

Petitioner's Oral Hearing Demonstratives

Tesla, Inc. (Petitioner)

v.

iQar Inc. (Patent Owner)

IPR2024-00543 (U.S. Patent No. 10,882,399)

Before Hon. Jason W. Melvin, Sean P. O'Hanlon, and Brent M. Dougal

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Overview

IPR Grounds

Overview of IPR Grounds

Challenged Claim(s)	Prior Art
1, 2, 5, 6, 9-12, 15, 16, 19, 20	Hongo, Obradovich, Niki
3, 4, 13, 14	Hongo, Obradovich, Niki, Kudo
7, 17	Hongo, Obradovich, Niki, Kuroda
8, 18	Hongo, Obradovich, Niki, Newstrom

The '399 Patent

Subject Matter Overview

'399 Patent Specification

The invention relates to devices, methods and systems for **controlling power applied to a vehicle engine**.

TESLA-1001, 1:16-18 (cited in Pet., 3 and ID, 3-4)

Management of a vehicle's power supply typically involves optimization of the power supplied to the engine...As will be apparent below, optimizing the power supplied to the engine typically means minimizing the energy loss from the vehicle, thereby increasing fuel efficiency. The power supplied to the engine may alternatively be optimized based on other criterion. For example, the **power supplied to the engine may be optimized with respect to speed or travel time**.

TESLA-1001, 6:39-60 (cited in Pet., 21)

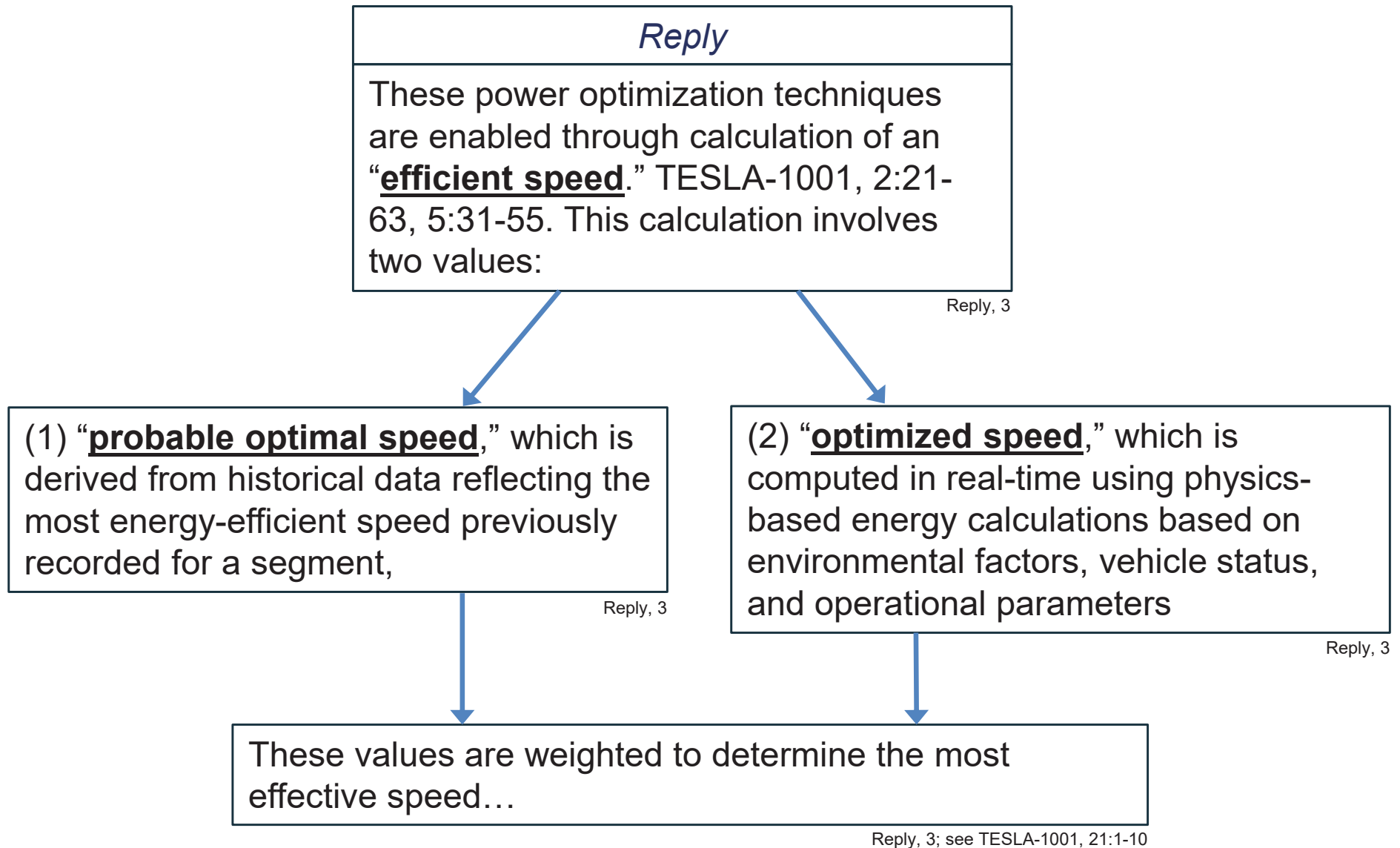
Representative Claim – Claim 1

Claim 1

1. A method of electric vehicle operation, comprising:
 - [1.a] determining a segment of a vehicle route;
 - [1.b.1] determining information about an external environment of a vehicle,
 - [1.b.2] information about operational status of the vehicle,
 - [1.b.3] information from external command input telemetry
 - [1.b.4] in combination with user command inputs to the vehicle including voice command inputs; and
 - [1.c] applying calculated electric power to the vehicle to travel along the segment of the vehicle route at a calculated speed.

TESLA-1001, Claim 1 (cited in Pet., v)

The '399 Patent



The '399 Patent - Probable Optimal Speed Determination

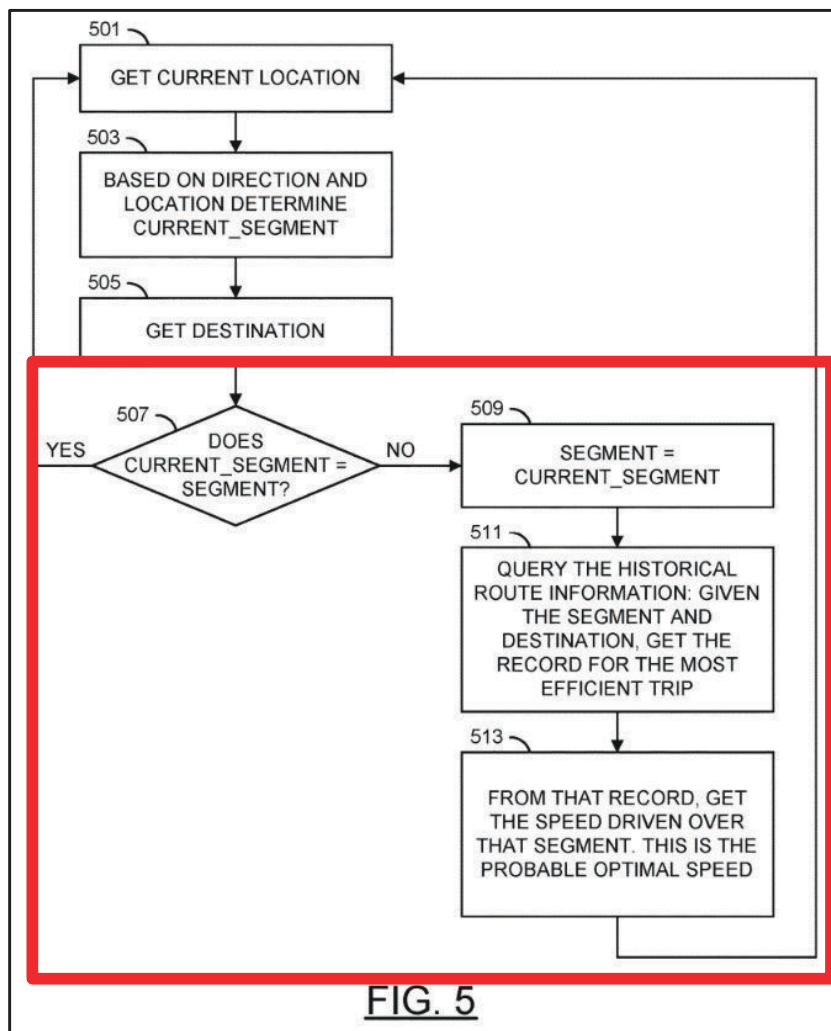


FIG. 5

TESLA-1001, FIG. 5 (cited in Reply, 4, 7)

'399 Patent Specification

...If the answer is “yes,” then nothing needs to be done until the next time the location is measured. If the answer is “no,” then the database is examined to find the historical information about this segment. For example, the historical information is queried to determine what speed the vehicle was traveling every time that the vehicle (or the specific driver of the vehicle) was in the same segment going to the predicted destination. In particular, the historical information is queried to determine how fast the vehicle was traveling during the trip in which the vehicle used the least amount of energy over the same route. The result of this query gives a speed that is most likely the best (e.g., most efficient) speed to travel for the current trip. The process can iteratively repeat for the next location measurement as the vehicle continues.

TESLA-1001, 18:25-67 (cited in Reply, 4)

The '399 Patent – Optimized Speed Determination

'399 Patent Specification

Simulation of the power requirement of the vehicle may estimate power requirements at different speeds. Thus, **the speed(s) that the vehicle travels the route (or a segment of the route) can be optimized.** For example, the simulation could determine the most energy efficient speed for the vehicle to travel over one or more segments by **minimizing the power requirement for the vehicle** while allowing the speed to vary within the range of acceptable speeds.

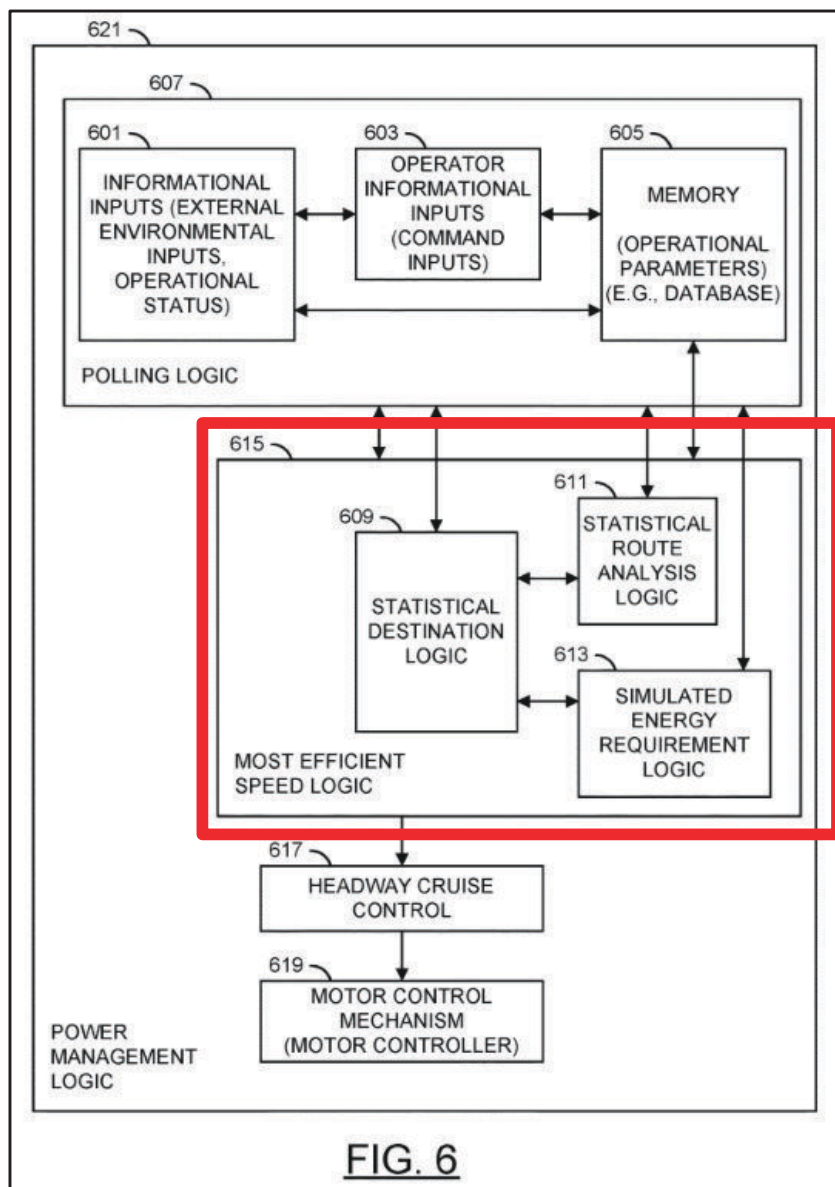
TESLA-1001, 14:47-56 (cited in ID, 3-5)

'399 Patent Specification

The simulated energy requirement logic can calculate the required applied power for the vehicle by **calculating different power requirements for all or a portion of the route** (e.g., the first segment) when the speed of the vehicle is within the range of speeds acceptable for traveling this section of the route. For example, if the target speed for a portion of the route is 60 mph with a range of + 1-5 mph, the **simulated energy requirement logic may determine the speed at which the energy requirement is lowest that is closest to the desired speed (60 mph).**

TESLA-1001, 15:3-13 (cited in ID, 5)

The '399 Patent – Efficient Speed Determination



TESLA-1001, FIG. 6 (cited in Reply, 22)

'399 Patent Specification

In FIG. 6, the polling logic **607** coordinates the activity of information inputs **601**, **603**, **605**. The information inputs are also linked to each other and to the statistical destination logic **609**, statistical route analysis logic **611**, and simulated energy requirement logic **613**.

TESLA-1001, 21:11-42 (cited in Reply 4)

As described above, simulated energy requirement logic may determine a **calculated optimized speed** for the vehicle, and statistical route analysis logic may be used to determine a **probable optimal speed**. The power management device or system may also include derived efficient speed logic that determines the **most efficient speed** or power to be applied to the vehicle engine, as described above.

TESLA-1001, 21:1-10 (cited in Reply 4)

The '399 Patent – Calculating Power

Institution Decision

Patent Owner's arguments are unavailing because they contradict the '399 patent. For example, **the '399 patent discloses calculating power as a function of the calculated speed.**

See, e.g., Ex. 1001, 2:53–55 (“The applied power may also be expressed as an optimized speed or speeds to which the vehicle is controlled.”), 2:60–63 (“the devices, systems, and methods described herein may optimize the power consumption of an automotive vehicle by controlling the final speed of the vehicle”).

ID, 22

Reply, 3

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Key Prior Art

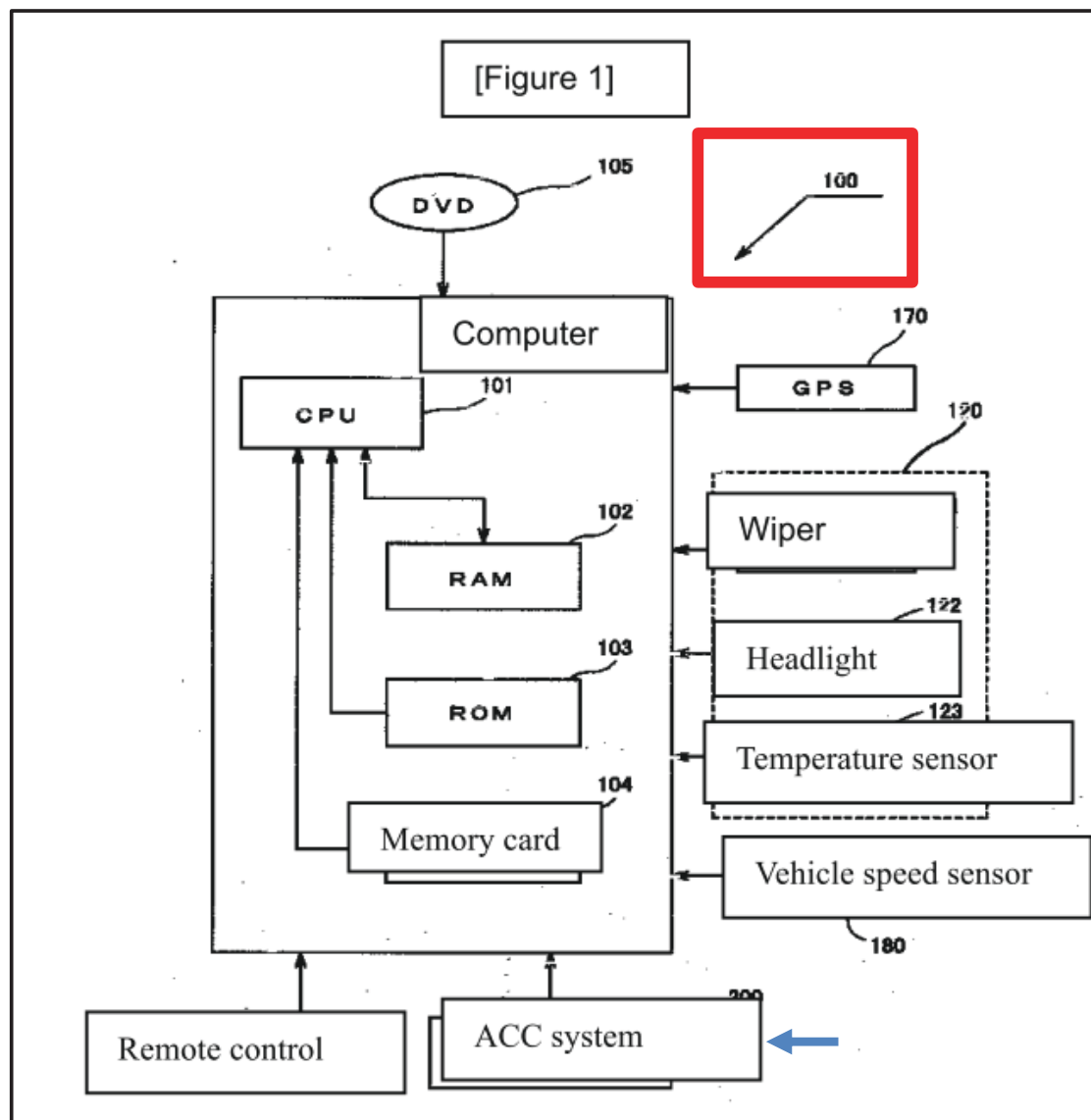
Hongo (JP 2003-276472)

Hongo (JP 2003-276472)

Hongo

FIG. 1 is a system configuration diagram of a **target vehicle speed determining device 100** according to an embodiment of the present invention.

TESLA-1005, [0022] (cited in Pet., 6)



TESLA-1005, FIG. 1 (cited in Pet., 6)

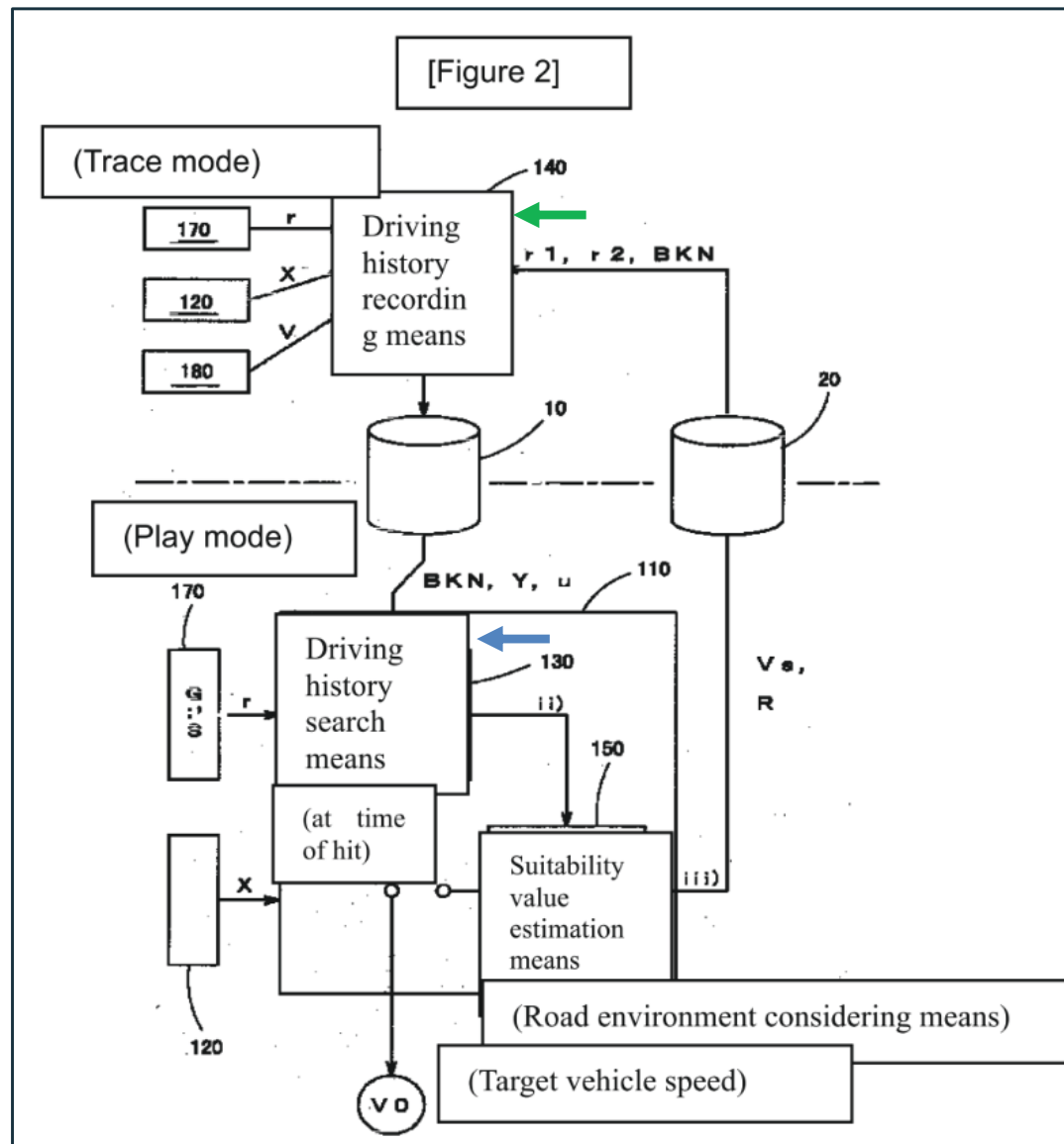
Hongo (JP 2003-276472)

Hongo

FIG. 2 is a data flow related diagram illustrating an overview of the operation of the target vehicle speed determining device 100.

In the following embodiments, an implementation scheme having both a "trace mode" and a "playback mode" is disclosed.

TESLA-1005, [0025] (cited in Pet., 26)



TESLA-1005, FIG. 2 (cited in Pet., 8)

Hongo (JP 2003-276472)

Hongo

[Trace mode] In the trace mode, the driving history recording means 140 **acquires position information (current position coordinates r) from the GPS 170, and the position of a driving block (block number) that is defined by dividing it into sections approximately every 20m in the driving direction on the road being driven on is identified.** The driving block DB20 is a database used to specify the block number BKN of this driving block; here, the block range coordinates (r1, r2) of each driving block, the legal speed limit Vs of the driving block, the minimum radius of curvature R of the driving block, and the like are stored in association with the block number BKN.

TESLA-1005, [0027'] (cited in Pet., 11)

Reply, 3

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Hongo (JP 2003-276472)

Hongo

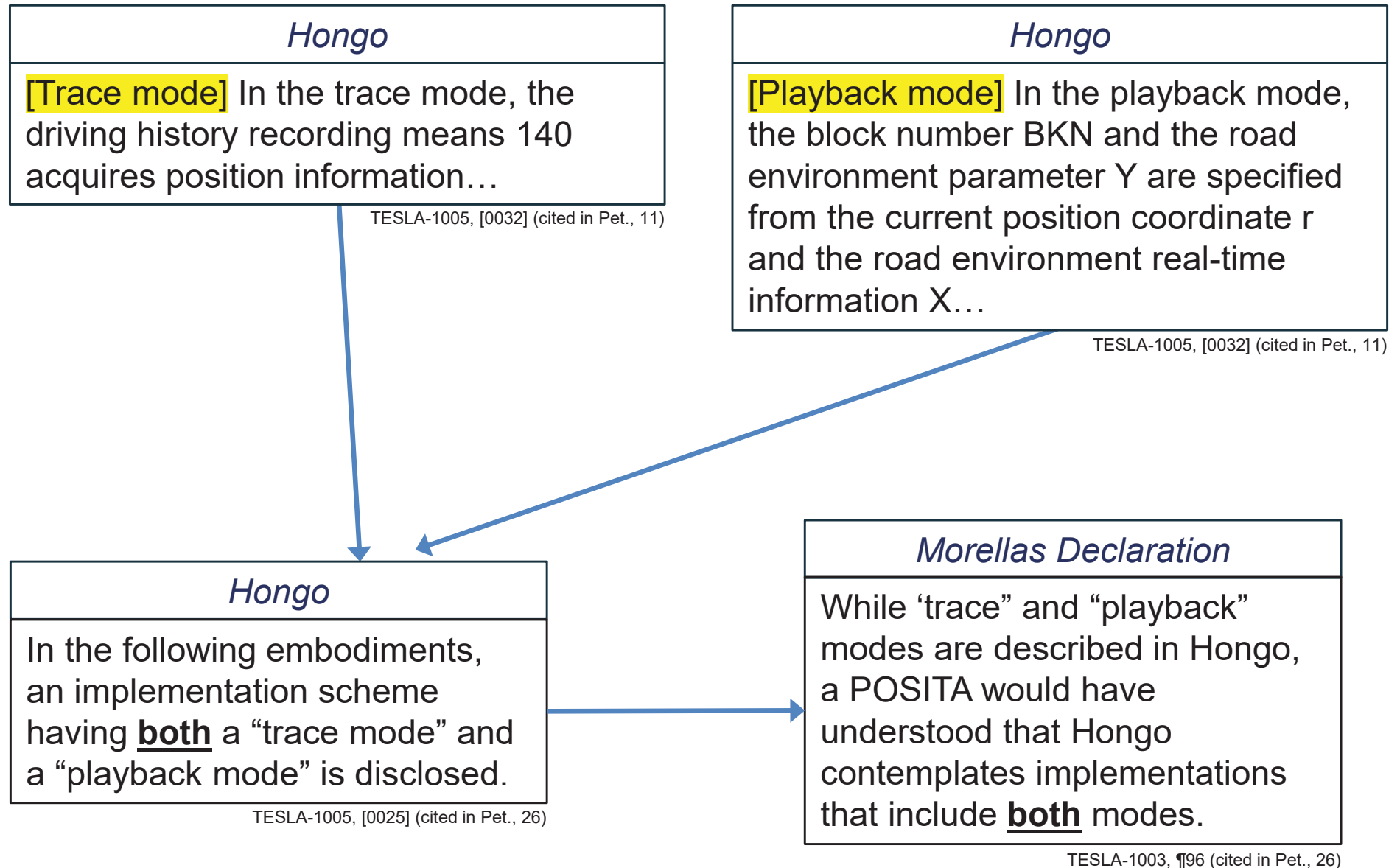
[Playback mode] In the playback mode, the block number BKN and the road environment parameter Y are specified from the current position coordinate r and the road environment real-time information X by a method equivalent to the above-mentioned driving history recording means 140; using the driving history search means 130, **the driving history DB 10 is searched for driving history data 11** with matching keys (BKN, Y). However, instead of using BKN, **it is also possible to search directly using r (coordinates) as a key.**

TESLA-1005, [0032] (cited in Pet., 11)

Reply, 3

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Hongo (JP 2003-276472)



Obradovich (US 6,282,464)

Obradovich (US 6,282,464)

Obradovich

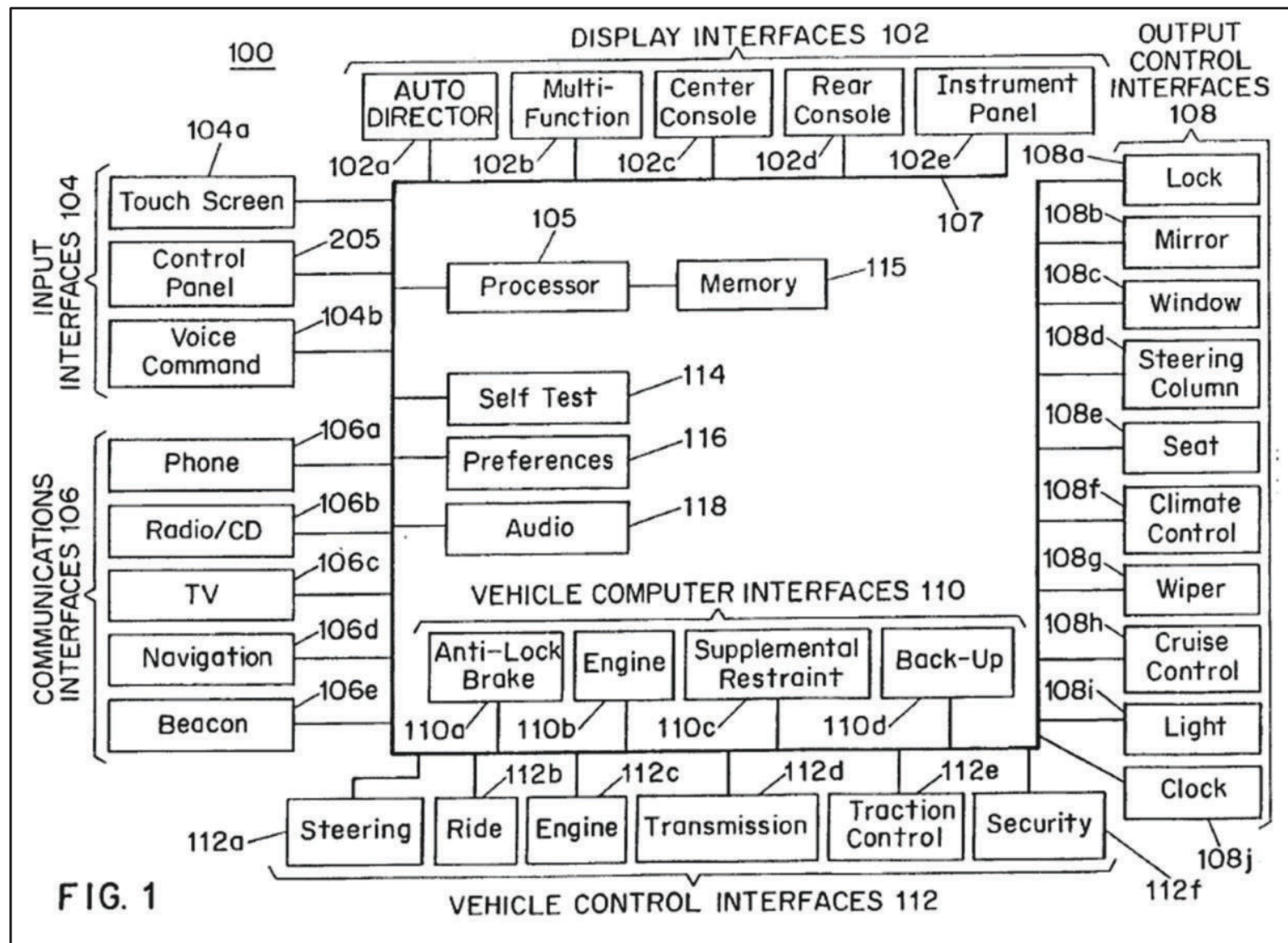
In a multimedia information and control system for use in an automobile, at least one interface is employed which enables a user to access information concerning the automobile and control vehicle functions in an efficient manner. The user may select one of a plurality of displayed options on a screen of such an interface. Through audio, video and/or text media, the user is provided with information concerning the selected option and the vehicle function corresponding thereto. Having been so informed, the user may activate the selected option to control the corresponding vehicle function.

TESLA-1008, Abstract (cited in Pet., 12)

Reply, 3

DEMONSTRATIVE EXHIBIT - NOT EVIDENCE

Obradovich (US 6,282,464)



TESLA-1008, FIG. 1 (cited in Pet., 13)

Obradovich (US 6,282,464)

Obradovich

Input interfaces 104 comprise touch screen interface 104a and control panel 205 described before, and voice command interface 104b. The latter is connected to a microphone (not shown) and comprises Standard voice command circuitry (not shown) for processing voice commands by the user through the microphone to control or modify Selected functions of system 100.

TESLA-1008, 6:56-62 (cited in Pet., 12)

Obradovich

Cruise control interface 108h comprises output control logic controllable by processor 105 to (1) turn the cruise control on or off, (2) set the vehicle speed, and (3) cancel or resume the Set Speed.

TESLA-1008, 8:15-19 (cited in Pet., 14)

Niki (US 7,059,435)

Niki (US 7,059,435)

Niki

The present invention relates to a control apparatus for a hybrid vehicle which is mounted in a hybrid vehicle propulsion driven by jointly using an internal-combustion engine and a motor, and wherein the driving force from at least one of the internal-combustion engine and the motor is transmitted to the driving wheels.

TESLA-1008, 1:13-17 (cited in Pet., 18)

Niki

Moreover, a C/C (cruise control) unit **53** calculates the torque value (C/C required torque) targeted during the travel control satisfying predetermined traveling conditions previously set according to the input operation of the driver, that is cruise control, for example, such as the constant speed travelling control which controls the internal-combustion engine E and the motor M so that the vehicle travelling speed VP detected in a vehicle speed sensor S1 becomes the target vehicle speed...

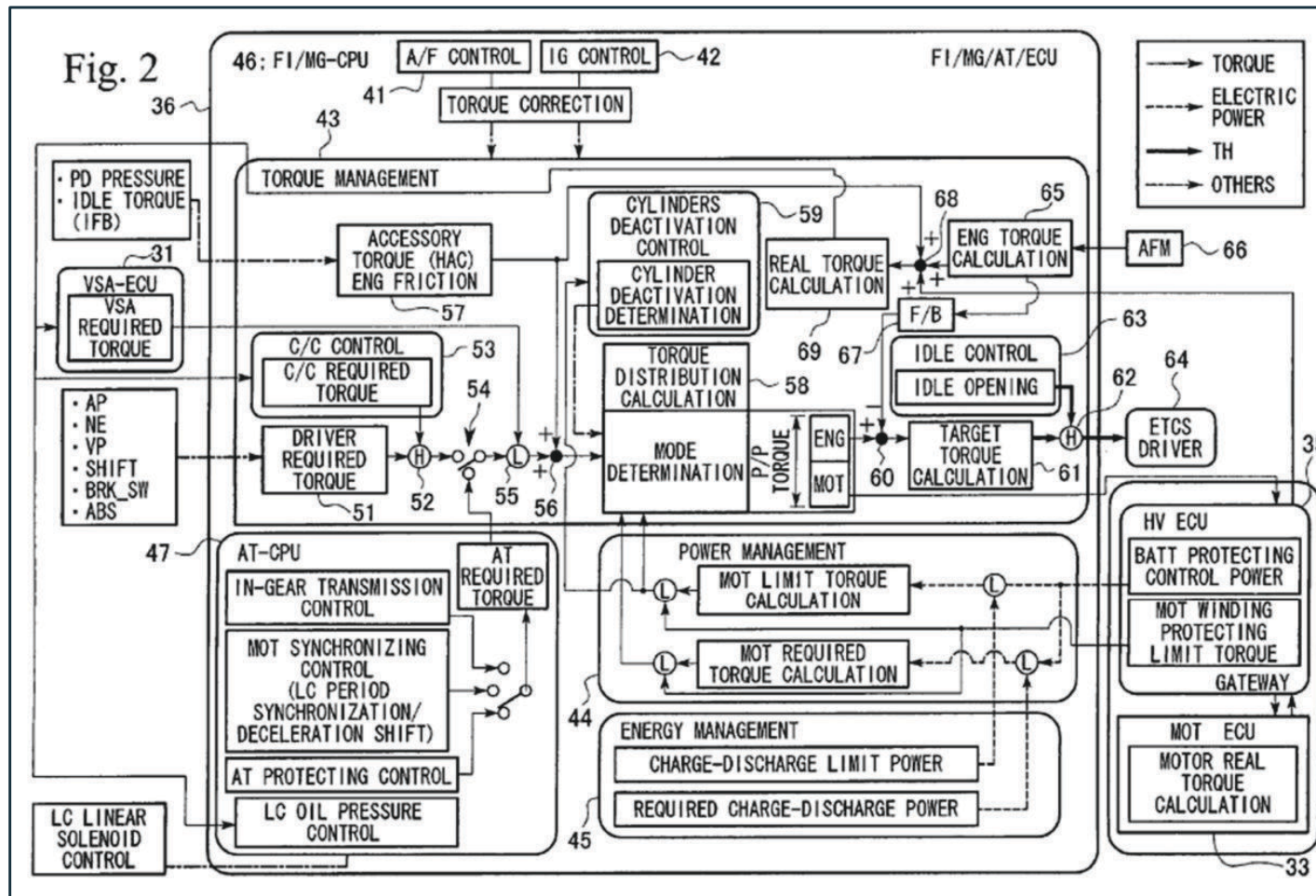
TESLA-1008, 8:47-59 (cited in Pet., 20)

Niki (US 7,059,435)

Hongo

Figure 2 shows an example of the control unit 1 shown in FIG. 1:

Pet., 20



TESLA-1009, FIG. 2 (cited in Pet., 20)

Issue 1:
Whether the Prior Art Satisfies Limitations
[1.a] and [11.c.1]

Independent Claim 1

Claim 1

1. A method of electric vehicle operation, comprising:

[1.a] determining a segment of a vehicle route;

[1.b.1] determining information about an external environment of a vehicle,

[1.b.2] information about operational status of the vehicle,

[1.b.3] information from external command input telemetry

[1.b.4] in combination with user command inputs to the vehicle including voice command inputs; and

[1.c] applying calculated electric power to the vehicle to travel along the segment of the vehicle route at a calculated speed.

TESLA-1001, Claim 1 (cited in Pet., v)

“Segment of a Vehicle Route” Under Plain Meaning

Independent Claim 1 and 11

Claim 1

[1.a] determining a **segment** of a vehicle route;



Claim 11

[11.c.1] with the power management system set to calculate electric power and speed over a **segment** of a vehicle route and

“Segment of a Vehicle Route” ([1.a], [11.c.1])

Claim 1

[1.a] determining a **segment** of a vehicle route;

Petitioner’s Position

Reply

...reference to segment in relation to the clause of a vehicle route means “**a separate piece of a vehicle route.**”

Reply, 5



Claims encompass
a current segment of vehicle travel

“Segment of a Vehicle Route” ([1.a], [11.c.1])

Claim 1

[1.a] determining a **segment** of a vehicle route;

Patent Owner's Position

POR

...claim limitations require that the “segment of a vehicle route” be **one that the vehicle has not yet reached.**

POR 22



Claims exclude
a current segment of vehicle travel

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...reference to **segment** in relation to the clause of a vehicle route means “**a separate piece of a vehicle route.**”

Reply, 5

→ Claims encompass a current segment of vehicle travel

'399 Patent Specification

FIG. 5 describes a method of **determining a probable optimal speed using historical route information**...The flowchart shown in FIG. 5 illustrates a continuous process, in which the power management device can determine a probable optimal speed as the current segment changes (e.g., as the vehicle moves).

TESLA-1001, 18:57-67 (cited in Reply, 7)

Supplemental Morellas Declaration

The Figure 5 method is an active process that involves real-time vehicle location, and thus, **a “new” segment includes the vehicle’s current position as soon as the vehicle has entered it, making it the current segment at that time.**

TESLA-1053, ¶32 (cited in Reply, 8)

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...reference to **segment** in relation to the clause of a vehicle route means “**a separate piece of a vehicle route.**”

Reply, 5

Claims encompass a current segment of vehicle travel

'399 Patent Specification

In general, an **efficient speed** output is determined by a combination of the calculated **optimized speed** and the **probable optimized speed** after they have been appropriately weighted.”

TESLA-1001, 19:46-61 (cited in Reply, 3)

Supplemental Morellas Declaration

...the process of calculating the “efficient speed,” according to the Figure 6 description, relies on a “probable optimal speed” that may be determined via the FIG. 5 technique. **In this instance, the application of calculated electric power is provided only for the current segment on which the vehicle is traveling,** rather than for a future segment.

TESLA-1053, ¶35 (cited in Reply, 8-9)

Testimonial Evidence – Patent Owner’s Position

POR

...claim limitations require that the “segment of a vehicle route” be **one that the vehicle has not yet reached.**

POR 22

→ Claims exclude a current segment of vehicle travel

Claim 1

[1.a] determining a **segment** of a vehicle route;

Supplemental Morellas Declaration

[1.a] ...there is no language that limits the temporal characteristics of the **segment** in relation to vehicle’s current position while traveling. This suggests the **segment** in claims 1 and 11 is broader than examples of segments, such as “**current** route segment” and “**upcoming** route segments”) (or “next segments”). TESLA-1001, 3:55-4:15 (emphasis added); see *also id.*, 5:31-55.

TESLA-1053, ¶29 (cited in Reply, 8)

Hongo's Identification of BKNs Satisfies [1.a] and [11.c.1] Under Plain Meaning

Hongo's Identification of BKNs Satisfies [1.a] and [11.c.1]

Claim 1

[1.a] determining a **segment** of a vehicle route;

Hongo

...**sections approximately every 20m** in the **driving direction** on the road being driven on is identified.

TESLA-1005, [0027] (cited in Pet., 10)

...the driving history recording means 140 acquires **position information (current position coordinates r)** from the **GPS 170**, and the position of a driving block (block number) that is defined...

TESLA-1005, [0027] (cited in Pet., 10)

...using the driving history search means 130, the **driving history DB 10 is searched for driving history data 11**...it is also possible to search directly using **r (coordinates)** as a key.

TESLA-1005, [0032] (cited in Pet., 11)

'399 Patent Specification

As described above, every route may be divided into a **finite number of segments**...

TESLA-1001, 18:25-67 (cited in Reply, 7-8)

FIG. 5 shows that, the **location of the vehicle** is periodically determined (e.g., via **GPS, manual entry, etc.**), and this location can then be used to determined a historical segment corresponding to the current location.

TESLA-1001, 18:25-67 (cited in Reply, 7-8)

...this **location** can then be used to determined a historical segment corresponding to the current location...**the database is examined to find the historical information about this segment.**

TESLA-1001, 18:25-67 (cited in Reply, 7-8)

Hongo's Identification of BKNs Satisfies [1.a] and [11.c.1]

Claim 1

[1.a] determining a segment of a vehicle route;

Hoff Deposition

Q. And when the '**399 patent** says "current location," it's referring to a **current position**, as measured by GPS; right?

A. Correct.

Q. And you would agree with me that the current location that is identified by GPS is used to **determine a historical segment; right?**

A. **Yes.**

TESLA-1054, 18:15-22 (cited in Reply, 16)

Hoff Deposition

Q. So, in your opinion, does **Hongo** teach using **current position coordinate r** to search driving history DB10?

A. ...So, yeah, r is used as part of the driving history recording means.

...

Q. So you would agree with me that the current vehicle position determined using GPS is used to **determine historical block information; correct?**

A. **Yes**, the GPS position is being used to query historical data in the database.

TESLA-1054, 59:9-60:16 (cited in Reply, 16)

Hongo's Identification of BKNs Satisfies [1.a] and [11.c.1]

Claim 1

[1.a] determining a segment of a vehicle route;

Hongo

[Trace mode] In the trace mode, the driving history recording means 140 acquires position information...

TESLA-1005, [0032] (cited in Pet., 11)

Hongo

[Playback mode] In the playback mode, the block number BKN and the road environment parameter Y are specified from the current position coordinate r and the road environment real-time information X...

TESLA-1005, [0032] (cited in Pet., 11)

Hongo

In the following embodiments, an implementation scheme having **both** a “trace mode” and a “playback mode” is disclosed.

TESLA-1005, [0025] (cited in Pet., 26)

Morellas Declaration

While “trace” and “playback” modes are described in Hongo, a POSITA would have understood that Hongo contemplates implementations that include **both** modes.

TESLA-1003, ¶96 (cited in Pet., 26)

Issue 2:
Whether the Prior Art Satisfies Limitations
[1.c] and [11.c.2]

Application of “Electric Power” Under Plain Meaning

Independent Claim 1

Claim 1

1. A method of electric vehicle operation, comprising:

[1.a] determining a segment of a vehicle route;

[1.b.1] determining information about an external environment of a vehicle,

[1.b.2] information about operational status of the vehicle,

[1.b.3] information from external command input telemetry

[1.b.4] in combination with user command inputs to the vehicle including voice command inputs; and

[1.c] applying calculated electric power to the vehicle to travel along the segment of the vehicle route at a calculated speed.

TESLA-1001, Claim 1 (cited in Pet., v)

Independent Claim 1 and 11

[1.c] applying calculated electric power to the vehicle to travel along the segment of the vehicle route at a calculated speed.



[11.c.2] act to apply calculated electric power to the vehicle to travel along the segment of the vehicle route at the calculated speed.

Application of “Calculated Electric Power” ([1.c], [11.c.1], [11.c.2])

Claim 1

[1.c] applying calculated electric power to the vehicle to travel along the segment of the vehicle route at a calculated speed.

Petitioner's Position

Reply

...there is otherwise no restriction regarding how such calculation is performed. Limitations [1.c] and [11.c.1] therefore each encompass power optimization techniques described in the specification.

Reply, 12



Claims are not limited
to a specific power application technique

Application of “Calculated Electric Power” ([1.c], [11.c.1], [11.c.2])

Claim 1

[1.c] applying calculated electric power to the vehicle to travel along the segment of the vehicle route at a calculated speed.

Patent Owner’s Position

POR

...the claims require **prospective** speed/power calculations: **calculations must be performed for upcoming not yet reached route** to allow the vehicle “to travel” subsequently over those segments at the calculated speed using the calculated power.

POR, 22-23



Claims are limited to applying power before vehicle reaches a segment

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...there is otherwise no restriction regarding how such calculation is performed. Limitations [1.c] and [11.c.1] therefore each encompass power optimization techniques described in the specification.



Claims are not limited
to a specific power application
technique

Claim 1

[1.c] **applying calculated electric power** to the vehicle to travel along the segment of the vehicle route at a calculated speed.

Supplemental Morellas Declaration

...each of [1.c], [11.c.1], and [11.c.2] may be interpreted to encompass the examples of “electric power” applied to a vehicle that are described in the specification.

TESLA-1053, ¶149 (cited in Reply, 12)

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...there is otherwise no restriction regarding how such calculation is performed. Limitations [1.c] and [11.c.1] therefore each encompass power optimization techniques described in the specification.

→ Claims are not limited
to a specific power application
technique

'399 Patent Specification

The applied power may be calculated continuously. For example, **the applied power may be calculated at each point (e.g., every segment, or points within a segment) as the vehicle is driven**. Thus, over an entire route, the most energy efficient speed at which to drive may be continuously calculated.

TESLA-1001, 5:31-55 (cited in Reply, 6)

Supplemental Morellas Declaration

...the segment recited in claims 1 and 11 may have different lengths depending on implementation demands. In some implementations, the length of a “segment” may be sized such that a first time period required for a vehicle to complete travel along the length of the “segment” is longer than a second time period required for the calculation and/or application of ‘electric power.

TESLA-1053, ¶39 (cited in Reply, 9)

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...there is otherwise no restriction regarding how such calculation is performed. Limitations [1.c] and [11.c.1] therefore each encompass power optimization techniques described in the specification.

→ Claims are not limited
to a specific power application
technique

'399 Patent Specification

Historical data may be particularly useful when there is a large amount of such data available. Instead of trying to calculate the predicted power usage based on physics modeling, this method merely **looks at all of the previous data to determine the power that would be utilized to drive each segment at a particular speed.**

TESLA-1001, 18:4-24 (cited in Reply, 12)

Supplemental Morellas Declaration

...a POSITA would have understood that the Figure 5 technique involves determining a power required to maintain a vehicle at a “particular speed” (e.g., at the historical speed for that segment), which involves applying the required power (i.e., applying electric power) on a segment-by-segment basis and as the vehicle is traveling through a current segment.

TESLA-1053, ¶51 (cited in Reply, 13)

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...there is otherwise no restriction regarding how such calculation is performed. Limitations [1.c] and [11.c.1] therefore each encompass power optimization techniques described in the specification.

'399 Patent Specification

As described above, simulated energy requirement logic may determine a **calculated optimized speed** for the vehicle, and statistical route analysis logic may be used to determine a **probable optimal speed**. The power management device or system may also include derived efficient speed logic that determines the **most efficient speed** or power to be applied to the vehicle engine, as described above.

TESLA-1001, 21:1-10 (cited in Reply, 12)

Claims are not limited

→ to a specific power application technique

Supplemental Morellas Declaration

...Figures 5 and 6 would have led a POSITA to recognize that the specification teaches an example of a power efficiency technique in which historical speed information is used to identify a "**probable optimal speed**" (e.g., average speed), which is then used (in conjunction with an "**optimized speed**") to determine a required power associated with energy usage. **This required power is calculated and applied on a per-segment basis such that the calculation and application occur as the vehicle is traveling on a particular segment that includes its current position (i.e., current segment).**

TESLA-1053, ¶54 (cited in Reply, 13)

Hongo's Adaptive Cruise Control Satisfies the Plain Meaning

Hongo's Adaptive Cruise Control Satisfies [1.c] and [11.c.2]

Claim 1

[1.c] applying calculated electric power to the vehicle **to travel along the segment of the vehicle route** at a calculated speed.

'399 Patent Specification

The applied power may also be expressed as an optimized speed or speeds to which the vehicle is controlled. For example, the motor control mechanism may adjust the speed of the vehicle to an optimized speed or speeds as the vehicle travels.

TESLA-1001, 2:30-63 (cited in Pet., 77)

Hongo

The target vehicle speed determining device 100 is connected to the ACC system 200; it outputs the target vehicle speed V_0 to the ACC system 200 and receives various control signals from the ACC system 200. However, FIG. 1 shows a logical functional configuration, and of course, it is also possible to configure the target vehicle speed determining device 100 and the ACC system 200 from one physically identical computer.

TESLA-1005, [0024] (cited in Pet., 38)

Supplemental Morellas Declaration

...Hongo's adaptive cruise control techniques involve application of a power associated with a target vehicle speed as the vehicle is traveling along a current segment.

TESLA-1053, ¶71 (cited in Reply, 20)

Issue 3:
**Whether the Prior Art Satisfies Claim 6
Under Plain Meaning**

Claim 6 Under Plain Meaning

Claim 6

Claim 6

[6.1] The method of claim 1, wherein **vehicle route segment determination** further comprises determining multiple route segments.

[6.2] each route segment having a separate calculated speed and selected drive train parameters.

TESLA-1001, Claim 6 (cited in Pet., vi)

Claim 1

[1.a] determining a segment of a vehicle route;

TESLA-1001, Claim 1 (cited in Pet., v)

“Determining Multiple Routes” ([6.1])

Claim 6

[6.1] ...wherein vehicle route segment determination further comprises **determining multiple route segments**.

Petitioner's Position

Reply

...[1.a] and [6.1] each lack language regarding timing, the determining operation recited in [6.1] may be satisfied **without regard to when each of the multiple route segments are determined.**

Reply, 24

Claim 6 does not
temporally limit determination of multiple
route segments

“Determining Multiple Routes” ([6.1])

Claim 6

[6.1] ...wherein vehicle route segment determination further comprises **determining multiple route segments**.

Patent Owner's Position

POR

...***multiple*** route segments must be determined at the **same time** as part of the ***same segment determination step***.

POR, 32



Claim 6 does
temporally limit determination of multiple
route segments

Prior Art Mappings

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...the determining operation recited in [6.1] may be satisfied without regard to when each of the multiple route segments are determined.

Reply, 24

Claim 6 does not temporally limit determination of multiple route segments

Claim 6

[6.1] The method of claim 1, wherein vehicle route segment determination further comprises **determining multiple route segments**.

Supplemental Morellas Declaration

...a POSITA would have known that a vehicle system may be implemented to **determine segments sequentially in time as the vehicle travels along a route that includes multiple segments**. In this configuration, multiple segments are identified over a period of time associated with vehicle travel.

TESLA-1053, ¶185 (cited in Reply, 24)

Hongo Satisfies [6.1] Under Plain Meaning

Claim 6

[6.1] ...wherein vehicle route segment determination further comprises determining multiple route segments.

Hongo

...the driving history recording means 140 acquires position information (current position coordinates r) from the GPS 170, and the position of a driving block (block number) that is defined by dividing it into sections approximately every 20m in the driving direction on the road being driven on is identified.

TESLA-1005, [0027] (cited in Pet., 45)

Morellas Declaration

Given that each block is a 20m portion, a POSITA would have understood and/or found obvious that, in some scenarios, a route includes multiple driving blocks (**determining multiple route segments**).

TESLA-1003, ¶71 (cited in Reply, 20)

Hongo Satisfies [6.2] Under Plain Meaning

Claim 6

[6.2] each route segment having **a separate calculated speed** and selected drive train parameters.

Hongo

...but the **radius of curvature R is a parameter that can change suddenly as the vehicle advances**, so it is desirable to look ahead at the required number of cases and determine the argument (independent variable R) of the function f by aiming at the smallest value among them.

TESLA-1005, [0039] (cited in Pet., 48)

Morellas Declaration

....a POSITA would have found it advantageous that **Hongo's system computes a target vehicle speed for each road segment (driving block)** to account for any sudden changes to the curvature R along the travel path.

TESLA-1003, ¶141 (cited in Pet., 47-48)

Hongo Satisfies [6.2] Under Plain Meaning

Claim 6

[6.2] each route segment having a separate calculated speed and **selected drive train parameters**.

Hongo

...but the **radius of curvature R is a parameter that can change suddenly as the vehicle advances**, so it is desirable to look ahead at the required number of cases and determine the argument (independent variable R) of the function f by aiming at the smallest value among them.

TESLA-1005, [0039] (cited in Pet., 48)

Morellas Declaration

A POSITA would have found it obvious that **Hongo's adaptive cruise control involves adjusting vehicle speed using parameters associated with the target speed**, for example, a **vehicle speed parameter** or an **engine power management parameter**...

...Hongo's adaptive cruise control maintains the target speed by adjusting **throttle position parameters**...

...a cruise control system can signal a **transmission to shift gears** to maintain the desired speed...

TESLA-1003, ¶142 (cited in Pet., 47-48)

Issue 4:
Whether the Prior Art Satisfies Claim 8
Under Plain Meaning

Claim 8 Under Plain Meaning

Claim 8

Claim 8

[8] The method of claim 1, wherein the step of **determining information about operational status of a vehicle** further comprises the step of communicating with a remote database.

TESLA-1001, Claim 6 (cited in Pet., vi)

Claim 1

[1.b.2] [determining] information about operational status of the vehicle,

TESLA-1001, Claim 1 (cited in Pet., v)

“Communicating with a Remote Database” ([8])

Claim 8

[8] The method of claim 1, wherein the step of determining information about operational status of a vehicle further comprises the step of **communicating with a remote database**.

Petitioner's Position

Reply

...nothing in the claim language requires that information used for assessment in determining an “operational status” be obtained **during vehicle operation**.

Reply, 26-27



Claim 8 does not
temporally limit communication
with a remote database

“Communicating with a Remote Database” ([8])

Claim 8

[8] The method of claim 1, wherein the step of determining information about operational status of a vehicle further comprises the step of **communicating with a remote database**.

Patent Owner's Position

POR

Claim 8, however, requires “communicating with a remote database” **when** “determining information about operational status of a vehicle.”

POR, 34



Claim 8 does
temporally limit communication
with a remote database

Hongo Satisfies [8] Under Plain Meaning

Claim 8

[8] The method of claim 1, wherein the step of determining information about operational status of a vehicle further comprises the step of **communicating with a remote database**.

Supplemental Morellas Declaration

Claim 8 also does not include any language directed to a type of use of the remote database. The operation recited in claim 8 is communicating with, and the claim provides no further detail as to how and when such communication occurs so long as it be part of a process that involves determining information about operational status of the vehicle, as described in [1.b.2]. A POSITA would have therefore understood that claim 8 lacks any language limiting the nature of communications with a remote database.

TESLA-1053, ¶197 (cited in Reply, 28)

Intrinsic Record Evidence Supports Petitioner's Position

Reply

...nothing in the claim language requires that information used for assessment in determining an “operational status” be obtained during vehicle operation.

Reply, 26-27

Claim 8 does not temporally limit communication with a remote database

Claim 8

[8] The method of claim 1, wherein the step of determining information about operational status of a vehicle **further comprises** the step of **communicating with a remote database**.

Supplemental Morellas Declaration

The claim language **does not include any element requiring that information used for assessment in determining an *operational status* is obtained during vehicle operation**. As such, one interpretation in the ***communicating*** operation may be that it limits the first sub-step such that the information obtained for assessment for a ***operational status*** is information obtained from a ***remote database***.

TESLA-1053, ¶93 (cited in Reply, 27)

Prior Art Mappings

Hongo Satisfies [8] Under Plain Meaning

Claim 8

[8] The method of claim 1, wherein the step of determining information about operational status of a vehicle further comprises the step of **communicating with a remote database**.

Newstrom

FIG. 4 is a flow diagram that better illustrates the operation of the system. When database manager **22** is first initialized, it loads database **20** (from a CD, DVD, hard disk, **wireless connection to server, etc.**) into solid state memory. Of course, it should be noted that, where database **20** is extremely large, database manager **22** can simply load a relevant portion of the database into solid state memory, such as a portion of the database corresponding to a 50 mile radius around a current geographic location. Loading the database into memory is indicated by block **60** in FIG. 4. It should also be noted that the Database Manager can unload unused portions and load new portions as the location of the queries change. This is exemplified by block **65** in FIG. 4.

TESLA-1012, 8:26-38 (cited in Pet., 83)