“*Sotera*”)(precedential). Should Tesla file an IPR petition against another of the patents involved in the WDTX litigation, this Factor is subject to change to favor institution.

2. Factor 2: Uncertain District Court Schedule

Factor 2 favors institution because no trial date is set in the WDTX Litigation, and in any event, any scheduled trial date is speculative since “scheduled trial dates are unreliable and often change.” TESLA-1050, 8. Indeed, as of the filing of this petition, WDTX Litigation is still conducting venue discovery and the parties have agreed to stay all merits-based fact discovery until transfer is decided. Further, the median time-to-trial for WDTX is currently 26 months,^{10,11} which suggests a likely trial date no sooner than March 2026, and the pending Motion to Transfer Venue (TESLA-1051), if granted, may extend the trial date even further. In contrast, if this proceeding is instituted, the Board will likely issue its Final Written Decision around July 2025.

3. Factor 3: Early Stage of Parallel Proceedings

By any objective standard, this petition is being filed at an early stage of the

¹⁰ Over the past year, according to Docket Navigator.

¹¹ Judge Pitman has not yet entered a scheduling order, and has therefore not set a trial date.

WDTX Litigation, which “has weighed against exercising the authority to deny institution[.]” IPR2020-00156, Pap. 10, 9 & n.8 (June 15, 2020)(“*Seven*”), 11-12 (quoting *Fintiv*, 11). The District Court has yet to expend significant resources on this case, and indeed, a Motion to Transfer Venue is still pending (TESLA-1015). *Seven*, 10-13; IPR2020-01019, Pap. 12, 14 (PTAB Dec. 1, 2020)(“*Sotera*”)(precedential), 16-17; IPR2020- 00820, Pap. 15, 11-13 (Oct. 21, 2020)(“*Snap*”)(precedential). By contrast, Tesla has diligently filed this petition roughly five months ahead of the one-year time bar, while the WDTX Litigation is still in its early stages.

4. Factor 4: Petition Raises Unique Issues

The WDTX Litigation is still in its infancy, with no due date for initial invalidity contentions. Thus, at present, there is no overlap between issues between the WDTX Litigation and any IPR resulting from this petition. A lack of overlap between the petition and the district court proceeding “has tended to weigh against exercising discretion to deny institution.” *Fintiv*, 12-14. iQar also yet to identify claims asserted of infringement in the district court, while this petition addresses all claims.

5. Factor 5: Tesla’s Involvement in the WDTX Litigation

Tesla’s status as a defendant in the WDTX Litigation is at worst neutral under Factor 5. Indeed, the *Fintiv* decision “says nothing about situations in which

the petitioner is the same as, or is related to, the district court defendant.”

IPR2020-00122, Pap. 15, at 10 (*Cisco Systems*)(Crumbley, dissenting); *Fintiv*, 13-14. At worst, where the parties are the same, Factor 5 is neutral. *Id.*

6. Factor 6: Other Considerations Support Institution

Neither Tesla nor any other party has previously challenged the '002 Patent in a PTAB post-issuance proceeding. Further, the Board has not previously considered the grounds set forth in this petition or substantively similar grounds. Director Vidal has also explained that “the PTAB will not deny institution...under *Fintiv*...when a petition presents compelling evidence of unpatentability...” TESLA-1050, 3-5, 9; *see also Fintiv*, 14-15.

The merits of this Petition are compelling. As demonstrated in the Petition with reference to Dr. Morellas’ testimony and additional evidence, institution would result in a finding of unpatentability of the Challenged Claims, which are obvious based on prior art references that materially differ from those considered by the Examiner during prosecution, and indeed that render obvious features relied upon by the Examiner in allowing the '002 Patent. *See generally* TESLA-1003; TESLA-1002, 7-17.

Even if the WDTX Litigation may be relevant, the strength of the merits alone is enough to outweigh any inefficiencies born of parallel litigation. TESLA-1050, 3-5, 9; *Fintiv*, 14-15 (“if the merits of a ground raised in the petition seem

particularly strong...institution of a trial may serve...overall system efficiency and integrity”). Accordingly, Factor 6 strongly favors institution.

V. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Petitioner authorizes charge of fees to Deposit Account 06-1050.

VI. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Tesla, Inc. is the petitioner and real party-in-interest.

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

The '002 Patent is the subject of a civil action, *iQar Inc. v. Tesla, Inc.*, 1:23-cv-00694, W.D. Tex., filed June 20, 2023 (TESLA-1010).

Petitioner is not aware of any other disclaimers, reexamination certificates, or IPR petitions addressing the '002 Patent.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel.

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D. Service Information

Please address all correspondence and service to the address listed above.

Petitioner consents to electronic service by email at IPR49649-0020IP1@fr.com
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Respectfully submitted,

Dated: January 25, 2024

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,918 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated: January 25, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on January 25, 2024, a complete and entire copy of this Petition for *Inter Partes* Review, Power of Attorney and all supporting exhibits were provided by Federal Express, to the Patent Owner, by serving the correspondence address of record as follows:

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