

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.,
Petitioner,

v.

IQAR INC.,
Patent Owner.

IPR2024-00499
Patent 10,829,002 B2

Before JASON W. MELVIN, SEAN P. O'HANLON, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

DOUGAL, *Administrative Patent Judge*.

JUDGMENT
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

A. *Background and Summary*

Petitioner, Tesla, Inc., filed a Petition to institute an *inter partes* review challenging the patentability of claims 1–17 (the “challenged claims”) of U.S. Patent 10,829,002 B2 (Ex. 1001, “the ’002 patent”). Paper 2 (“Pet.”). Patent Owner, iQar, Inc., filed a Preliminary Response. Paper 6. Applying the standard set forth in 35 U.S.C. § 314(a), we instituted an *inter partes* review of all challenged claims. Paper 7 (“Dec.”).

Patent Owner filed a Response (Paper 11, “PO Resp.”), Petitioner filed a Reply (Paper 13, “Reply”), and Patent Owner filed a Sur-reply (Paper 16, “Sur-reply”). An oral hearing was held on May 8, 2025, and a copy of the transcript is in the record. Paper 20.

We have jurisdiction under 35 U.S.C. § 6. This Decision is a Final Written Decision under 35 U.S.C. § 318(a). Having reviewed the arguments and supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence, that the challenged claims are unpatentable.

B. *The ’002 Patent*

The ’002 patent is titled “Vehicle Destination Prediction” and is directed to “systems for controlling power applied to a vehicle engine.” Ex. 1001, code (54), 1:15–16. The ’002 patent also discusses a method of determining a route that includes predicting the destination using statistical analysis. *Id.* at 11:50–13:63. “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.” *Id.* at 12:5–9. The current inputs are compared against stored historical data of these inputs to determine the likely destination. *Id.* at 12:18–34.

C. Illustrative Claim

Of the challenged claims, 1, 15, and 16 are independent. Claim 1, reproduced below, is illustrative:

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.

Ex. 1001, 27:35–58.

D. Evidence

Petitioner's grounds of unpatentability rely on the following evidence:

Name	Patent Document	Exhibit
Kudo-325	US 2005/0251325 A1 (Nov. 10, 2005)	1004
Kudo-066	US 2004/0128066 A1 (July 1, 2004)	1005
Tryon	US 2005/0228553 A1 (Oct. 13, 2005)	1006
Bolger	US 5,471,393 (Nov. 28, 1995)	1007

E. Prior Art and Asserted Grounds

Petitioner asserts the following grounds of unpatentability (Pet. 1), supported by the declaration of Dr. Vassilios Morellas (Ex. 1003):

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–16	103(a) ¹	Kudo-325, Kudo-066
3	103(a)	Kudo-325, Kudo-066, Bolger
17	103(a)	Kudo-325, Kudo-066, Tryon

II. ANALYSIS

A. Legal Standards

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). A claim is unpatentable as obvious if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103(a)). We resolve the question of obviousness based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the prior art and the claims; (3) the level of skill in the art; and (4) when in evidence, objective indicia of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the Petition’s challenges.

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. § 103 effective March 16, 2013. We refer to the pre-AIA version of § 103.

B. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention (“POSITA”). *Id.* at 13, 17. Petitioner asserts that a person of ordinary skill in the art:

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*.

Pet. 3 (citing Ex. 1003 ¶ 27).

Patent Owner does not directly address Petitioner’s level of skill. *See generally*, PO Resp. We are persuaded that Petitioner’s proposal is consistent with the problems and solutions in the ’002 patent and prior art of record. Thus, we adopt Petitioner’s definition of the level of skill.

C. Claim Construction- “data, regarding multiple route segments”

We construe claims in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent. 37 C.F.R. § 42.100(b).

Patent Owner implicitly argues that “data, regarding multiple route segments” in the independent claims requires “information regarding the route the vehicle traveled between the [end points of the route segment].” PO Resp. 10; *see also* Reply 2–7 (Petitioner’s arguments concerning the implicit construction). Patent Owner expounds on this by arguing that if there are two ways to travel between points A and B, the “data” must include an indication of which route was traveled between the end points. PO Resp. 11–14; *see also* Sur-reply 6–7. However, this argument is not commensurate with the scope of the claims.

The claims merely require “data, regarding” the route segments. The claims do not define, or require, a particular level of detail of that data, other than that it be “regarding” the route segments. The claims do not require recording the entire path traveled between points A and B, or sufficient information to determine if the most direct path was taken between points A and B as argued by Patent Owner.

Petitioner argues, and we agree, that the starting point and endpoint of a route segment is “data, regarding a route segment.” We see no teaching or claim limitation in the ’002 Patent that would require the data to include additional detail about the route segment.

Other language in the independent claims supports this understanding. In our Institution Decision, we preliminarily found that Patent Owner’s argument failed to “address all of the relevant claim language.” Dec. 16. We pointed to the fact that claim 1 also requires “a memory configured to store said sensor data samples for different points in time along a route segment traveled by said vehicle.” *Id.* (quoting Ex. 1001, 37:38–40). We further preliminarily found that “the claim appears to explicitly allow for data regarding a route segment to be stored in the memory at ‘different points in time along a route segment.’” *Id.*

Patent Owner responds that this limitation deals with a type of data (namely, data collected during the current operation) different from the “data, regarding multiple route segments,” which is historical data. PO Resp. 15–16; *see also* Ex. 2001 ¶¶ 127–130 (Patent Owner’s declarant making the same argument).

We agree that the independent claims deal with the data in different ways, based on whether the data is being obtained during the current operation, or was previously obtained. At the same time, the Specification implies that some of the historical data is data that was collected during a

previous “current operation.” *See, e.g.*, Ex. 1001, 17:30–49, 17:63–18:15, 22:51–63. We further find that, though not controlling on how the historical data is obtained, this claim language and the associated teachings in the Specification are informative of what one of skill in the art would understand the ’002 Patent as teaching of how some of the historical data is obtained. They both impliedly teach that current operation data concerning a route segment later becomes historical data concerning a route segment.

The claim itself links the historical data to the prior data collection, i.e., a *previous* “current operation,” when it specifies for each of the three types of historical data, that it is “gathered from the driver’s operation of the vehicle on the multiple route segments during multiple trips.” Ex. 1001, 27:49–55.

Thus, for all of the above reasons, we decline to construe “data, regarding multiple route segments” to *require* the data include information regarding the route the vehicle traveled between the starting and end points of the route segment. Rather, this is but one example of the type of data included within the scope of the claim.

We further make final our preliminary finding that the claim explicitly allows for data, regarding a route segment to be stored in the memory at “different points in time along a route segment.”

We determine that no other terms need to be construed. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

D. 35 U.S.C. § 103 – Kudo-325, Kudo-066

Petitioner argues that the combination of Kudo-325 and Kudo-066 renders obvious claims 1–16. Pet. 5–77. Patent Owner disagrees. PO Resp 6–16.

For the reasons expressed below, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kudo-325 and Kudo-066 teaches or suggests claims 1–16.

1. Kudo-325

Kudo-325 is directed to “predicting a travel destination from the travel history while storing users’ travel history, and acquiring information relating to the predicted travel destination through a network or the like, using information equipment capable of sensing position information, such as a car navigation system.” Ex. 1004 ¶ 1.

2. Kudo-066

Kudo-066 also describes a destination prediction system. Ex. 1005, code (57). As relevant to the present ground, Kudo-066 teaches housing a map information database at a server and detecting vehicle position using GPS. *Id.* ¶¶ 63, 68.

3. Independent Claims

Petitioner argues that independent claims 1, 15, and 16 are taught by the combination of Kudo-325 and Kudo-066. Pet. 5–62, 76–77. The independent claims include similar limitations and thus, Petitioner primarily relies on the arguments for claim 1 to show how claims 15 and 16 would be obvious. *Id.* at 76–77. Similarly, Patent Owner argues all of the independent claims together. PO Resp. 6–16. We address claim 1 as representative, and determine below that Petitioner establishes by a preponderance of the evidence that the combination teaches or suggests the independent claims.

a) Uncontested Limitations – Sensor Data

Claim 1 requires:

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

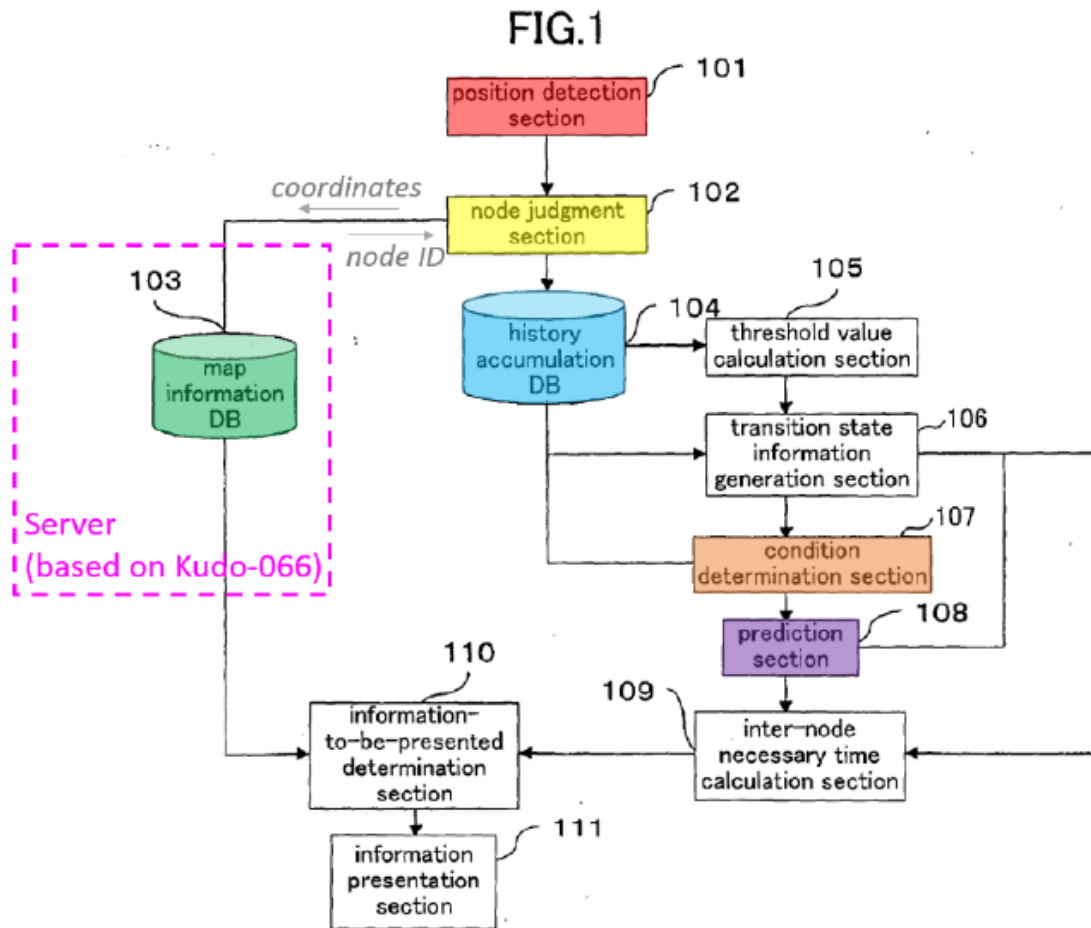
a processor configured to (i) analyze said sensor data samples stored in said memory . . . wherein (i) at least one of said sensor data samples is driver-related and (ii) at least one of said sensor data samples comprises telemetry data; and

wherein the historical data comprises: . . . data, regarding multiple travel destinations, gathered from the driver's operation of the vehicle to the multiple travel destinations during the multiple trips.

Ex. 1001, 27:35–58.

As will be noted, the above limitations largely deal with sensor data and the type of data stored in memory and analyzed by the processor. Patent Owner does not contest that these limitations are taught or suggested by the combination of Kudo-325 and Kudo-066. *See* PO Resp. 6–16.

Petitioner refers to Kudo-325 Figure 1 (reproduced below as modified by Petitioner) to illustrate how the combination of references teaches many of these claim limitations. Pet. 14.



Kudo-325 Figure 1 is an outline of components in “an information acquisition system.” Ex. 1004 ¶ 20. Petitioner has added different color highlighting to features 101–104, 107 and 108. Pet. 14. Petitioner has also added a dotted line box and the words “Server (based on Kudo-066)” around 103. *Id.* Finally, Petitioner has added the word “coordinates” and a left-facing arrow and “node ID” with a right-facing arrow between 103 (on the left) and 102 (on the right). *Id.*

Petitioner argues that the entirety of Figure 1, minus the map information 103, makes up the claimed “power management device.” Pet. 24–25 (citing e.g., Ex. 1004 ¶¶ 68, 77, 179, Fig. 1). Petitioner further argues that Kudo-325 teaches the claimed sensor interface and memory, by the respective “position detection section 101” (highlighted in red) and “history

accumulation 104” (highlighted in blue). *Id.* at 14, 27–28, 33–34 (citing e.g., Ex. 1004 ¶¶ 77–78, 90, Fig. 1).

Concerning sensor data samples, including the various specific types required by the claims, Petitioner provides extensive argument and evidence that these are also taught by the combination of Kudo-325 and Kudo-066. *See, e.g., id.* at 26–33 (citing e.g., Ex. 1003 ¶¶ 93–113; Ex. 1004 ¶¶ 14, 77, 87, 90, 94, 96, 140, Figs. 1, 4; Ex. 1005 ¶¶ 63, 71, 87, Fig. 3), 49–54 (driver-related, telemetry data, historical data) (citing e.g., Ex. 1003 ¶¶ 144–152; Ex. 1004 ¶¶ 77, 87, 90, 140–141, Figs. 1, 3; Ex. 1005 ¶¶ 63, 68, 71), 56–62 (historical data) (citing e.g., Ex. 1003 ¶¶ 166–173; Ex. 1004 ¶¶ 14, 87–88, 91–93, 96–104, 109, Fig. 5). Petitioner also provides reasons to combine Kudo-325 and Kudo-066 related to the sensor data. *See, e.g., id.* at 13–23 (citing e.g., Ex. 1003 ¶¶ 50–88).

Concerning the claimed “a processor configured to (i) analyze said sensor data samples stored in said memory,” Petitioner argues that “[a] POSITA would have understood that the analysis of sensor data samples [done in Kudo-325] is performed by *a processor*.” *Id.* at 41 (citing Ex. 1003 ¶ 133). Petitioner explains that this is the analysis done at Kudo-325’s Figure 1 “condition determination section 107” (highlighted in tan) and “prediction section 108” (highlighted in purple). *Id.* at 38–42.

We have analyzed Petitioner’s arguments and cited evidence, and determine that Petitioner has shown by a preponderance of the evidence that the combination teaches or suggests the above-identified limitations of claim 1.

b) Detect a Pattern, Predicting a destination

Claim 1 also requires:

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.

Ex. 1001, 27:41–44 (emphasis added).

In the prior section we dealt with how the Petition shows Kudo-325 teaches a processor. Here we address the italicized limitations noted above, related to “detecting” and “predicting.” Petitioner argues generally that Kudo-325 teaches comparing data about a current trip to historical trip data in order to detect a pattern and then predict a destination. Pet. 38–40.

Patent Owner admits that “[t]he systems of Kudo 325 and Kudo 066 do predict a vehicle’s destination.” PO Resp. 16. However, Patent Owner argues that “they do not do so ‘in response’ to a ‘pattern’ and the types of ‘historical data’ the ’002 patent’s claims require.” *Id.* Concerning the “historical data,” Patent Owner directs us to their arguments about “historical data” which we address, and do not find convincing, in the following section.

Concerning a “pattern,” Patent Owner provides no analysis and explanation of their position. *See id.* We decline to guess Patent Owner’s thinking or reasoning.

We have analyzed Petitioner’s arguments and cited evidence, and determine that Petitioner has shown by a preponderance of the evidence that the combination teaches or suggests the above-identified limitations of claim 1. For example, we find convincing Petitioner’s arguments as summarized below.

Petitioner argues that Kudo-325 teaches that the condition determination section (107 in Fig. 1), acquires information about the current state of the vehicle from the sensor data samples stored in memory, including time, location, identity of the driver, etc. Pet. 38 (citing Ex. 1004 ¶¶ 51, 72, 96; Ex. 1003 ¶ 128), 41 (citing Ex. 1004 ¶¶ 14, 88, 94). This

sensor data is analyzed to determine certain conditions defining the trip, such as whether it is morning or afternoon, a weekday or weekend, the season, etc. *Id.* at 39–40 (citing e.g., Ex. 1004 ¶¶ 13–14, 79, 93, 96, 136, Figs. 5, 28). Petitioner argues that:

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. 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***.

Id. at 40 (citing Ex. 1004 ¶¶ 13–14, 51–52, 96–97, 102; Ex. 1003 ¶ 130).

Petitioner gives the following 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.

Id. at 41 (underlining emphasis omitted) (citing Ex. 1004 ¶¶ 96–97, 102).

Petitioner further argues that stored information on the driver can also be used as “[k]ey information serving as a condition for retrieval” (***detect a pattern***), e.g., in addition to position and time/date.” *Id.* (alteration in original) (citing Ex. 1004 ¶¶ 14, 88, 94; Ex. 1003 ¶ 132).

Petitioner argues that once the pattern is detected, it is used to predict the destination by comparison to saved historical data from previous trips.

Id. at 42–49 (citing e.g., Ex. 1004 ¶¶ 13–14, 17–18, 51–53, 56, 61, 72–73, 78, 87–88, 91–92, 96–99, 102, 104, 109, 140, Figs. 1, 3, 4, 6; Ex. 1003 ¶¶ 135–143).

Thus, we determine that Petitioner has shown by a preponderance of the evidence that the combination teaches or suggests the above-identified limitations of claim 1.

c) Route Segments

Claim 1 also requires particular types of historical data related to route segments from prior trips, as follows:

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.

Ex. 1001, 27:49–55 (emphasis added).

Petitioner argues that the travel history recorded by Kudo-325 is consistent with these types of data. Pet. 42; 54. For example, Petitioner points to Kudo-325 as teaching “a history accumulation database [that] stores ‘a travel route obtained from a history of the position information of the automobile.’” *Id.* at 42 (quoting Ex. 1004 ¶ 78). Petitioner then provides extensive analysis of the recorded information, including the “vehicle position, time/date, frequency, and driver.” *Id.* at 44–45.

Petitioner also argues that “[a]lternatively/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.* at 54. Petitioner points in particular to Kudo-325 Figure 5, reproduced below, as showing historical data regarding multiple route segments and multiple sequences of route segments. *id.* at 54–62.

FIG.5

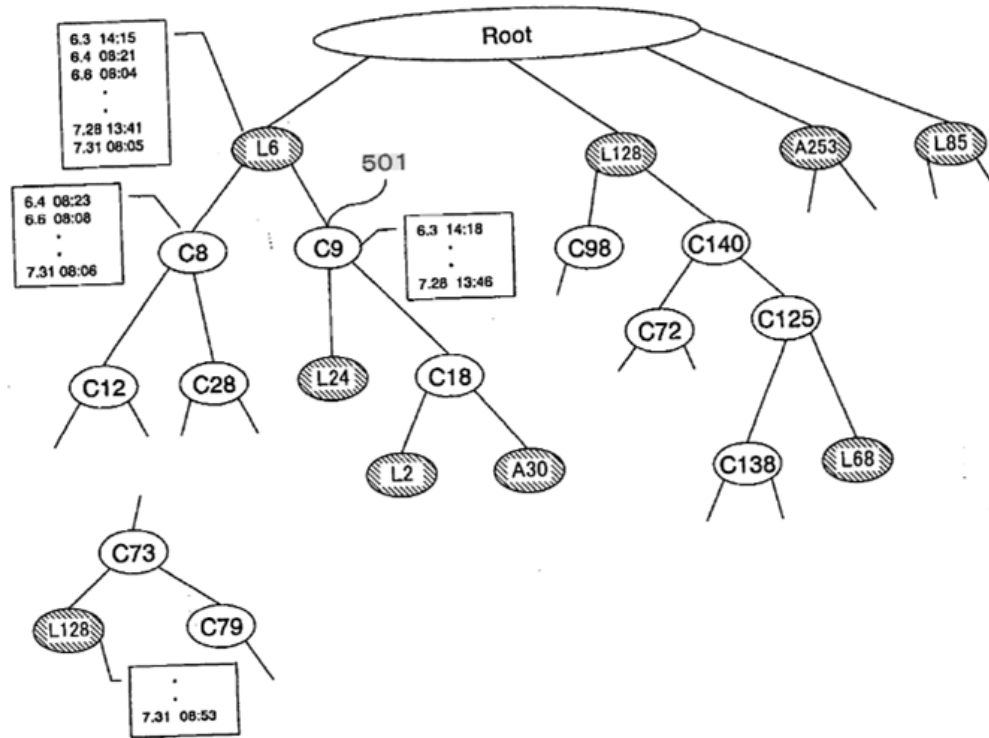


Figure 5 illustrates transition state information which has a tree structure. Ex. 1004 ¶¶ 24, 93. Figure 5 further shows how travel information is recorded based on travel between different nodes, which represent different landmarks or areas. *Id.* ¶ 93. Kudo-325 describes the stored transition state information as follows:

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 state information indicating that the automobile departs from, passes through or arrives at the node (data indicated in rectangular areas in **FIG. 5**), can be retrieved through the tree structure under a condition such as “a node where the automobile travels in a period from 9 a.m.

to 12 p.m. of weekday['] as a retrieval key. Also, the number of pieces of the accompanying state information offers to respective frequencies of departure from, passing through and arrival at the node.

Id.

Petitioner argues that:

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. Thus, connections between nodes in the transition state information (*e.g.*, connections . . . between nodes) correspond to ***multiple route segments***.

Pet. 54 (citing Ex. 1003 ¶ 153). For example, Petitioner highlights the line connecting nodes L6 and C9 in Figure 5 as indicative of a route segment. *Id.* at 55.

Petitioner argues that:

The sequences of segments that constitute trips from starting to destination nodes correspond to ***sequences of route segments*** For instance, a trip from L6 to L24 includes a sequence of two segments . . . : L6-C9 and C9-L24. Another trip, from L6 to L2, includes a sequence of three segments . . . : L6-C9, C9-C18, and C18-L2. 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***.

Pet. 55–56 (citing Ex. 1004 ¶¶ 87, 93; Ex. 1003 ¶¶ 159–160).

Petitioner argues that the stored historical data regarding the multiple route segments and sequences of route segments includes the information stored for the various nodes, which includes, node IDs, dates, times, information on drivers and passengers, and “‘frequencies of departure from, passing through and arrival at’ each node.” *Id.* at 57–58 (citing Ex. 1004 ¶¶ 93–94, Fig. 5; Ex. 1003 ¶¶ 154, 161, 168).

Petitioner also argues that this information was gathered from operation of the vehicle during multiple trips. *Id.* at 59. In particular, Petitioner explains in reference to Kudo-325's Figure 5 that

State information . . . 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).

Id. (citing Ex. 1003 ¶ 156). Petitioner further argues that

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*).

Id. (citing Ex. 1003 ¶¶ 163, 170).

In response, Patent Owner argues that “‘data ... regarding multiple route segments’ and ‘data ... regarding multiple sequences of route segments’” must include “data regarding *portions* of a route (and not just *individual points* along a route).” PO Resp. 6. Patent Owner continues, arguing that data stored about Kudo-325's nodes is not data regarding route segments. PO Resp. 8–9. This is because “[p]oint 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.” *Id.* at 10.

At the same time, Patent Owner admits that Kudo-325 teaches that the transition state information includes “a list of (or pointers to) all other nodes to which the vehicle previously traveled from that node.” *Id.* at 9 (citing Ex. 1004 ¶ 93). Patent Owner admits that Kudo-325 teaches “example node C9

in Figure 5 will list both nodes L24 and C18, as the vehicle traveled to both these nodes from C9 at some point.” *Id.* As explained above, it is Petitioner’s position that this collection of transition state information in Kudo-325 includes both “data, regarding multiple route segments,” and “data, regarding multiple sequences of route segments.”

Patent Owner argues that this data stored by Kudo-325 is not data regarding route segments because it does not identify “what occurred—or what path the vehicle traveled—between the different nodes in Kudo 325’s transition state data.” PO Resp. 9. However, we have rejected herein Patent Owner’s implicit claim construction argument that such additional information is required. Though the exact the path traveled between a starting and end point is data regarding a route segment, the starting and end points are also data regarding a route segment. As acknowledged by Patent Owner, Kudo 325’s transition state data includes the starting and end points of route segments, as well as “a list of (or pointers to) all other nodes to which the vehicle previously traveled from that node.” PO Resp. 9 (citing Ex. 1004 ¶ 93).

After our review of the evidence and arguments, summarized above, we determine that Petitioner has shown by a preponderance of the evidence that the combination teaches or suggests “data, regarding multiple route segments,” and “data, regarding multiple sequences of route segments” as required by claim 1.

d) Conclusion

For the reasons discussed above, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kudo-325 and Kudo-066 teaches or suggests claims 1, 15 and 16.

4. *Dependent Claims 2–3*

Petitioner argues that dependent claims 2–3 are obvious over the combination of Kudo-325 and Kudo-066. Pet. 62–63.

Claims 2 and 3 both depend directly from claim 1 and require telemetry data that comprises map coordinates. Ex. 1001, 27:59–64. Claim 1 requires that the telemetry data be stored in a memory. *Id.* at 27:38–47.

Patent Owner admits that Kudo-325 teaches collecting “‘position information such as latitude and longitude’ . . . during vehicle operation.” PO Resp. 17 (quoting Ex. 1004 ¶ 90). However, Patent Owner argues that this telemetry data / map coordinates is not stored in the memory.

Patent Owner also acknowledges that Kudo-325 teaches using the position information “to determine ‘whether the current position is a node or not by referencing the map information DB 103.’” *Id.* (quoting Ex. 1004 ¶ 90). Patent Owner further acknowledges that Kudo-325 teaches storing the node if there is a correspondence. *Id.* at 19–20.

Patent Owner correctly notes that “Kudo 325 explains that nodes represent ‘intersections, landmarks, area names, and the like,’” and that they “‘may correspond to ‘a range’ of positions ‘within a 10-m radius of a representative point as a center.’” (*Id.* at 17–18 (quoting Ex. 1004 ¶¶ 81, 83).

At the same time, Patent Owner does not explicitly acknowledge that Kudo-325 also teaches that “the nodes are stored together with information indicating the positions such as latitude/longitude information of representative points.” Ex. 1004 ¶ 82; *see also* Pet. 62; Ex. 1003 ¶ 174–177; Reply 17–18.

Patent Owner does argue that a node cannot be a map coordinate because it “‘may correspond to ‘a range’ of positions ‘within a 10-m radius of a representative point as a center.’” PO Resp. 18 (quoting Ex. 1004 ¶ 83). Thus, a node represents an area on a map, not a map coordinate. *Id.* This is

an argument about the resolution of the map coordinates, not that the saved node information does not include map coordinates.

Kudu-325's teaching of the storing of the latitude/longitude information of a representative point of a node (Ex. 1004 ¶ 82), teaches telemetry data / map coordinates as required by the claims. The claims do not require a particular resolution of the map coordinates, such as within 5m/15ft or 1m/3ft or 10m/30ft of the location traveled by the vehicle. *See e.g.* Ex. 1001, 27:36–40, 27:59–64. As discussed in the Petition, Kudu-325 teaches using a GPS signal/map service to determine the relevant node, which includes map coordinates in the form of latitude/longitude. Pet. 62–63 (citing Ex. 1004 ¶¶ 81–82, 82, 90, Fig. 2; Ex. 1003 ¶¶ 174–177). This map coordinates information is saved to memory, thus satisfying the claimed limitations. *Id.*

After our review of Petitioner's assertions and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kudo-325 and Kudo-066 teaches or suggests claims 2–3.

5. *Dependent Claims 8, 10*

Petitioner argues that dependent claims 8 and 10 are obvious over the combination of Kudo-325 and Kudo-066. Pet. 66–71, 73–74. Claim 10 depends from claim 8, which depends from claim 1. Ex. 1001, 28:9, 28:17. Patent Owner argues that claim 10 is patentable over the combined references. PO Resp. 18–20. We address both claims, as features of claim 8 impact our discussion of claim 10.

Claims 8 and 10 recite:

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.

Ex. 1001, 28:9–11, 28:17–20 (paragraphing added).

Concerning claim 8, Petitioner argues, and Patent Owner appears to agree, that Kudu-325 teaches transmitting a predicted destination to a database or server. *See e.g.* Pet. 67 (citing Ex. 1004 ¶ 107); *see also* PO Resp. 19–20 (Patent Owner stating that Kudo 325 teaches “perform the [destination] prediction locally, then upload only the prediction” to the server). It is not contested that the server or database in the combination is remote. *See* Pet. 66–68; PO Resp. 18–20.

Petitioner also points to the disclosure of Kudo-066 for teaching that the predicted destination is sent to a remote server for the purpose of searching for relevant information which would then be sent back to the vehicle and provided to a user. Pet. 67–68 (citing Ex. 1005 ¶¶ 91–95, 150); *see also* Ex. 1005 ¶ 64.

Moving to claim 10, Petitioner argues that one of skill in the art would be motivated to implement Kudo-325’s historical accumulation database at the server. Pet. 73, 68, 70. Petitioner argues that Kudo-325 teaches that “a part of the functions that a car navigation system has may be provided in a server on a network.” *Id.* at 68 (quoting Ex. 1004 ¶ 75). Petitioner further argues that doing so would beneficially allow remotely stored historical data to be accessible to multiple vehicles. *Id.* at 70 (citing Ex. 1003 ¶ 203). Petitioner argues that housing this information at the server is a known technique and would yield predictable results. *Id.* (citing Ex. 1003 ¶ 204).

Petitioner argues that Kudo-325 teaches storing sensor data samples including historical data at the historical accumulation database. Pet. 73–74 (citing Ex. 1004 ¶¶ 14, 75, 78, 87–88, 90–92, 94, 96, Fig. 3; Ex. 1003 ¶¶ 218–220). Petitioner further argues that “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.” *Id.* at 74 (citing Ex. 1003 ¶ 221).

Patent Owner agrees that Kudo-325 teaches uploading “history data to a server,” but argues that in these embodiments the destination prediction is performed at the server and thus, does not also teach transmitting the predicted destination to the remote database as also required. PO Resp. 19–20. Patent Owner and its declarant point to paragraph 108 of Kudo-325 for support. *Id.*; Ex. 2001 ¶¶ 147–163. This paragraph provides one example of information that can be uploaded to the server, stating: “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.” Ex. 1004 ¶ 108.

However, Patent Owner’s argument ignores the express teaching of Kudo-325 that “a part of the functions that a car navigation system has may be provided in a server on a network.” Ex. 1004 ¶ 75; *see also* Pet. 68, 71; Reply 20. This statement conveys that the disclosure is not limited to the express examples provided for how a server is used by the system. Patent Owner’s argument also ignores Petitioner’s extensive arguments, discussed above, that one of skill in the art would be motivated to implement Kudo-325’s historical accumulation database at the server. Pet. 73, 68, 70; Reply 19–20.

We agree with Petitioner, and its declarant, that “[w]hen 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.” Pet. 74 (citing Ex. 1003 ¶ 221).

After our review of Petitioner’s assertions and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kudo-325 and Kudo-066 teaches or suggests claims 8 and 10.

6. *Dependent Claims 4–7, 9, 11–14*

Petitioner argues that dependent claims 4–7, 9, and 11–14 are obvious over the combination of Kudo-325 and Kudo-066. Pet. 63–73, 75–76. Patent Owner does not advance any additional arguments with respect to these claims that we have not already addressed above.

After our review of Petitioner’s assertions and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kudo-325 and Kudo-066 teaches or suggests claims 4–7, 9, and 11–14.

E. *35 U.S.C. § 103 – Kudo-325, Kudo-066, Tryon*

Petitioner argues that claim 17 is obvious over the combination of Kudo-325, Kudo-066, and Tryon. Pet. 81–90. Patent Owner does not address this ground. *See generally*, PO Resp.

Claim 17 depends from claim 16 and includes “adapt[ing] an operation of said vehicle based on said predicted destination.” Ex. 1001, 29:13–16. Petitioner argues that one of skill in the art would combine the predicted destinations of Kudo-325 and Kudo-066 with Tryon’s teachings “to operate on stored energy or to generate electric power” to arrive at the

predicted destination. Pet. 84 (citing Ex. 1006 ¶¶ 27, 69; Ex. 1003 ¶ 262). Petitioner argues that the combination would help “achieve fuel efficiency, as described by Tryon and discussed by Dr. Morellas,” among other benefits and reasons to combine. *Id.* at 86 (citing Ex. 1006 ¶ 40; Ex. 1003 ¶ 264).

After our review of Petitioner’s assertions and the supporting evidence, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Kudo-325, Kudo-066, and Tryon teaches or suggests claim 17.

F. 35 U.S.C. § 103 – Kudo-325, Kudo-066, Bolger

Petitioner argues that claim 3 is obvious over the combination of Kudo-325, Kudo-066, and Bolger. Pet. 77–81.

As we have determined that claim 3 is unpatentable as obvious over Kudo-325 and Kudo-066, it is unnecessary to address this additional ground. *See* 35 U.S.C. § 318(a). Thus, there is no additional dispute to resolve between the parties regarding these claims, and we decline to separately address this additional ground of unpatentability.

III. CONCLUSION²

For the foregoing reasons, we determine that Petitioner has proven by the preponderance of the evidence that the challenged claims are unpatentable, as summarized below.

Claims	35 U.S.C. §	Reference(s) /Basis	Claims Shown	Claims Not shown
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² Should Patent Owner wish to pursue amendment of the claims in a reissue or reexamination, we note the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If a reissue or reexamination is pursued, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. § 42.8(a)(3), (b)(2).

			Unpatentable	Unpatentable
1–16	103	Kudo-325, Kudo-066	1–16	
17	103	Kudo-325, Kudo-066, Tryon	17	
3	103 ³	Kudo-325, Kudo-066, Bolger		
Overall Outcome			1–17	

IV. ORDER

In consideration of the foregoing, it is hereby ORDERED that:

Claims 1–17 of U.S. Patent 10,829,002 B2 have been shown to be unpatentable; and

Parties seeking judicial review of this Final Written Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

³ As explained above, because we determine that claim 3 is unpatentable over Kudo-325 and Kudo-066, we decline to address this additional ground.

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