

Tesla, Inc. (Petitioner)
v.
iQar Inc. (Patent Owner)
Petitioner's Demonstratives

Case No. IPR2024-00499
U.S. Patent No. 10,829,002
Before Jason W. Melvin, Sean P. O'Hanlon, and
Brent M. Dougal,
Administrative Patent Judges



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Table of Contents

- **The '002 Patent and Petition Overview**
- **Issue 1:** Claim Construction
 - **1A:** “route segments”
 - **1B:** “data, regarding multiple route segments”
- **Issue 2:** The claims are obvious over Kudo-325 and Kudo-066
 - **2A:** Kudo-325’s travel history data includes “data, regarding multiple route segments”
 - **2B:** The travel history data includes “data, regarding multiple route segments” even under iQar’s narrow interpretation
- **Issue 3:** Claims 2-3 are obvious over Kudo-325 and Kudo-066
- **Issue 4:** Claim 10 is obvious over Kudo-325 and Kudo-066

'002 Patent and Petition Overview

Asserted Grounds

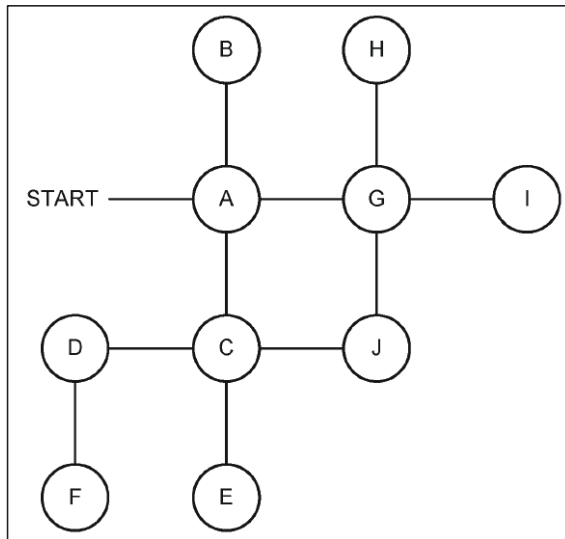
Ground	Claim(s)	35 U.S.C. §103
1A	1-16	Kudo-325/Kudo-066
1B	3	Kudo-325/Kudo-066/Bolger
1C	17	Kudo-325/Kudo-066/Tryon

'002 Patent Claim 1

1. A power management device comprising:
a sensor interface configured to receive sensor data samples during operation of a vehicle;
a memory configured to store said sensor data samples for different points in time along a route segment traveled by said vehicle; and
a processor configured to (i) analyze said sensor data samples stored in said memory 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; and
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.

TESLA-1001, claim 1

The '002 Patent



Referring now to FIG. 3A, assume that you have taken the following trips:

1. start→A→C→E
2. start→A→C→D→F
3. start→A→G→I
4. start→A→G→I
5. start→A→C
6. start→A→C→E
7. start→A→C→E
8. start→A→G→J→C→E
9. start→A→C→E
10. start→A→C→D→F

Based on this trip history, the probably of your taking moving from any junction in the route shown in FIG. 3A can be determined based on this trip history. These probabilities

The route used by the power management device typically includes a starting position (e.g., the current position of the vehicle, which may be indicated by GPS), an ending position, as described above, and any intermediate positions between the initial and the final positions. In some variations, the route may be broken up into segments that may be used by a power management device to optimize the power needed to travel this segment. A segment may comprise any distance to be traveled, including the entire route, or small portions of the route. Different segments in the same route may be of different lengths.

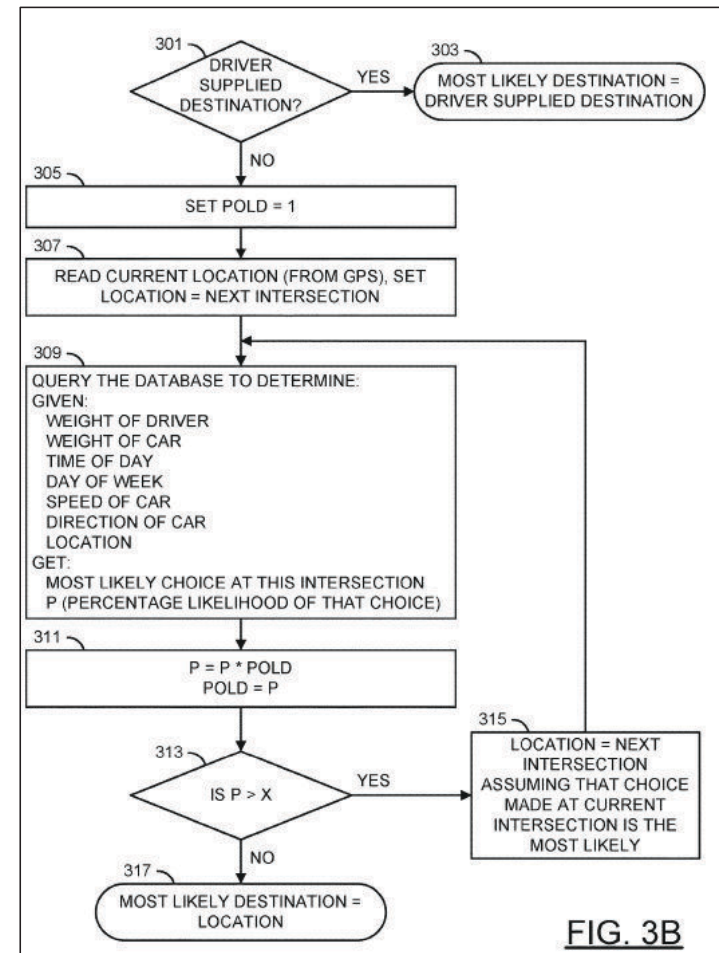
The Table also shows the probably of going through each location based on my previous driving behavior in the next trip. For a new trip, at each junction, the probabilities may be recalculated. For example (on the same trip), once you have reached point A and decided to turn toward C, the new probabilities are recalculated as: A: 0%, B: 0%, C: 100%, D: 25%, E: 62.5%, F: 25%, G: 0%, H: 0%, I: 0%, J: 0%. In real world examples, it could take hundreds of drives before the statistics become useful at predicting where the driver is likely to go. FIG. 3B illustrates one variation of a statistical destination logic that may be used.

TESLA-1001, 13:12-27, 13:53-14:8, Fig. 3A; TESLA-1003, ¶¶29-30, 121; Pet., 4,

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

The '002 Patent

The destination may be derived from information about the operator, the current location, the time of day, or the like. The power management device may include statistical destination logic that determines one (or more) most likely destinations based on information provided from environmental inputs, user command inputs, and vehicle operational status inputs. In some variations, the destination is derived by generating a series of statistically weighted (e.g., likely) destinations based on any, all, or some of these inputs. Examples of some of the inputs that may be used by the statistical destination logic to determine a likely destination may include, but are not limited to: 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.



TESLA-1001, 12:3-17, Fig. 3B; TESLA-1003, ¶¶29-30; Pet., 3-4

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Issue 1

Claim Construction

iQar's implicit constructions are unjustified

Petitioner's Reply

The Petition explained that “no formal claim constructions are necessary.” Pet., 2. iQar signaled agreement, noting that “none of the terms of the '002 patent claims require express construction.” POR, 5. And yet, iQar argues that the Petition “employ[s] erroneously overbroad understanding of certain claim elements that effectively read these elements out of claims.” *Id.* In addressing these purportedly overbroad claim interpretations, iQar offers implicit constructions for claim terms that depart from plain meaning without support for doing so. These departures are unjustified because there is no evidence of clear and unmistakable disclaimer, disavowal, or redefinition, and the POR fails to demonstrate otherwise.

The POR similarly fails to meet the standard required for lexicography. *Hill-Rom Services, Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (“The standards for finding lexicography and disavowal are exacting”); see *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). Unlike lexicography and disavowal, the specification instead observes “there are many ways to optimize energy efficiency,” *e.g.*, for power management, as recited in the claims, thus confirming that the claims should not be limited in the manner advanced in the POR. TESLA-1001, 7:22-26.

Issue 1A

Claim Construction: “route segment”

Claim construction: “route segment”

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

Petitioner’s Reply

Claims 1 and 11 describes a *route segment* traveled by a vehicle. The plain meaning of “segment” is “a separate piece of something.” See TESLA-1053 (citing TESLA-1055, 5). Thus, reference to *segment* in relation to *a route* means traveled way.” *Id.* (citing TESLA-1055, 4). As such, *route segment traveled by a vehicle* plainly means “a separate piece of a traveled way of a vehicle.” *Id.*

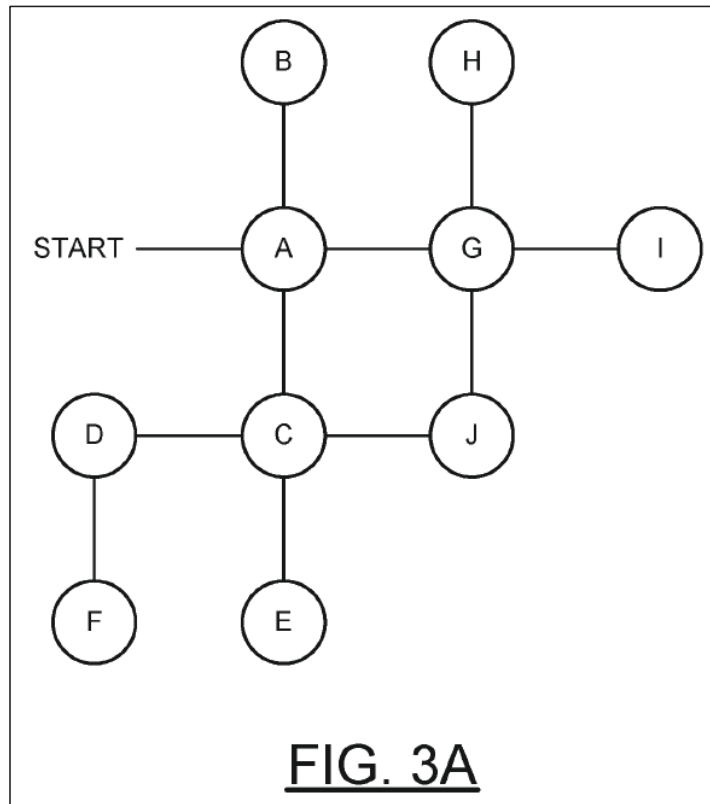
’002 Patent

The route used by the power management device typically includes a starting position (e.g., the current position of the vehicle, which may be indicated by GPS), an ending position, as described above, and any intermediate positions between the initial and the final positions. In some variations, the route may be broken up into segments that may be used by a power management device to optimize the power needed to travel this segment. A segment may comprise any distance to be traveled, including the entire route, or small portions of the route. Different segments in the same route may be of different lengths.

TESLA-1003, ¶121; Pet., 36; TESLA-1001, 13:65-14:3; Pet. Reply, 3-4

11

Route segments in the '002 Patent

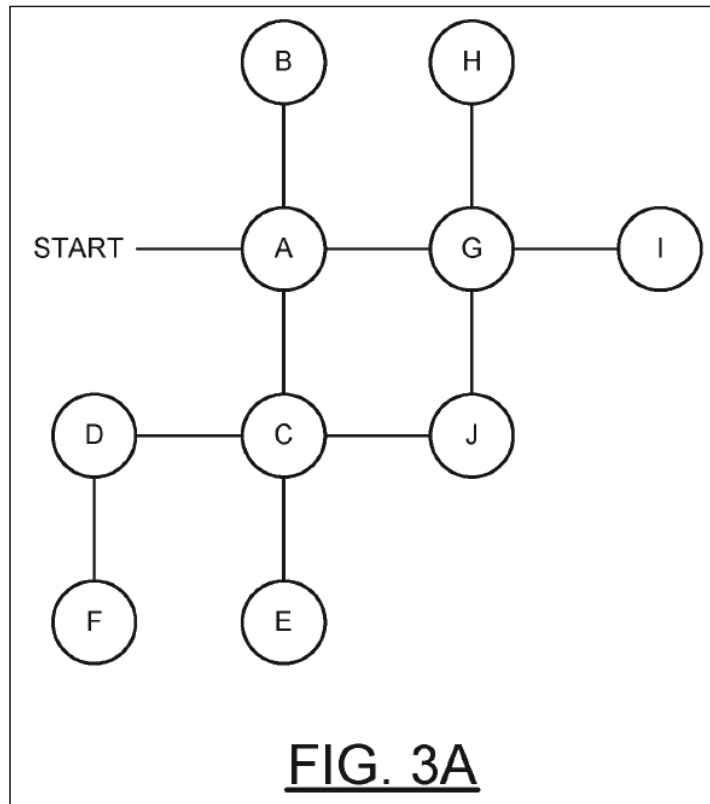


'002 Patent

One variation of a procedure for determining the most likely destination is described below, and illustrated in FIG. 3B. For example, the schematic route shown in FIG. 3A has 10 junctions (A to J). The probability that a driver will take any particular route from the start position may be described as "P". Thus, Pold is the previous (or old) percentage likelihood of taking a route, whereas P is the newly calculated percentage likelihood. Pold is initially set to 1 because there is a 100% likelihood that your route will go through the place that you are currently at. As used in this example, an intersection is as a junction having more than one choice of direction that you may go in. Examples include highway exits (e.g., you can stay on the highway or take the exit), a four-way stop, and a fork in the road.

The route used by the power management device typically includes a starting position (e.g., the current position of the vehicle, which may be indicated by GPS), an ending position, as described above, and any intermediate positions between the initial and the final positions. In some variations, the route may be broken up into segments that may be used by a power management device to optimize the power needed to travel this segment. A segment may comprise any distance to be traveled, including the entire route, or small portions of the route. Different segments in the same route may be of different lengths.

Route segments in the '002 Patent



'002 Patent

Referring now to FIG. 3A, assume that you have taken the following trips:

1. start → A → C → E
2. start → A → C → D → F
3. start → A → G → I
4. start → A → G → I
5. start → A → C
6. start → A → C → E
7. start → A → C → E
8. start → A → G → J → C → E
9. start → A → C → E
10. start → A → C → D → F

Based on this trip history, the probability of your taking moving from any junction in the route shown in FIG. 3A can be determined based on this trip history. These probabilities

Issue 1B

Claim Construction:
“data, regarding multiple route segments”

Claim construction: “data, regarding multiple route segments”

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

Petitioner’s Reply

The ordinary and readily understood language of the claims of the ’002 Patent imposes no specific requirement on the nature of the “data, regarding multiple route segments” that constitutes part of the historical data of claims 1, 15, and 16. Rather, consistent with the plain meaning of “route segment” advanced *supra*, the plain meaning of the phrase “data, regarding multiple route segments” is simply “data regarding multiple separate pieces of a traveled way of a vehicle.” No further limitation on the nature of the “data” is present in this phrase.

Claim construction: “data, regarding multiple route segments”

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

Examples of data “regarding” a route segment:

1. Identification of nodes at the start and/or end of the route segment
2. Dates and times at which a driver was at the nodes at the start and/or end of the route segment
3. Identity of the driver and/or passenger of the vehicle when at the start and/or end of the route segment
4. Frequency with which the driver was located at the nodes at the start and/or end of the route segment

PO's implicit construction: "data, regarding multiple route segments"

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

Patent Owner's Response

stored points. Showing this, Kudo 325 explains that its system records any intersection where the vehicle proceeded in different ways as nodes. But it ignores intersections the vehicle simply passed through. Thus, while the stored data indicates points the vehicle passed, it purposefully does not record or indicate the how the vehicle actually got from one point to another. This, however, is what the claims here require: "data ... regarding" "multiple route segments" (portions of a route, not just individual points along a route) and "multiple sequences of route segments" (sequential portions of a route) must be stored.

PO's implicit construction: “data, regarding multiple route segments”

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

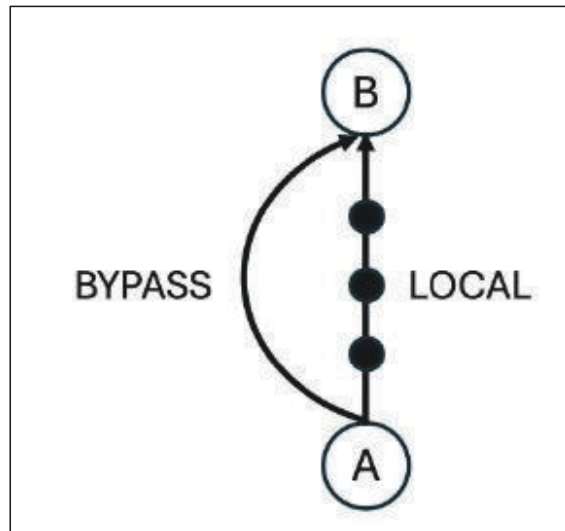
Patent Owner's Response

This is not the type of “historical data” required by the '002 patent's claims. No “data ... regarding multiple route segments” (*i.e.*, portions of a route) is stored. Instead, Kudo 325 simply stores data relating to individual *points* along a route. Again, each of Kudo 325's “nodes” represent specific “intersections, landmarks [or] area names” passed by a vehicle. (*Id.*, ¶ [0081]; *see also* Ex. 2002, 16:6-17:13.) And in the portion of Kudo 325 on which Petitioner relies, this “transition state information” includes only, for each node, (1) the dates/times when a vehicle passed through the node (the data in the “rectangular areas” shown in Figure 5) and (2) a list of other possible nodes the vehicle previously went to from that node (the

“transition state information”). (*See* Ex. 1004, ¶ [0093].) No “data ... regarding ... route segments”—data relating to portions of a route traversed by a vehicle—is stored. Point specific data provides no information regarding an actual route, or a portion of an actual route that was traveled. In other words, Kudo 325's transition state information is simply information about what occurred (or could possibly occur) at particular points. While the data indicates that the vehicle passed through particular points at particular times, it provides no information regarding the route the vehicle traveled between the points. This, however, is what the claims here require: data regarding “route segments.” (*See* Ex. 2001, ¶¶ 85-104.)

PO's implicit construction: "data, regarding multiple route segments"

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



Patent Owner's Response

(See Ex. 2001, ¶¶ 104-113.) In such circumstances, Kudo 325 will record *only* nodes A and B in its transition state data. None of the intermediate intersections on the local route will be recorded as nodes because the vehicle never (or infrequently) turns at those intersections. As a result, Kudo 325 *will not distinguish between—* and *saves no information regarding—the actual route the vehicle took between intersections A and B.* Only intersections A and B are saved, along with the fact that the vehicle arrives at intersection B—via some unspecified and unknown route—after leaving intersection A. (See *id.*, ¶ 114-115.) *It is impossible to tell what route was followed from this data.* Once again, the '002 patent's claims require "historical data" that includes "data ... regarding ... route segments." Because Kudo 325's transition state data is indifferent to the route taken and relates only to the individual intersections, landmarks, or areas the vehicle visited, it is not what the claims require.

PO's implicit construction is unjustified

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

Petitioner's Reply

As an initial matter, iQar's demand that the data provide "information regarding an actual route" is encumbering the term "route" with implicit requirements that are not found in its plain meaning ("a traveled way," as discussed *supra*). TESLA-1053 (citing TESLA-1055, 4). That is, the plain meaning of "route" does not impose any particular characteristics or elements that must be satisfied for data to be "regarding," e.g., to characterize, a route or route segment.

The '002 Patent

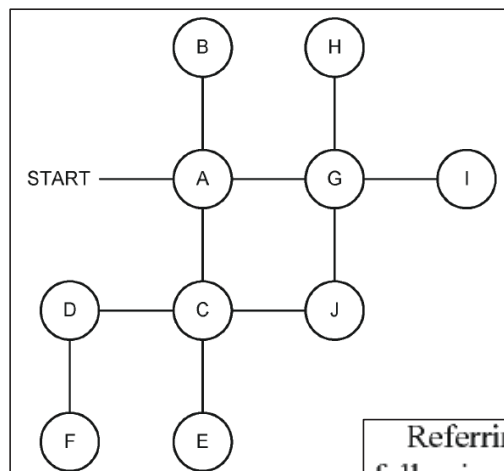


FIG. 3A

'002 Patent

Referring now to FIG. 3A, assume that you have taken the following trips:

1. start → A → C → E
2. start → A → C → D → F
3. start → A → G → I
4. start → A → G → I
5. start → A → C
6. start → A → C → E
7. start → A → C → E
8. start → A → G → J → C → E
9. start → A → C → E
10. start → A → C → D → F

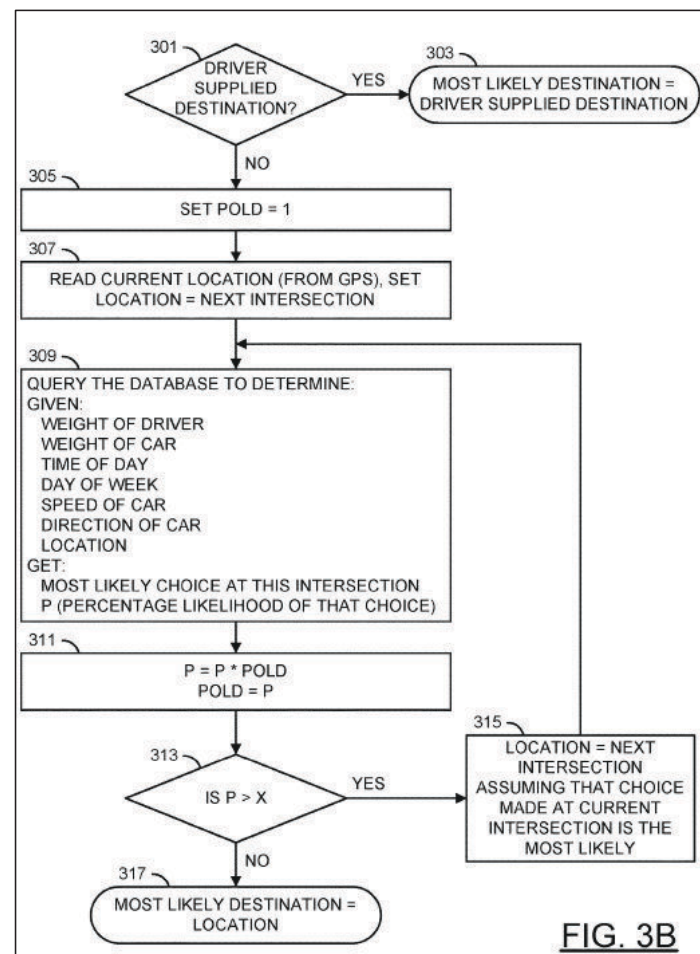


FIG. 3B

TESLA-1001, 13:12-25; Figs. 3A-3B; TESLA-1003, ¶¶29-30; Pet., 4

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PO's implicit construction is unjustified

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

Petitioner's Reply

Moreover, it is telling that iQar has failed to identify any support in the claim language itself for this restriction in scope that departs from the plain meaning of the claims. The claims merely recite that the historical data include "data, regarding multiple route segments"—*i.e.*, that the historical data include data regarding multiple separate pieces of a traveled way of a vehicle. They do not require that these data be "data regarding what occurred" *between* specific points along a route, as iQar contends. POR, 9. Nor do they require that these data contain "information regarding the route the vehicle traveled between" specific points along a route, as iQar also asserts. POR, 10. And importantly, they do not exclude that information about "individual points" along a route segment (POR, 10) is encompassed within the generic limitation of "data, regarding multiple route segments."

PO's implicit construction is unjustified

Petitioner's Reply

Even the citations to the '002 Patent that the POR makes in an attempt to justify its untenably narrow claim interpretation do not provide the needed support for the claims. For instance, iQar cites to the '002 Patent's explanation that "a 'segment' may comprise any distance to be traveled, including the entire route, or small portions of the route." POR, 6 (citing TESLA-1001, 14:2-8). Notably, while this is consistent with the plain meaning of route segment ("a separate piece of a traveled way of a vehicle," as discussed *supra*), this description merely provides context for what can constitute a segment. It provides no insight that would support iQar's assertion that the claimed "data, regarding multiple route segments" must provide information about the "route the vehicle traveled" along each route segment. And further citations to the '002 Patent offer no more clarification, instead just restating that "information on routes or segments or routes that the vehicle has previously traveled" (TESLA-1001, 17:32-35, cited at POR, 5) without any specification of precisely what constitutes that "information."

'002 Patent

tion, as described above, and any intermediate positions between the initial and the final positions. In some variations, the route may be broken up into segments that may be used by a power management device to optimize the power needed to travel this segment. A segment may comprise any distance to be traveled, including the entire route, or small portions of the route. Different segments in the same route may be of different lengths.

4. Historical Route Information

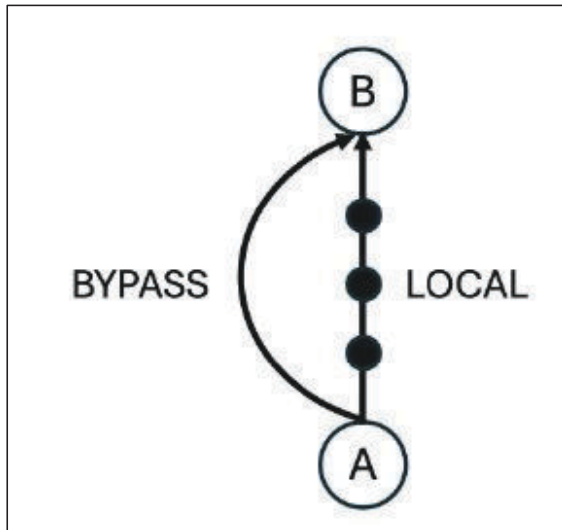
The power management device may refer to a record of historical route information. For example, the power management device may include a memory or a data structure that holds information on routes or segments or routes that the vehicle has previously traveled. The memory may comprise a database, a register, or the like. In some variations, a power management system communicates with a memory or other data structure that is located remotely. The record of historical route information may include the route information (e.g., starting location and any intermediate locations), as well as information about the actual or optimized velocities and/or applied power for the vehicle traveling the route. The record of historical route information may also include any informational from information inputs (described below). For example, the record of historical route information may include information about the time of day, weather conditions, road conditions, driver, etc. Multiple records for the same route (or segments of a route) may be included as part of the record of historical route information.

Pet. Reply, 6; POR, 5-6; TESLA-1001, 14:1-8, 17:30-49; TESLA-1003, ¶121; Pet., 36

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PO's implicit construction is unjustified

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

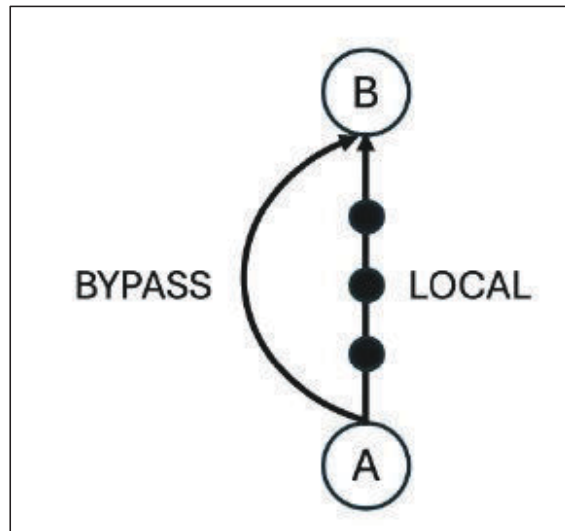


Petitioner's Reply

Indeed, even if a route segment itself were “more than a single point along a route” (POR, 6) as asserted by iQar, neither the claim language nor the '002 Patent specification demands that “data, regarding ... route segments” must be anything more than data regarding just a single point along each route segment. In fact, the claims as properly interpreted place no limitation on what the “data, regarding multiple route segments” must be, or in what way the data must relate to the route segments. In this regard, the Petition's identification of data characterizing *two* points along each route segment (namely, the starting point and endpoint of each segment, as discussed *infra*; see Petition, 57-58) is sufficient to satisfy this generic claim limitation, as properly understood.

PO's implicit construction is unjustified

Petitioner's Reply



Pet. Reply, 11-12

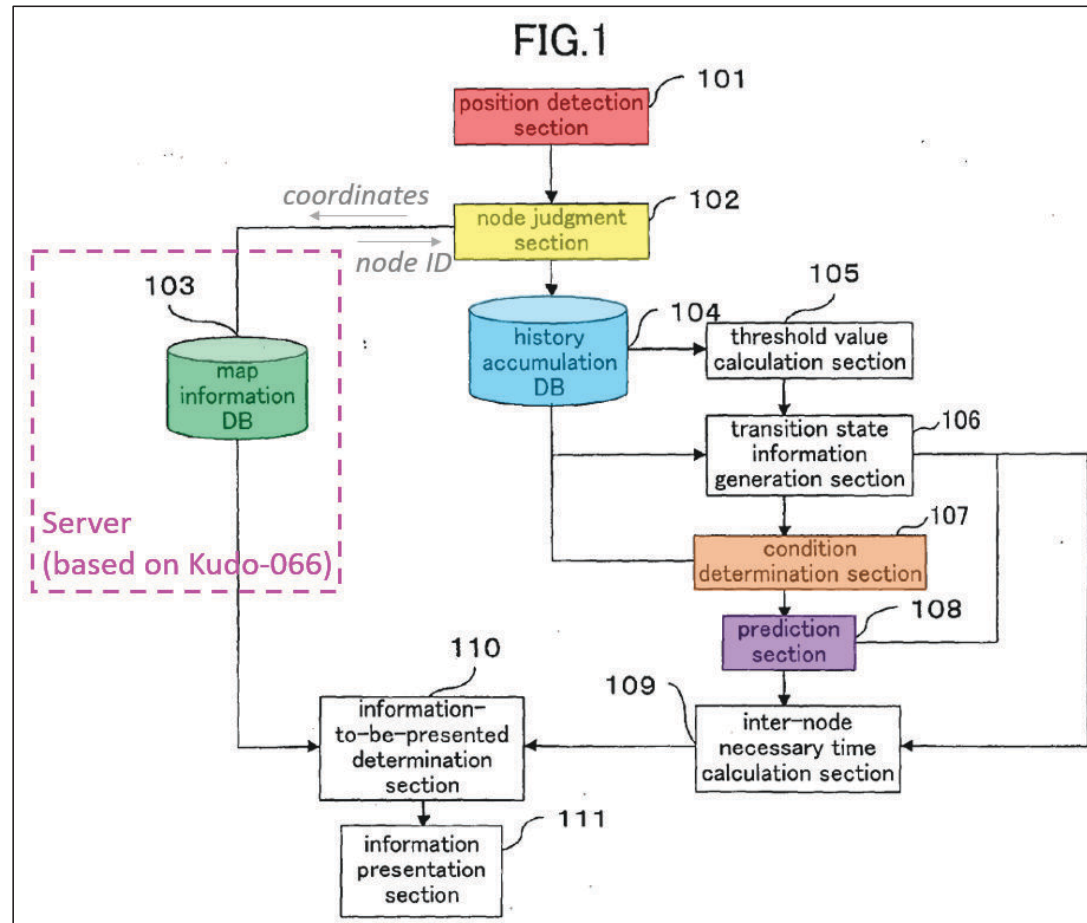
Indeed, iQar acknowledges exactly this: that Kudo-325's "data indicates that the vehicle passed through particular points at particular times." POR, 10. Its sole objection to the identification of these node data as corresponding to the claimed "data, regarding multiple route segments" is that "it provides no information regarding the route the vehicle traveled between the points" (*id.*)—something that is not even required by the claims. In indicating that Kudo-325's transition state data are insufficient to satisfy the claims because with Kudo-325's data, it is purportedly "impossible to tell what route was followed," iQar appears to be importing a requirement that the "data, regarding multiple route segments" be data that *uniquely* identifies each of the multiple route segments. POR, 14. But the claims require nothing of the sort. Indeed, as discussed *supra*, the claims place no restriction on the nature of the "data, regarding multiple route segments," nor do the claims demand that data regarding one route segment be distinct from data regarding a different route segment.

25

Issue 2

The claims are obvious over
Kudo-325 and Kudo-066

The Kudo-325 / Kudo-066 combination



Pet., 14

27

The Kudo-325 / Kudo-066 combination

FIG.2

node number	kind/name	east longitude	north latitude
C1	intersection	135' 20" 35.45"	34' 44" 35.22"
C2	intersection	135' 24" 35.74"	34' 44" 86.5"
C3	intersection	135' 22" 6.22"	34' 44" 78.18"
C4	intersection	135' 22" 10.4"	34' 45" 60.75"
C5	intersection	135' 22" 20.0"	34' 46" 79.37"
C6	intersection	135' 20" 42.76"	34' 46" 70.48"
C7	intersection	135' 22" 35.39"	34' 47" 35.82"
.	.	.	.
L123	landmark (home)	135' 19" 48.42"	34' 42" 38.29"
L124	landmark (office)	135' 30" 22.33"	35' 12" 23.6"
.	.	.	.
A427	area (Umeda, North)	135' 29" 51.9"	34' 41" 57.0"
A428	area (Keihanna, Gakuentoshi)	135' 46" 18.80"	34' 44" 30.65"

node ID

coordinates

Kudo-325

[0082] In FIG. 2, each node number indicates an ID number assigned to a node in one-to-one correspondence, wherein the node number is assigned as "CXX" to an intersection, as "LXX" to a landmark, "AXX" to an area, and the like. Also, the nodes are stored together with information indicating the positions such as latitude/longitude information of representative points. The latitude/longitude information merely indicates position information of the representative points, and information indicating ranges (radius of the representative point as a center, or the like) respectively corresponding to an intersection, a landmark, an area, or the like is present actually. It is thought that:

[0083] referring to, for example, an intersection and a landmark, each range may be a range within a 10-m radius of a representative point as a center; and referring to an area, each range may be a range within a 1-km radius of a representative point as a center. Further, the ranges of individual areas may be different from one another. The position information may be, for example, an address, rather than the latitude and longitude.

Travel history data in the Kudo-325 / Kudo-066 combination

Kudo-325

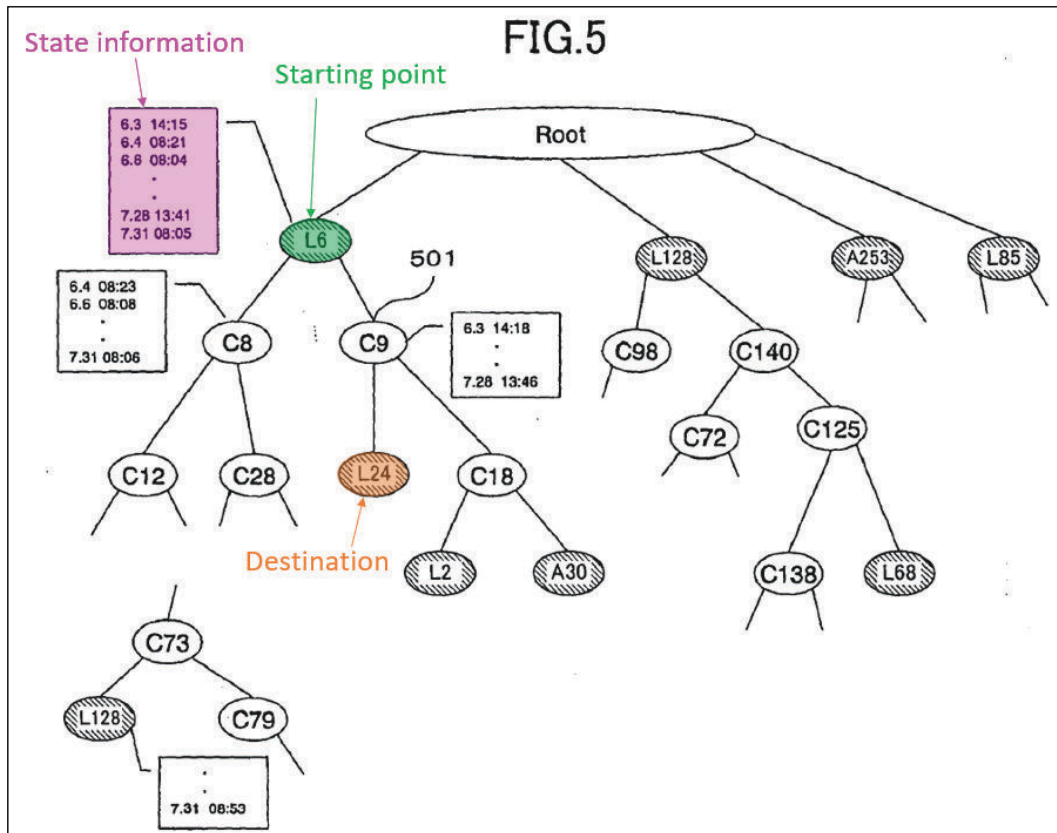
[0087] FIG. 3 indicates one example of data accumulated in the history accumulation DB 104. In the example of FIG. 3, pairs of the node numbers and times of passage there-through are stored chronologically. For example, it indicates that the user departed from, passed through and stops at a node L6 at 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, respectively. The node series may be accumulated on per segment basis according to a starting point and a destination, namely, by a unit of “segment from engine start (travel start) to engine stop (travel end)” as shown in FIG. 3(a), or may be accumulated in a segment unit of “segment from departure from home to going back home” as shown in FIG. 3(b). Alternatively, the node series may be accumulated in a segment unit of “the same day” or even with no segments. Accumulation of a travel history by segment from travel start to travel end enables prediction of a travel destination based on detailed route information.

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

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

TESLA-1004, [0087], Fig. 3; Pet., 8

Transition state information in the Kudo-325 / Kudo-066 combination



Kudo-325

[0092] When the threshold value is calculate in the thresh-
old value calculation section 105, the transition state infor-
mation generation section 106 generates transition state
information by selecting a node of which appearance time
exceeds the threshold value by utilizing the data in the
history accumulation DB 104 (step a5).

[0093] FIG. 5 shows one example of the transition state
information. The transition state information has a tree
structure, as shown in FIG. 5, in such a fashion that: nodes
(starting points) of a landmark or an area from which a travel
starts are arranged at the uppermost level immediately below
a root; histories of past node transition from the respective
nodes as base points, which indicate histories of travels
among intersections, are expressed in a tree structure; and
nodes (destinations) such as a landmark, an area, and the like
where the travel ends are located at the lowermost level of
the respective branches. Each node, which accompanies

Issue 2A

Kudo-325's travel history data includes “data, regarding multiple route segments”

Kudo-325's travel history corresponds to “historical data”

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

Kudo-325

[0078] Also, reference numeral 104 denotes **a history accumulation database (DB) that accumulates a travel route obtained from a history of the position information of the automobile as a travel history.** Herein, when the current position is judged as a node in the node judgment section 102, the node is stored. The structure of data accumulated in

Petition

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, [087] (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.

TESLA-1004, [0078]; Pet., 42-43

32

Kudo-325's history DB data, transition state data are “historical data”

Petition

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.*

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.

“Route segments” in the Kudo-325 / Kudo-066 combination

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

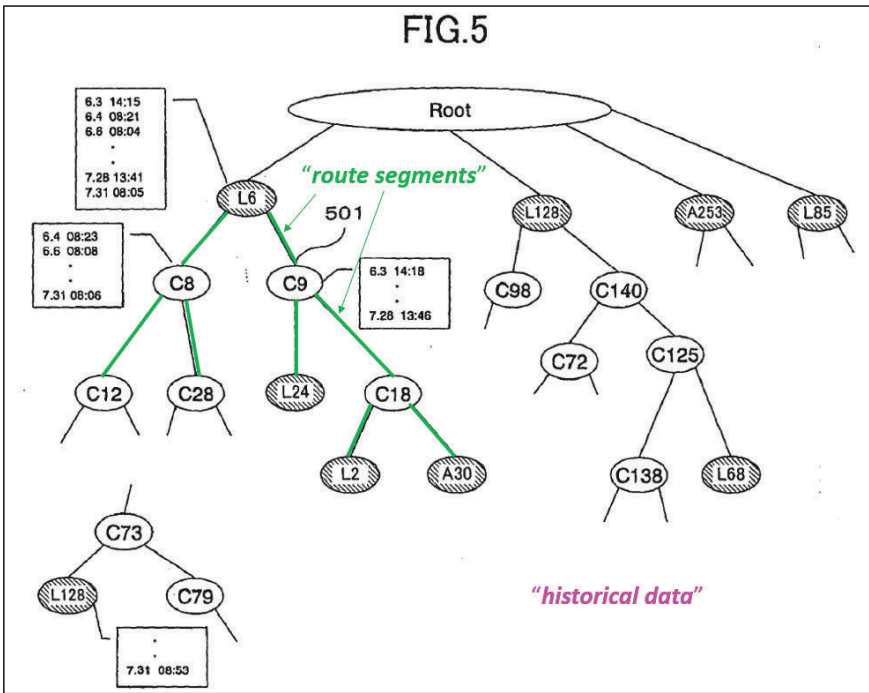
Petition

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

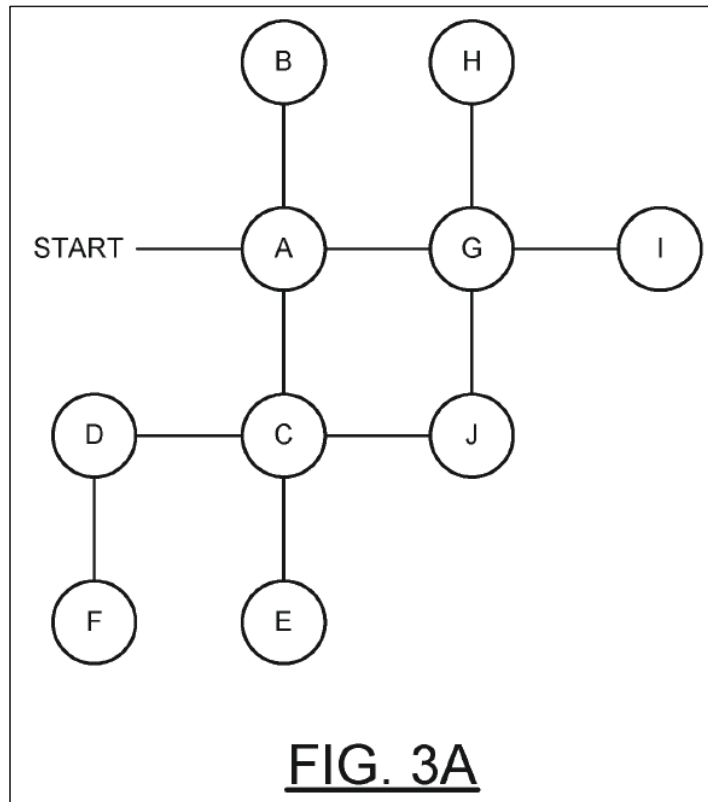
FIG.5



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

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

Destination prediction in the '002 Patent



'002 Patent

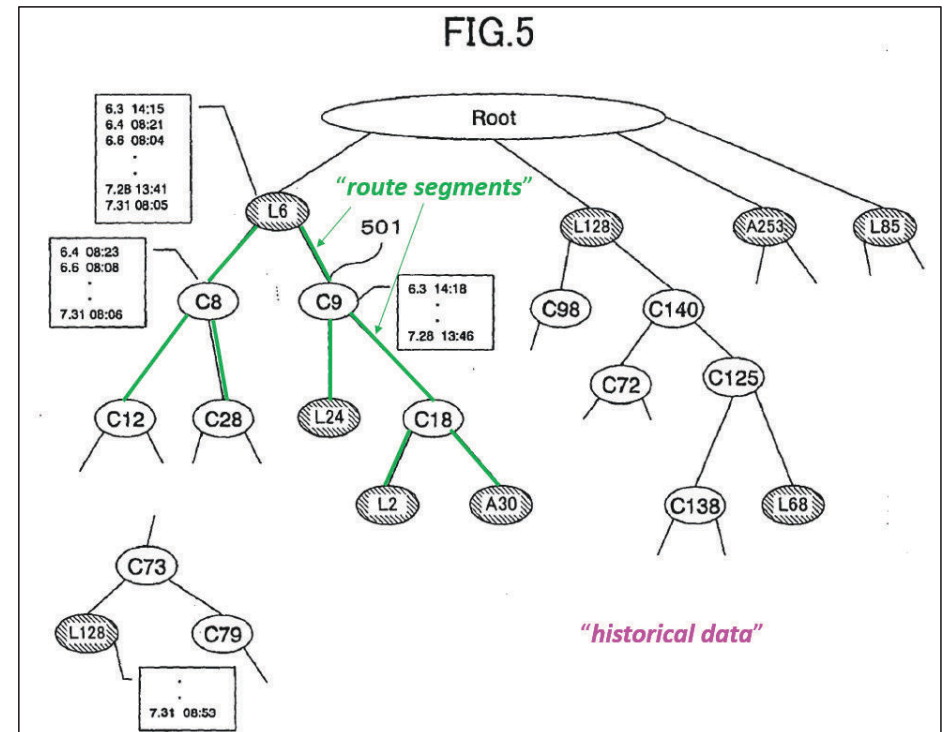
Referring now to FIG. 3A, assume that you have taken the following trips:

1. start $\rightarrow$ A $\rightarrow$ C $\rightarrow$ E
2. start $\rightarrow$ A $\rightarrow$ C $\rightarrow$ D $\rightarrow$ F
3. start $\rightarrow$ A $\rightarrow$ G $\rightarrow$ I
4. start $\rightarrow$ A $\rightarrow$ G $\rightarrow$ I
5. start $\rightarrow$ A $\rightarrow$ C
6. start $\rightarrow$ A $\rightarrow$ C $\rightarrow$ E
7. start $\rightarrow$ A $\rightarrow$ C $\rightarrow$ E
8. start $\rightarrow$ A $\rightarrow$ G $\rightarrow$ J $\rightarrow$ C $\rightarrow$ E
9. start $\rightarrow$ A $\rightarrow$ C $\rightarrow$ E
10. start $\rightarrow$ A $\rightarrow$ C $\rightarrow$ D $\rightarrow$ F

“Route segments” in the Kudo-325 / Kudo-066 combination

Petition

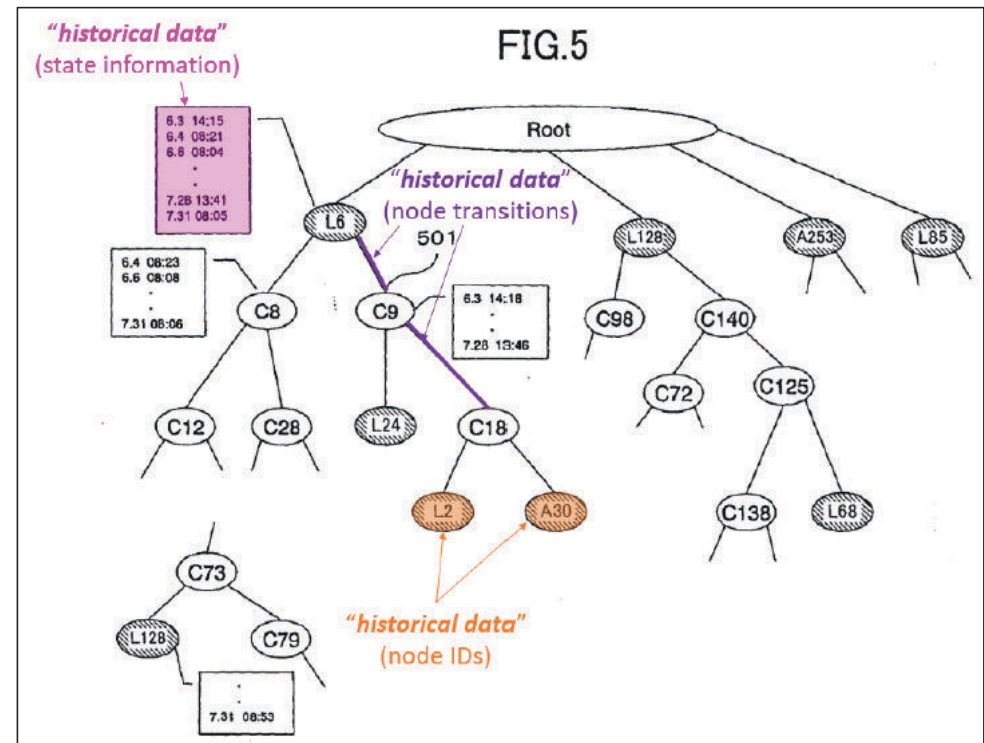
Kudo-325's transition state information includes “nodes (starting points) ... from which a travel starts” and “histories of past node transition from the respective nodes as base points, which indicate histories of travels among intersections.” TESLA-1004, [0093]; *see* [0087], [0057] (“the travel history 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.



Start/end node IDs are “data, regarding multiple route segments”

Petition

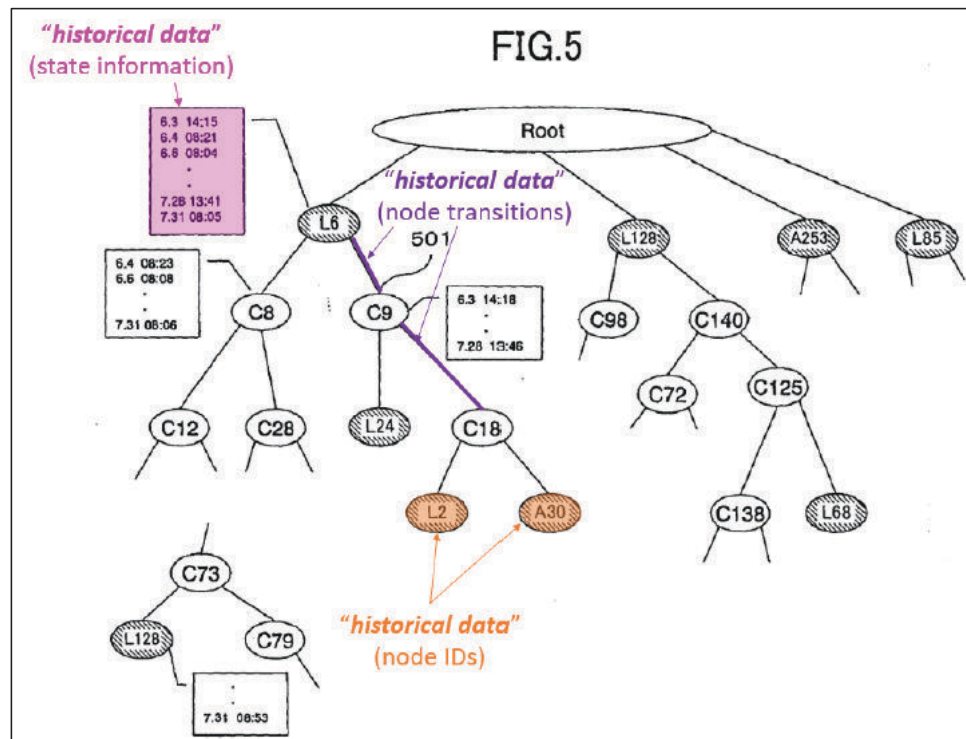
The transition state information (*historical data*) includes *data regarding the multiple route segments* ([1d-1]), *multiple sequences of route segments* ([1d-2]), and *travel destinations* ([1d-3]). TESLA-1003, ¶¶154, 161, 168. The node IDs for nodes at the starts and ends of route segments are an 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”



Date/time, driver information are “data, regarding multiple route segments”

Petition

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.



PO: “data, regarding multiple route segments” is not satisfied

Patent Owner’s Response

This is not the type of “historical data” required by the ’002 patent’s claims.

No “data ... regarding multiple route segments” (*i.e.*, portions of a route) is stored. Instead, Kudo 325 simply stores data relating to individual *points* along a route. Again, each of Kudo 325’s “nodes” represent specific “intersections, landmarks [or] area names” passed by a vehicle. (*Id.*, ¶ [0081]; *see also* Ex. 2002, 16:6-17:13.) And in the portion of Kudo 325 on which Petitioner relies, this “transition state information” includes only, for each node, (1) the dates/times when a vehicle passed through the node (the data in the “rectangular areas” shown in Figure 5) and (2) a list of other possible nodes the vehicle previously went to from that node (the “transition state information”). (*See* Ex. 1004, ¶ [0093].) No “data ... regarding ... route segments”—data relating to portions of a route traversed by a vehicle—is

stored. Point specific data provides no information regarding an actual route, or a portion of an actual route that was traveled. In other words, Kudo 325’s transition state information is simply information about what occurred (or could possibly occur) at particular points. While the data indicates that the vehicle passed through particular points at particular times, it provides no information regarding the route the vehicle traveled between the points. This, however, is what the claims here require: data regarding “*route segments*.” (*See* Ex. 2001, ¶¶ 85-104.)

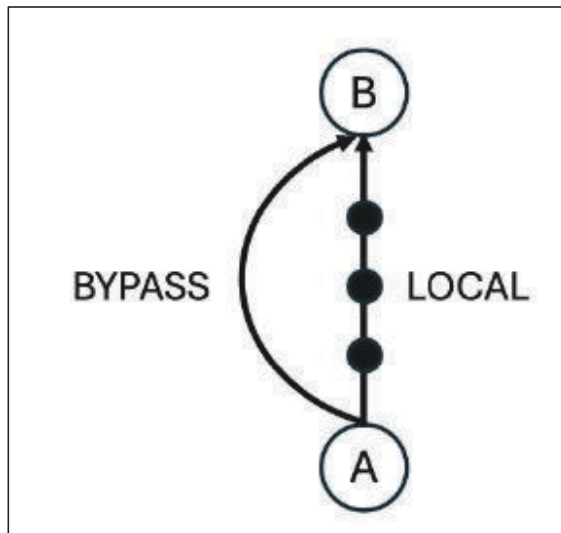
Kudo-325 stores “data, regarding multiple route segments”

iQar does not dispute that Kudo-325 stores these data, and even acknowledges that these data are “data relating to individual points along a route.” POR, 10. It does, though, object to the Petition’s identification of information about starting and ending nodes of route segments as corresponding to the claimed “data, regarding multiple route segments,” arguing that “The Petition does not point to the storage of any data regarding what occurred—or what path the vehicle traveled—*between* the different nodes in Kudo 325’s transition state data.” POR, 9; *see id.*, 12 (iQar asserting that Kudo-325 “purposefully *ignores* the route traveled between those points”). But as established *supra*, the claims impose no such requirement that the “data, regarding multiple route segments” provide any sort of characterization of the path between the starting and ending nodes of a route segment, as iQar contends, and thus iQar’s objection to the satisfaction of this claim element by Kudo-325’s data regarding starting and ending nodes of route segments is inapposite.

Petitioner’s Reply

Notably, iQar provides no explanation of *why* data that characterizes the starting point and endpoint of a route segment should not be considered “data, regarding” that route segment,” as claimed. Nor does iQar explain why data indicating the times of entry into and exit from a route segment, or data indicating the transit time across that route segment, is not “data, regarding” that route segment. Its sole objection to the Petition’s identification of Kudo-325’s transition state data is based on its nonviable, implicitly articulated, claim construction discussed *supra*.

PO's example: "data, regarding multiple route segments"



Patent Owner's Response

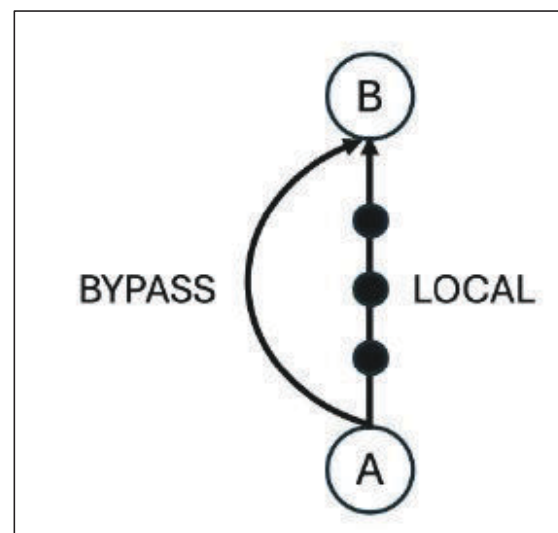
(See Ex. 2001, ¶¶ 104-113.) In such circumstances, Kudo 325 will record *only* nodes A and B in its transition state data. None of the intermediate intersections on the local route will be recorded as nodes because the vehicle never (or infrequently) turns at those intersections. As a result, Kudo 325 will not distinguish between—and saves no information regarding—the actual route the vehicle took between intersections A and B. Only intersections A and B are saved, along with the fact that the vehicle arrives at intersection B—via some unspecified and unknown route—after leaving intersection A. (See *id.*, ¶ 114-115.) It is impossible to tell what route was followed from this data. Once again, the '002 patent's claims require "historical data" that includes "data ... regarding ... route segments." Because Kudo 325's transition state data is indifferent to the route taken and relates only to the individual intersections, landmarks, or areas the vehicle visited, it is not what the claims require.

POR, 13-14

PO's example is irrelevant

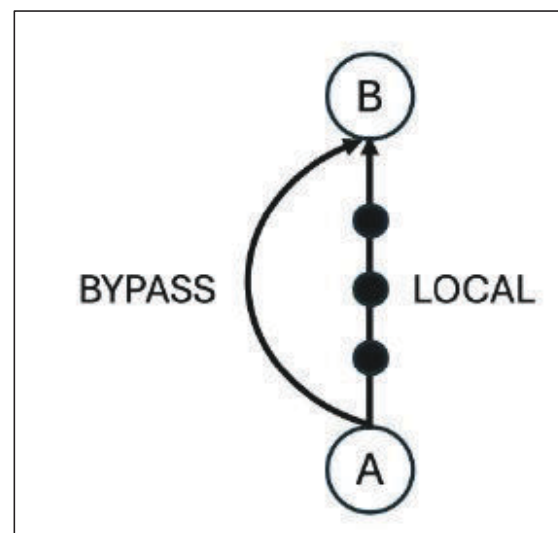
Petitioner's Reply

With regard to this figure, iQar argues that “Kudo 325 will record *only* nodes A and B in its transition state data,” and thus that “Kudo 325 *will not distinguish between*—and *saves no information regarding*—the actual route the vehicle took between intersections A and B,” *e.g.*, whether the vehicle took the “Local” route segment between nodes A and B, or the “Bypass” route segment between the same two nodes. POR, 13-14. Setting aside PO’s incorrect assumption about what Kudo-325 will record with respect to this scenario (discussed *infra*), the question of whether Kudo-325 can or cannot distinguish the “Local” segment from the “Bypass” segment in this example is simply irrelevant to Kudo-325’s satisfaction of the claim language.

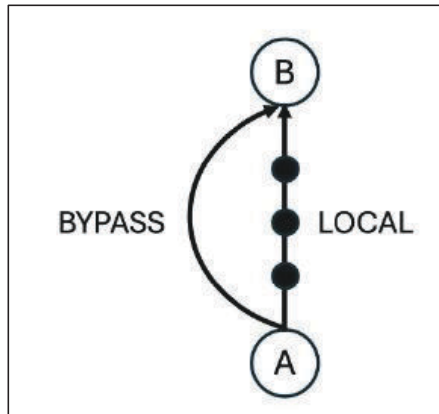


PO's example is irrelevant

Node A defines the start of the Local route segment, and node B defines the end of the Local route segment, as confirmed by Dr. Bevly. *See* TESLA-1052, 14:18-15:3). That is, nodes A and B are information about the start and endpoints of Local route, *i.e.*, “data regarding” the Local route segment. Similarly, Nodes A and B define the start and end of the Bypass route segment, respectively, as also confirmed by Dr. Bevly, and thus nodes A and B are also information about the Bypass route segment, *i.e.*, “data regarding” the Bypass route segment. *See id.*, 16:3-9. That nodes A and B relate to two different route segments does not detract from the simple reality that nodes A and B define, and characterize, the start and endpoints of both of those route segments, *i.e.*, that they are data *regarding* both the Local route segment and the Bypass route segment. *See id.*, 16:10-14 (“Q: So is it – can we say that both the local and the bypass portions of these two vehicle trips have the same start and end points? A. That would be – per this illustration, that would be fair to say.”).

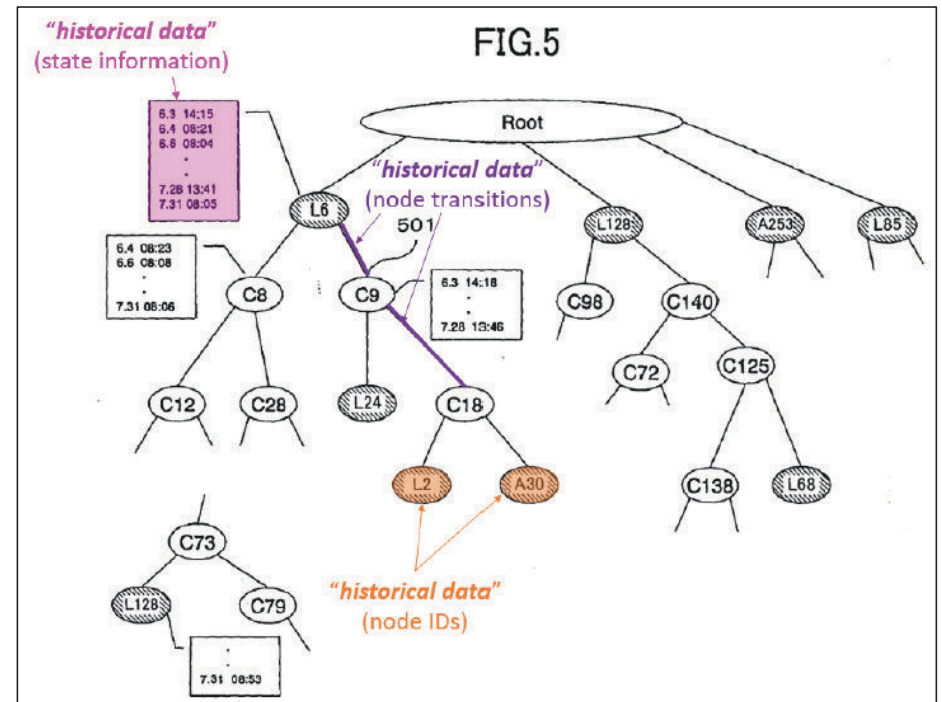


The combination provides “data, regarding multiple route segments”



Petitioner's Reply

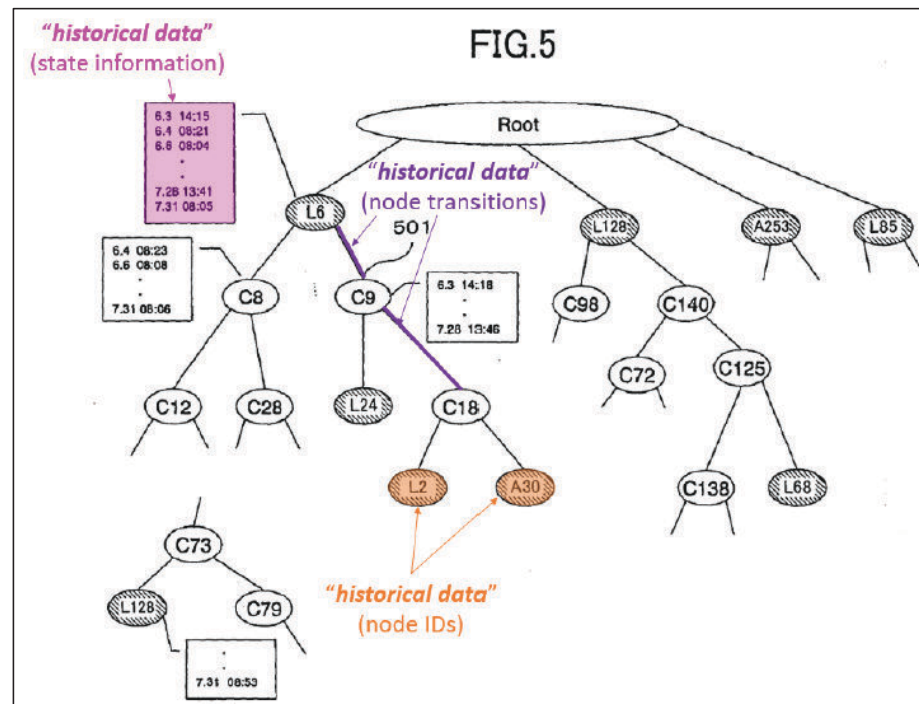
The stored Kudo-325 transition state information is similar: information about the nodes at the start and end of route segments, as stored in Kudo-325's transition state information, are data that define, and characterize, the start and endpoints of those route segments, *i.e.*, information about nodes at the start and end of route segments are data *regarding* the respective route segments. See Pet., 57-58.

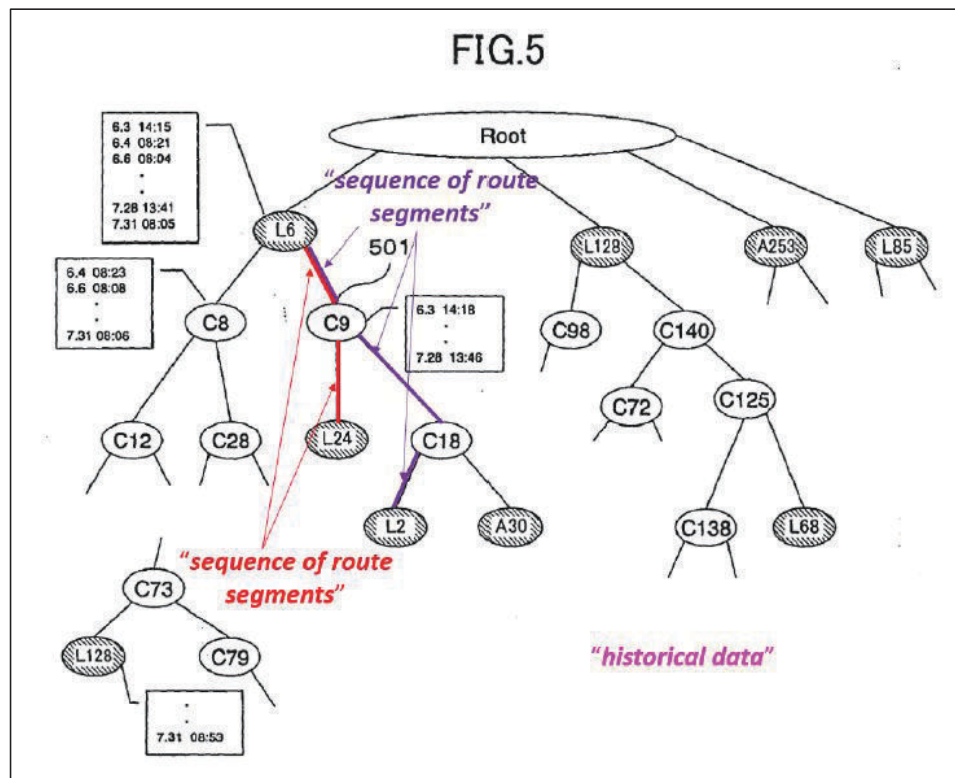


The combination provides “data, regarding multiple route segments”

Petitioner’s Reply

the nodes at the starting point and endpoint of each route segment). As explained in the Petition, node IDs (and other related information) are “data, regarding” a route segment (e.g., data regarding a separate piece of a traveled way of a vehicle) at least in that a pair of node IDs identify the nodes that define the starting point and the endpoint of that route segment (e.g., the nodes that define that separate piece of the traveled way of the vehicle). *See id.* Similarly, the date/time information for a pair of nodes that define the starting point and the endpoint of that route segment are “data, regarding” that route segment at least in that they define (1) the date and time at which the driver entered that route segment, (2) the date and time at which the driver exited that route segment, and (3) the elapsed time for the driver to transit that route segment. *See* Petition, 37, 57-58; TESLA-1052, 19:14-20:8.





Petition

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.

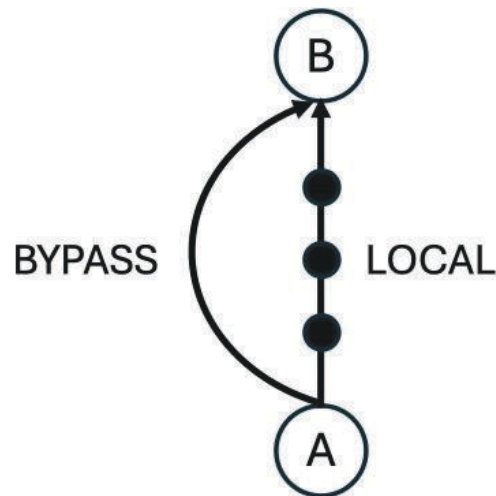
Issue 2B

The travel history data includes “data, regarding multiple route segments” even under iQar’s narrow interpretation

PO: Kudo-325's data is incomplete

Patent Owner's Response

(See Ex. 2001, ¶¶ 104-113.) In such circumstances, Kudo 325 will record *only* nodes A and B in its transition state data. None of the intermediate intersections on the local route will be recorded as nodes because the vehicle never (or infrequently) turns at those intersections. As a result, **Kudo 325 will not distinguish between—and saves no information regarding—the actual route the vehicle took between intersections A and B.** Only intersections A and B are saved, along with the fact that the vehicle arrives at intersection B—via some unspecified and unknown route—after leaving intersection A. (See *id.*, ¶ 114-115.) It is impossible to tell what route was followed from this data. Once again, the '002 patent's claims require “historical data” that includes “data ... regarding ... route segments.” Because Kudo 325's transition state data is indifferent to the route taken and relates only to the individual intersections, landmarks, or areas the vehicle visited, it is not what the claims require. (See *id.*, ¶¶ 116-126.)



PO's cites are only examples

Patent Owner's Response

Not only does Kudo 325 only store historical data in the form of points/nodes (and not route segments), but the point-based data that is stored is *incomplete*. This further distinguishes it from the claims. According to Kudo 325, a “node judgment section 102” determine when nodes should be stored. (Ex. 1004, ¶ [0078].) And an intersection is only recorded as a node if the vehicle “travelled in two or more directions” when passing through that intersection. (*Id.*, ¶ [0059]; *see also id.*, ¶ [0085] (similarly noting that “intersections that the user’s automobile has traveled in two or more directions” are stored as nodes).) FIG. 30(a) provides an example. Here, because “the user has traveled in two directions through the intersections a and c,” these “intersections ... are set as nodes Na and Nc...” (*Id.*) But, since the “user has traveled in only one direction” through “intersection b” and never turned this intersection “is not set as a node.” (*Id.*)

Petitioner's Reply

According to iQar, one way in which Kudo-325’s transition state information is supposedly incomplete is because “an intersection is only recorded as a node if the vehicle ‘travelled in two or more directions’ when passing through that intersection.” POR, 11, citing TESLA-1004, [0059]. But contrary to iQar’s position, this situation is merely an example, and does not limit the full scope of Kudo-325’s disclosure. *See* TESLA-1004, [0085] (“It is also noted that any nodes *can be added and deleted* according to user’s travels. *For example, it is possible* that an intersection that the user’s automobile has traveled in two or more directions *may be set* as a node.”). Similarly, although sometimes “[l]ess

PO's cites are only examples

Patent Owner's Response

Not only does Kudo 325 only store historical data in the form of points/nodes (and not route segments), but the point-based data that is stored is *incomplete*. This further distinguishes it from the claims. According to Kudo 325, a “node judgment section 102” determine when nodes should be stored. (Ex. 1004, ¶ [0078].) And an intersection is only recorded as a node if the vehicle “travelled in two or more directions” when passing through that intersection. (*Id.*, ¶ [0059]; see also *id.*, ¶ [0085] (similarly noting that “intersections that the user’s automobile has traveled in two or more directions” are stored as nodes).) FIG. 30(a) provides an example. Here, because “the user has traveled in two directions through the intersections a and c,” these “intersections ... are set as nodes Na and Nc...” (*Id.*) But, since the “user has traveled in only one direction” through “intersection b” and never turned this intersection “is not set as a node.” (*Id.*)

Kudo-325

[0085] It is also noted that any nodes can be added and deleted according to user’s travels. For example, it is possible that an intersection that the user’s automobile has traveled in two or more directions may be set as a node. In detail, as shown in FIG. 30(a), the user has traveled in two directions through the intersections a and c, and accordingly, the intersections a and c are set as nodes Na and Nc, and the intersection b, through which the user has traveled in only one direction, is not set as a node.

PO's cites are only examples

Patent Owner's Response

intersection ... for a past predetermined period....” (Ex. 1004, ¶ [0086].) Kudo 325 also explains that even if a vehicle does occasionally travel in multiple directions when passing through an intersection, only “a node appearing with a frequency exceeding the predetermined value in generating the transition state information from the travel history” is saved. (*Id.*, ¶ [0109].) **Less frequently traversed nodes are ignored.** (*See id.*) According to Kudo 325, this “increase[es] the retrieval efficiency by reducing the size of the data to be retrieved.” (*Id.*)

Petitioner's Reply

directions *may be set* as a node.”). Similarly, although sometimes “[l]ess frequently traversed nodes are ignored,” as iQar states (POR, 12-13), its conclusion that this means that Kudo-325’s transition state information is incomplete suffers from the same flaw: **this is again only an example.** *See* TESLA-1004, [0109] (“*the present embodiment* selects only a node appearing with a frequency exceeding the predetermined value in generating the transition state information”). That is, while Kudo-325 *can* decline to record some intersections as nodes, it is not necessarily the case that it *must* ignore certain intersections.

PO's cites are only examples

Patent Owner's Response

intersection ... for a past predetermined period....” (Ex. 1004, ¶ [0086].) Kudo 325 also explains that even if a vehicle does occasionally travel in multiple directions when passing through an intersection, only “a node appearing with a frequency exceeding the predetermined value in generating the transition state information from the travel history” is saved. (*Id.*, ¶ [0109].) Less frequently traversed nodes are ignored. (*See id.*) According to Kudo 325, this “increase[es] the retrieval efficiency by reducing the size of the data to be retrieved.” (*Id.*)

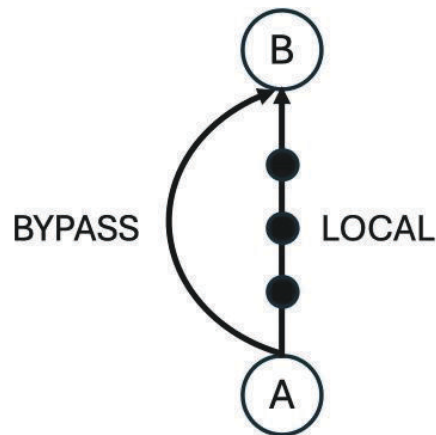
Kudo-325

[0109] It is noted that the present embodiment selects only a node appearing with a frequency exceeding the predetermined value in generating the transition state information from the travel history, which is for increasing the retrieval efficiency by reducing the size of the data to be retrieved. In other words, node selection is not necessarily needed in a case with no special limitation on the retrieval efficiency, and the transition state information may be generated utilizing all the nodes accumulated in the history accumulation DB 104.

The combination provides “data, regarding multiple route segments”

Petitioner’s Reply

When all intersections are accounted for as nodes—which is consistent with Kudo-325’s disclosure—iQar’s argument that Kudo-325’s transition state information does not allow for a determination of “what route was followed” between nodes becomes unsustainable. POR, 14. This is made clear with reference to iQar’s demonstrative figure, reproduced again here.



iQar explains that in this example, the Local route segment includes “intermediate intersections,” and Dr. Bevely confirms that the black dots along the Local route segment can represent such intermediate intersections. POR, 13; TESLA-1052, 15:4-11. It is within the scope of Kudo-325’s disclosure for these intermediate intersections to be recorded as nodes, as discussed *supra*. And in the case where these intermediate intersections are recorded as nodes, the Local route segment would, in fact, be distinguishable from the Bypass route segment—contrary to iQar’s categorical statement that “Kudo 325 *will not distinguish between ... the actual route the vehicle took between intersections A and B.*” POR, 13-14.

The combination provides “data, regarding multiple route segments”

Petitioner’s Reply

More generally, when the granularity of the stored node data is such that every intersection is recorded as a node, as is contemplated by Kudo-325, iQar’s objection that Kudo-325’s transition state data is incomplete (POR, 11) is obviated. And, importantly, when all available intersections are recorded as nodes, any uncertainty regarding which of multiple available route segments a driver may have traveled becomes moot: the transition state data fully characterizes “the actual route the vehicle took.” POR, 13.

Thus, to the extent that the claims are interpreted narrowly to require that the “data, regarding multiple route segments” be data that “indicate[] how the vehicle actually got from one point to another” (POR, 2), this recordation of all intersections as nodes does, in fact, provide such an indication. That is, even under iQar’s (unjustified) implicit construction of the claims, the node information of Kudo-325’s transition state data satisfies the “data, regarding multiple route segments” recited in the Challenged Claims.

Issue 3

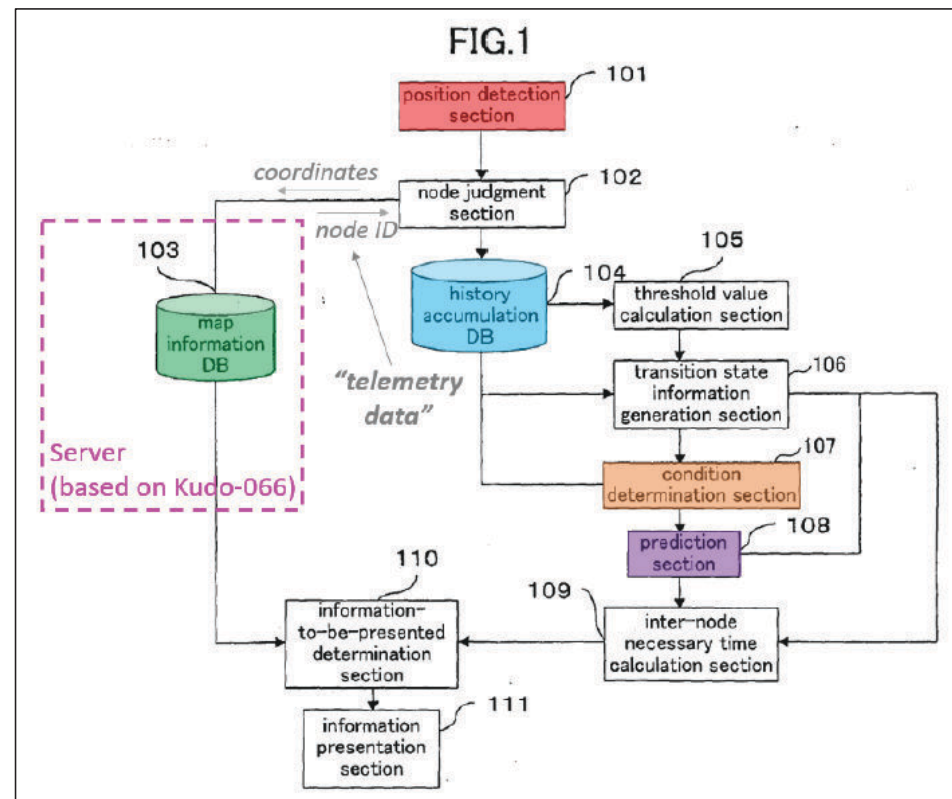
Claims 2 and 3 are obvious over
Kudo-325 and Kudo-066

Claims 2 and 3

1. A power management device comprising:
 a sensor interface configured to receive sensor data samples during operation of a vehicle;
 a memory configured to store said sensor data samples for different points in time along a route segment traveled by said vehicle; and
 a processor configured to (i) analyze said sensor data samples stored in said memory 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; and

2. The device according to claim 1, wherein said telemetry data comprises map coordinates determined in response to a GPS signal.

3. The device according to claim 1, wherein said telemetry data comprises map coordinates determined by a map service.



Claim 2: GPS

2. The device according to claim 1, wherein said telemetry data comprises map coordinates determined in response to a GPS signal.

Kudo-066

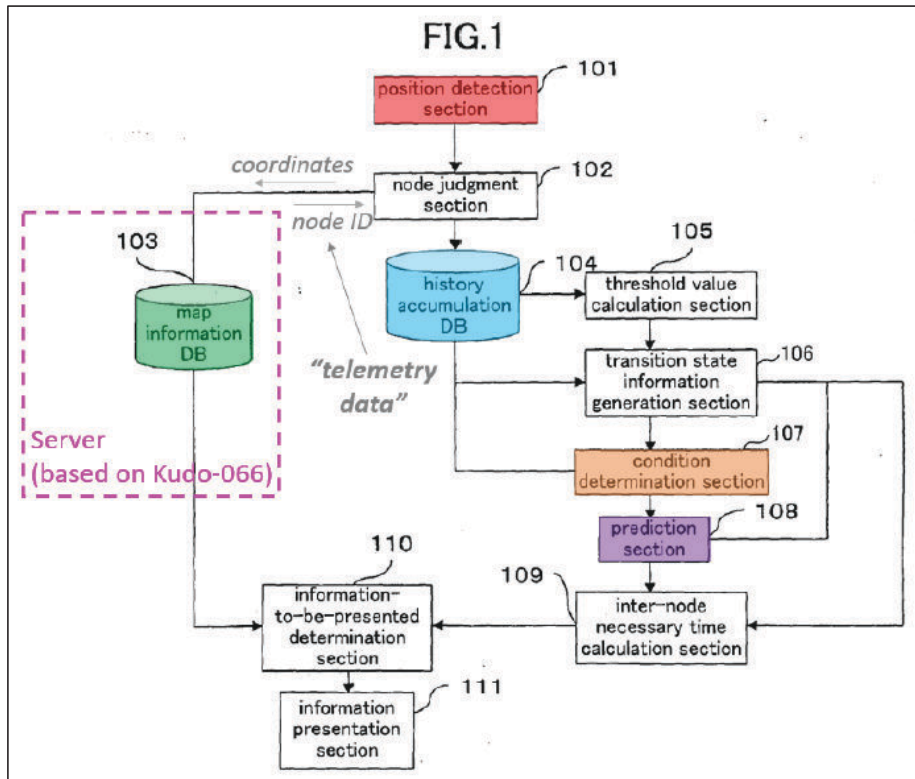
[0071] When it is determined to be the timing of detection (Yes at S12), the position information detection means 11 detects the position information (latitude and longitude) on the user's vehicle by using, for example, a GPS (S13). Then, the position storage determination means 13 refers to data stored in the map database 12 as shown in FIG. 2 based on the detected position information and determines whether or not the current position is contained in one of the nodes (S14). When it is determined that the current position is contained in one of the nodes (Yes at S14), the date and time detection means 14 detects the current date and time (S15). On the other hand, when it is determined that the current position is not contained in any of the nodes (No at S14), the process returns to S11 and the determination is performed again.

Petition

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.

Claims 2 and 3: telemetry data comprises map coordinates

Petition



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.

Claims 2 and 3: telemetry data

Patent Owner's Response

So, in sum, rather than storing “map coordinates” as claims 2 and 3 require, the system of Kudo 325 and Kudo 066 stores only nodes. The nodes are not map coordinates. Instead, they represent intersections, landmarks, and areas that extend over and correspond to a range of different map coordinates. (See Ex. 2001, ¶¶ 136-146.)

Petitioner's Reply

This argument ignores that the Kudo-325/Kudo-066 satisfaction of the claimed telemetry data is two-fold. Latitude/longitude coordinates are telemetry data because they represent measurement data communicated over a distance (e.g., between the vehicle and a GPS satellite or between the vehicle and a remote map database). See Petition, 50. iQar does not dispute this. The corresponding node IDs are also telemetry data because they represent measurement data communicated over a distance (e.g., between the server and the vehicle). See Petition, 51-52. iQar also does not dispute this. The node IDs—which are telemetry data—are stored, thus satisfying the base claim 1 requirement that at least one of the stored sensor data samples is telemetry data. See *id.*, 50-52. And these node IDs are determined based on, and uniquely correspond to, the latitude/longitude coordinates of the vehicle's location—also telemetry data—thus satisfying the claim 2-3 requirements that the telemetry data include coordinates.

Claims 2 and 3: telemetry data

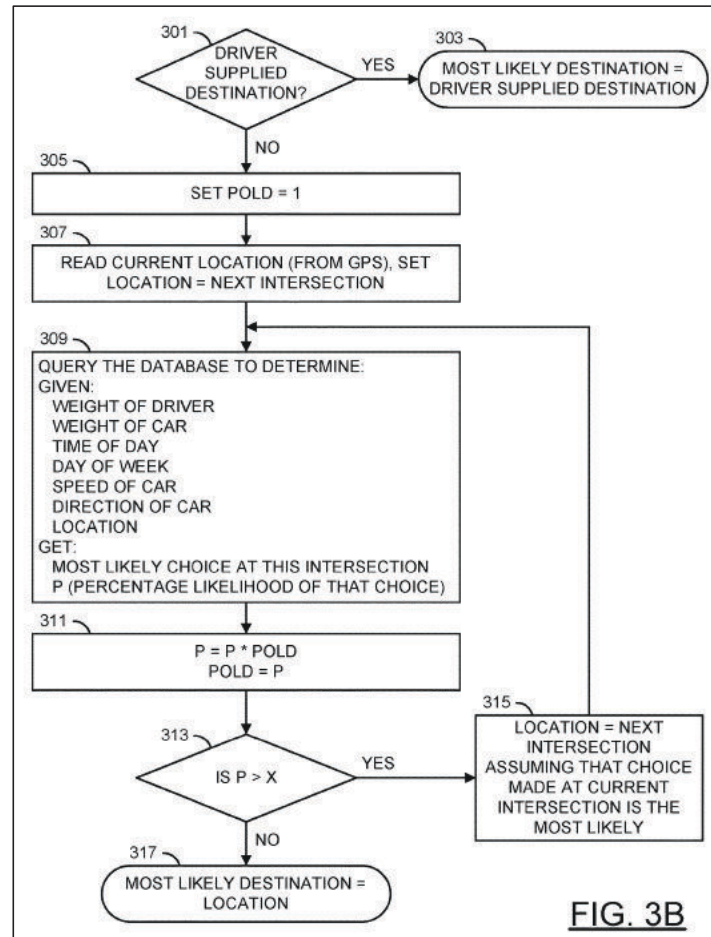
Dr. Morellas' Declaration

97. More generally, it is important to note that position information corresponding to the sensed vehicle position may be in any of a variety of forms while still, fundamentally, representing the sensed vehicle position data. For instance, the position information can be in a form that is readily decipherable to a human (such as latitude/longitude coordinates or node ID) or in a machine-readable form that is not readily decipherable to a human (e.g., a voltage, raw GPS data, binary code representation of the node ID). But regardless of the form of the data, that position information, when the vehicle is located at a node, corresponds to *sensor data samples* at least because each of these forms of information uniquely corresponds to and represents a quantum of detected position sensor information (e.g.,

the latitude/longitude coordinates and node ID for a given vehicle position each corresponds to discrete raw data detected by a position sensor) at a particular time. For instance, when the system's position detection system senses raw data indicating that the vehicle is currently located at the coordinates (135°22'35.39", 34°47'35.82") for a node, the raw data, the latitude/longitude coordinate pair, and the corresponding node ID (C7; highlighted in blue in FIG. 2, reproduced above) all uniquely correspond to and represent the same raw, sensed data sample for that node.

Claims 2 and 3: telemetry data

'002 Patent



TESLA-1001, Fig. 3B; Pet., 3

61

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Issue 4

Claim 10 is obvious over Kudo-325
and Kudo-066

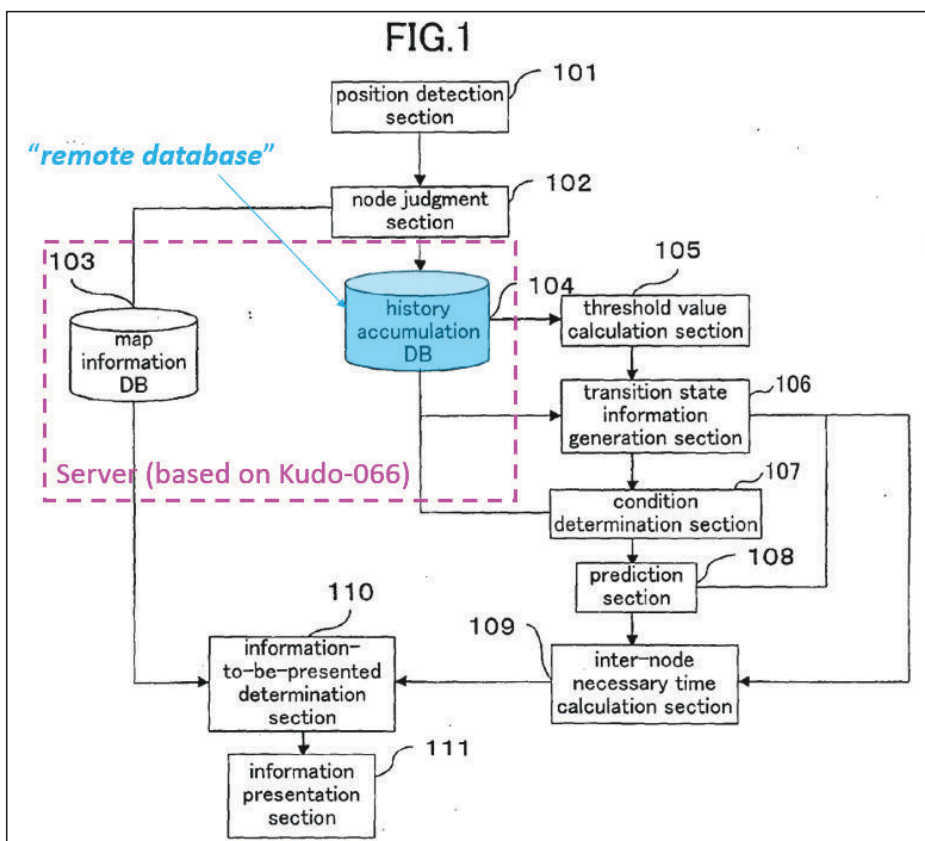
Claim 10

8. The device according to claim **1**, wherein said device is further configured to transmit said predicted destination to a remote database.

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.

Remote history accumulation database

FIG.1



8. The device according to claim 1, wherein said device is further configured to transmit said predicted destination to a remote database.

Petition

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.

Remote history accumulation database

Kudo-325

[0108] In the latter case, it is further possible that the history information accumulated in the history DB 104 is uploaded to the server for allowing the server to perform both prediction of a travel destination and selection of information based on the prediction result. Wherein, it is expected that some users are reluctant to upload all of their travel histories to the server in view of privacy protection. For such users, it is rational to upload least information, that is, only the predicted travel destination. In other words, all the travel histories may be uploaded to the server only for a user who provides permission.

[0075] The embodiments of the present invention will be described below with reference to the drawings. A car navigation system is referred to as an example in each of the following embodiments, but the present invention is not limited thereto. The present invention can be realized as well in, for example, portable phones, PDAs, personal computers, and the like, only if they are usually carried along with a user and has means for detecting position information. Also, a part of the functions that a car navigation system has may be provided in a server on a network.

Transmit predicted destination to the remote database

8. The device according to claim 1, wherein said device is further configured to transmit said predicted destination to a remote database.

Kudo-325

[0078] Also, reference numeral 104 denotes a history accumulation database (DB) that accumulates a travel route obtained from a history of the position information of the automobile as a travel history. Herein, when the current position is judged as a node in the node judgment section 102, the node is stored. The structure of data accumulated in the history accumulation DB 104 will be described later.

Petition

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.

Store sensor data samples in the remote database

8. The device according to claim 1, wherein said device is further configured to transmit said predicted destination to a remote database.

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.

Kudo-325

[0078] Also, reference numeral 104 denotes a history accumulation database (DB) that accumulates a travel route obtained from a history of the position information of the automobile as a travel history. Herein, when the current position is judged as a node in the node judgment section 102, the node is stored. The structure of data accumulated in the history accumulation DB 104 will be described later.

Petition

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

Present historical data to the device

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.

Kudo-325

[0092] When the threshold value is calculate in the threshold value calculation section 105, the transition state information generation section 106 generates transition state information by selecting a node of which appearance time exceeds the threshold value by utilizing the data in the history accumulation DB 104 (step a5).

Petition

“[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.

Transmit predicted destination to the remote database

Patent Owner's Sur-Reply

Petitioner replies by arguing that “[w]hen the vehicle reaches the end of its trip, its location matches its predicted location, and thus the sensor data sample that is transmitted to the remote history database” will be “the node ID for the predicted destination....” Reply, 19. This is non-sensical. Transmitting the vehicle’s current location upon arrival at its destination is not transmitting a “predicted destination” as claims 8 and 10 require. In such circumstances, there no longer is a predicted destination. There is only an actual destination. To transmit a predicted destination, it is necessary to transmit information about a point the vehicle has not yet reached. This is what the word “predicted” means.

Petitioner's Reply

As set forth in the Petition, Kudo-325’s remotely implemented history accumulation database receives sensor data samples, *e.g.*, node IDs as the vehicle travels along the route—thus satisfying the receipt of sensor data samples required by claim 10. *See* Pet., 73-74. When the vehicle reaches the end of its trip, its location matches its predicted location, and thus the sensor data sample that is transmitted to the remote history accumulation database is, in fact, “the node ID for the predicted destination”—thus also satisfying the transmission of the predicted destination as required by claim 8. Pet., 69-70. Yet iQar opts not to engage with this robust explanation, instead simply presenting a baseless allegation of purported shortcomings in the Petition.

Claim 10 is obvious

Patent Owner's Response

In other words, Kudo 325 contemplates two alternatives: (1) upload all the history data to a server such that prediction is performed remotely or (2) upload no history data, perform the prediction locally, then upload only the prediction. In alternative (1), the history data will be uploaded but the prediction will not (as the prediction is performed by the server, not the vehicle). In alternative (2), the history data will not be uploaded but the prediction will (as the vehicle needs the history data to perform the prediction). Claim 10, however, requires that *both* the claimed “sensor data” and the “predicted destination” be sent to a “remote database.” The Petition offers no explanation regarding why it would have been obvious in view of the prior art to do both of these things at the same time. (See Ex. 2001, ¶¶ 147-163.)

Petitioner's Reply

Nevertheless, even to the extent that the two alternatives articulated by iQar are the only options provided by Kudo-325's disclosure (they are not), the Petitioner's position for claim 10 remains consistent with these options. As noted *supra*, one of the options that iQar contends is offered by Kudo-325 is to “upload all the history data to a server such that prediction is performed remotely.” POR, 19. This is perfectly consistent with the situation that occurs in the Kudo-325/Kudo-066 satisfaction of claim 10: all sensor data samples, including sensor data samples along the vehicle's trip as well as the sensor data for the vehicle's final location (*i.e.*, the predicted destination) are provided to the server. The act of predicting the destination can similarly occur at the server, or can remain local to the vehicle. Either way, claim 10 is rendered obvious.

Claim 10 is obvious

Petition

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.