

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HYUNDAI MOTOR COMPANY

Petitioner

v.

MEL NAVIP LLC

Patent Owner

Case IPR2024-00173

U.S. Patent No. 8,649,971

PATENT OWNER'S PRELIMINARY RESPONSE

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Exhibit List

Exhibit	Description
2001	Declaration Dr. Fang Qiu
2002	Curriculum vitae of Dr. Fang Qiu

* * * *

USE OF EMPHASIS IN QUOTATIONS

All emphases in quotations and exhibit citations have been added, unless otherwise indicated.

APPLICABLE STATUTES

References to 35 U.S.C. §§ 102 and 103 are to the AIA versions applicable to the '971 Patent.

I. INTRODUCTION

Mel NavIP (“Patent Owner”) submits this preliminary response showing that each of the 2 grounds set forth by Hyundai Motor Company (“Petitioner”) fail to render obvious challenged claims 1-4, 7-12, 14, 16-17 and 19 of U.S. Patent No. 8,649,971 to Machino (“the ’971 Patent”)

As to Ground 1, a POSITA would not be motivated to combine Khavakh with Lefebvre. Furthermore, even if a POSITA somehow combined Khavakh with Lefebvre, the combination fails to disclose various elements of independent claims 1 and 19 and dependent claims 2, 7-12, and 16-17.

As to Ground 2, a POSITA would not be motivated to combine Khavakh with Lefebvre and RDX. Furthermore, even if a POSITA somehow combined Khavakh with Lefebvre and RDX, the combination fails to disclose various elements of dependent claims 3-4 and 14.

Accordingly, Patent Owner respectfully requests that the Board deny the petition for *inter partes* review of claims 1-4, 7-12, 14, 16-17 and 19 of the ’971 Patent on the merits.

II. THE ’971 PATENT OVERVIEW.

The ’971 Patent is directed to a navigation device which includes the ability to search for and create a route to a destination via one or more waypoints. Ex. 1001 at Abstract. Importantly, the ’971 Patent “discloses an invention which allows the

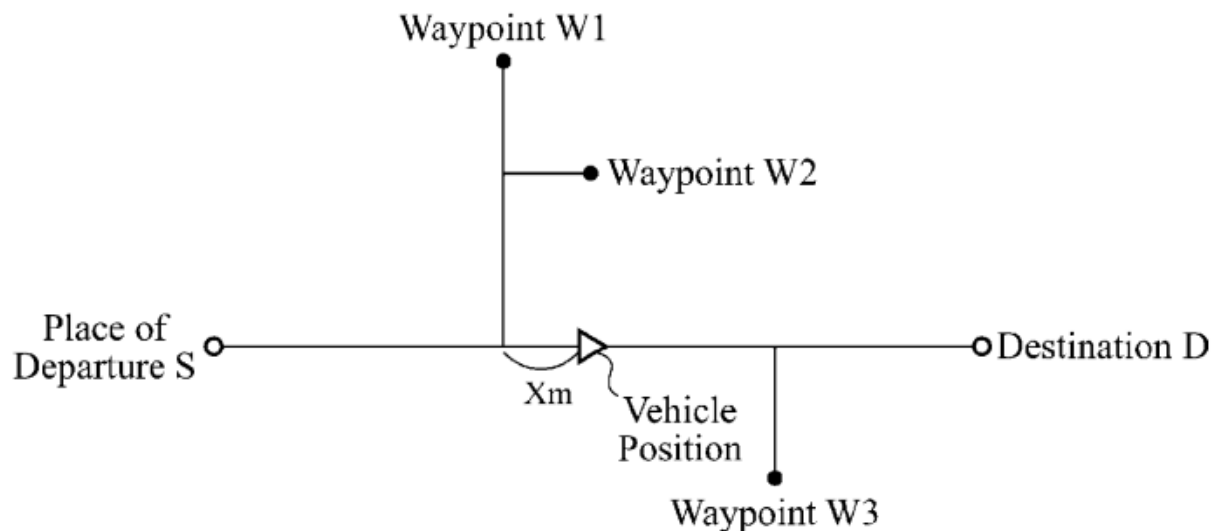
user to effortlessly indicate whether or not to continue to travel along the route via a waypoint, or to skip the waypoint entirely, in the event that the user deviates from the route in such a way that the waypoint is missed.” Ex. 2001 at ¶ 34.

“The ’971 Patent discloses that the navigation device comprising a ‘navigation unit 1, a monitor 2, a remote controller . . . 3, an audio speaker 4, and an external memory 5.’” Ex. 2001 at ¶ 35 (citing Ex. 1001 at 2:62-67). The navigation unit 1 includes “a display of a map, a route search, display of a route, and route guidance.” *Id.* ¶ 36 (citing Ex. 1001 at 3:1-4). The navigation device 1 is

configured in such a way as to, when the vehicle is traveling along a route leading from the place of departure S, via a waypoint W1, a waypoint W2, and a waypoint W3, to the destination D, and the vehicle has deviated from a route leading to the first next waypoint toward which the vehicle has been heading (abbreviated as the first next waypoint hereafter, and also expressed as the waypoint W1 hereafter) and has been at a predetermined distance of X meters (X is an arbitrary number) from the route, as shown in FIG. 2, re-search for either a route passing via (returning to) the first next waypoint (i.e., the waypoint W1) or a route not passing via the first next waypoint (i.e., the waypoint W1) according to the user's selection.

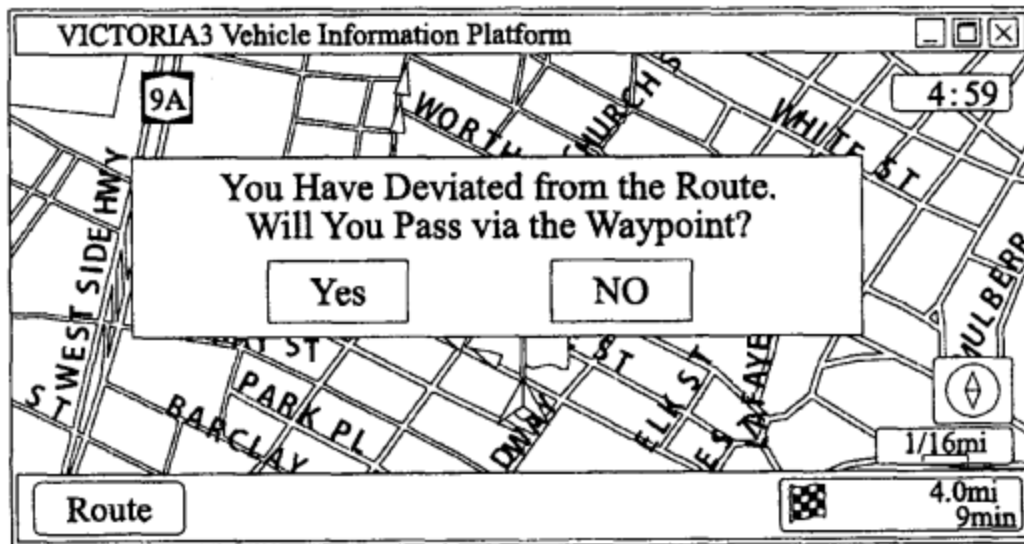
Ex. 1001 at 5:50-63. This is also shown in Figure 2 reproduced below.

FIG.2



Id. at Fig. 2. “In this way, the ’971 Patent discloses that if the user has proceeded along the route and from S to the ‘vehicle position’ shown, bypassing Waypoint W1, the inventions of the ’971 Patent detect that the user has deviated from the route by distance X it determines if the user’s position is at a position along the route forward of the waypoint, it presents a “waypoint passage selection message” to the user.” Ex. 2001 at ¶ 37 (citing Ex. 1001 at Fig. 6-1, 8:60-63). An example of the message is shown below.

FIG.7



Figures 6-1 and 6-2 disclose the algorithm of which claims 1 and 19 are the embodiment of. After a “whole route” has been generated which includes a start position, a destination, and one or more waypoints in between the start and destination, during use, the navigation device of claims 1 and 19 makes a determination—shown as ST22—whether the user is off the route by X meters or more. *Id.* at Fig. 6-1. “If the determination is no, the device continues the route, if the determination is yes, navigation device determines at ST23 whether the current position is *part of the route existing forward of the next waypoint.*” *Id.* If the user is on the route *forward* of the next way point—in

other words, the user is on the route *past* the first waypoint—the [navigation device] proceeds to ST25 and generates a message to the user allowing the user to select to reroute back to the missed waypoint, or to skip the missed waypoint and continue along the route.” Ex. 2001 at ¶ 39. “Conversely, if the user is off the route *before* the next waypoint, the invention of claims 1 and 19 does not display a message, but instead creates a new route *including* the waypoint, in essence routing them back to the missed waypoint.” *Id.* at ¶ 40. “In this situation, the user is *not* asked if they wish to skip the waypoint or be re-routed back to the waypoint, they are simply automatically re-routed back to the route proceeding through the first waypoint.” *Id.*

During prosecution, the examiner specially noted in the reasons for allowance, that the prior art failed “to teach, make obvious, or suggest, a navigation device and method comprising . . . outputting a message showing that a vehicle has deviated from a route leading to a first next waypoint toward which the vehicle has been heading, when a route guidance unit determining that the vehicle has deviated from the route to a determined distance or more, *and is traveling along a route after said first next waypoint*; and inputting a command indicating whether or not to travel via said first next waypoint in response to the message outputted by said unit.” Ex. 1002 at 590 (emphasis added).

III. EXPERT TESTIMONY, LEVEL OF SKILL IN THE ART, AND CLAIM CONSTRUCTION**A. Declaration Evidence**

This Preliminary Response is supported by the declaration of Dr. Fang Qiu, an expert with long-standing experience in the industry. Ex. 2001. Mr. Qiu has extensive experience in the industry including experience in remote sensing digital image processing, spatial analysis and modeling, GIS application software development, and web-based mapping and information processing. Ex. 2001 at ¶¶8-11.

B. Person of Ordinary Skill in the Art

On or before April 2, 2008, a POSITA relating to the technology of the '971 Patent would have (a) a Bachelor's of Science degree in a technical field and at least four years of experience in the field of geospatial information sciences; (b) a Master's of Science degree in a technical field and at least two years of experience in the field of geospatial information sciences; or (c) a PhD in a technical field relating to the geospatial information sciences. Ex. 2001 at ¶ 18. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education. *Id.*

C. Claim Construction

Patent Owner does not believe that any terms require construction at this time, and, as such, applies the plain meaning of the terms of the Challenged

Claims. Patent Owner reserves the right to propose specific constructions if appropriate during this proceeding.

IV. PRIOR ART CITED BY PETITIONER.

A. Khavakh

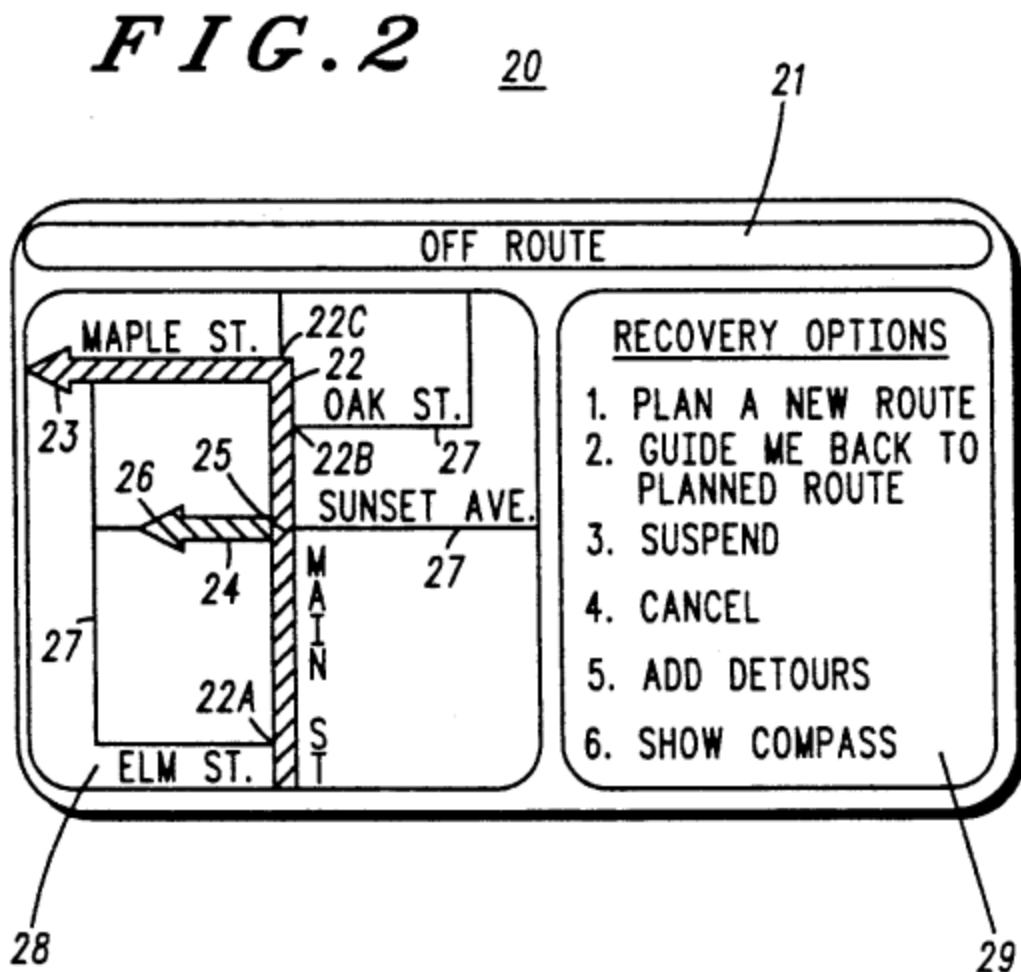
United States Patent No. 7,054,742 to Khavakh discloses a method and system for route calculation in a navigation application. Ex. 1005 at abstract. Khavakh discloses allowing the user to input one or more waypoints in addition to the starting point and destination. *See* Ex. 1005 at 13:47-54; *see also* Ex. 2001 at ¶ 44. Importantly, Khavakh defines his waypoints as “a location through which the route to be calculated by the route calculation object 50 is constrained to pass.” Ex. 1005 at 8:24-26. “In addition to disclosing a navigation device for generating a route with one or more waypoints, Khavakh discloses a ‘rerouting’ feature that operates by determining ‘that the vehicle is no longer traveling on any of the roads represented by the solution route.’” Ex. 2001 at ¶ 45 (citing Ex. 1005 at 29:56-61). This determination is made “in a map matching program” that “correlates the geographic coordinates derived from the positioning system 14 (in FIG. 1) with the road segment data records in the map database 30.” Ex. 1005 at 29:62-30:1. “In other words, the determination is made based on whether or not the current position of the navigation unit matches the road segments of the route.” Ex. 2001 at ¶ 64. “Not whether the user is a predetermined distance from the route.” *Id.*

Once the determination is made that the user is off the route, Khavakh discloses that the rerouting feature may “prompt the end-user to indicate whether he or she wants a new route (e.g., a re-route) to be calculated. Alternatively, the reroute function can be implemented automatically without waiting for the end-user to request that rerouting be performed.” Ex. 1005 at 30:17-22.

As discussed in detail below, “Khavakh fails to disclose a ‘an output unit configured to output a message showing that a vehicle has deviated from a route leading to a first waypoint toward which the vehicle has been heading when said route guidance unit determines that the vehicle has deviated from the route to a predetermined distance’ or ‘traveling along a route after said first next waypoint’ as disclosed in claims 1 and 19.” Ex. 2001 at ¶ 48. “Similarly, Khavakh fails to disclose “an input unit configured to input a command indicating whether or not to travel via said first waypoint” as required by independent claims 1 and 19.” *Id.*

B. Lefebvre

Petitioner also relies on U.S. Patent No. 5,243,528 to Lefebvre (Ex. 1006 – “Lefebvre”). Lefebvre discloses a vehicle navigation apparatus that includes a rerouting feature. Ex. 1006 at Abstract. In the event that user deviates from a route Lefebvre discloses presenting the user with an “off route” message and a display with one of four user selectable options, as shown below.



Ex. 1006 at Fig. 2. If the user selects the first option “Plan a New Route” Lefebvre discloses the navigation unit “sets the start point of a new trip at the vehicle’s current location as measure by sensors 14 in combination with the navigation computer 14.” *Id.* at 9:45-49. The “new route still utilizes the previous destination, route preference and trip detour data that were stored as trip data in the memory portion 11A of the computer 11.” *Id.* at 9:60-53. Importantly, Lefebvre defines the detour data as “non-desired road segments or map areas which are to be avoided.” *Id.* at 6:38-39. They

are not “waypoints” as used in the ’971 Patent. If the user selects the “Guide me Back to Planned Route” option, Lefebvre discloses that the navigation unit sets “a first destination point for a trip at the point 25 where the actual vehicle travel deviated from the current navigation route and set the next destination points for the trip to the previous trip destination which were not yet reached during the previous vehicle travel.” *Id.* at 10:6-11. If the user selects the “Suspend” option, navigation is cancelled but the route is retained in memory. *Id.* at 9:23-30. The “Cancel” options functions the same as the “Pause” function, but the route is deleted from memory. *See id.* at 10:46-54.

As such, “Lefebvre does not disclose . . . the use of ‘waypoints’, let alone checking to see if a user is ‘off route’ ‘forward’ of the a missed waypoint, and then displaying a message asking if the user wishes to be rerouted back to the missed waypoint or simply rerouted to the next waypoint or destination—thereby bypassing the missed waypoint.” Ex. 2001 at ¶ 54.

C. RDX

The RDX is a user manual for an automotive navigation device. *See* Ex. 1007 at 4. The RDX manual discloses an “off-route” feature which will “recalculate the route from your current location and direction of travel to the desired destination then give you new route instructions.” *Id.* at 66. This can occur either automatically or by displaying a message and button which the user must select. *Id.* The RDX

manual also discloses adding “an interim ‘waypoint’ (pit stop), choose a different destination, or cancel your current destination.” *Id.* at 69. To add or delete a waypoint along a route, a user must first select “change route” and then search for waypoint on route or delete waypoint to add or delete a waypoint along the route. *Id.* at 71. As such the RDX manual does not disclose elements 1D, 1E, 19D, or 19E of the '971 Patent. Ex. 2001 at ¶ 57.

V. GROUND 1 - PETITIONER'S KHAVAKH AND LEFEBVRE COMBINATION FAILS TO RENDER OBVIOUS INDEPENDENT CLAIMS 1 OR 19.

Petitioner relies on Khavakh as its primary reference for Gound 1. But Petitioner fails to demonstrate that a POSITA would be motivated to combine Khavakh with Lefebvre. Furthermore, even assuming arguendo that the references were combined, Petitioner cannot show that the combination of Khavakh and Lefebvre fail to teach or render obvious independent claims 1 or 19.

Claim 1 recites:

[Preamble] A navigation device comprising:

[1a] a setting unit configured to set waypoints and a destination;

[1b] a route searching unit configured to search for a whole route leading to the destination via the waypoints set by said setting unit;

[1c] a route guidance unit configured to carry out route guidance according to the whole route which is searched for by said route searching unit;

[1d] an output unit configured to output a message showing that a vehicle has deviated from a route leading to a first next waypoint

toward which the vehicle has been heading when said route guidance unit determines that the vehicle has deviated from the route to a predetermined distance or more and is traveling along a route after said first next waypoint; and

[1e] an input unit configured to input a command indicating whether or not to travel via said first next waypoint in response to the message outputted by said output unit.

'971 Patent, Claim 1.

A. Khavakh and Lefebvre Fail to disclose Claim 1[D] “traveling along a route after said first next waypoint” and 19[D] “traveling along a route after said first next waypoint”.

The “combination of Khavakh and Lefebvre fails to disclose “an output unit configured to output a message showing that a vehicle has deviated from a route leading to a first next waypoint toward which the vehicle has been heading when said route guidance unit determines that the vehicle has deviated from the route to a predetermined distance or more *and is traveling along a route after said first next waypoint.*” Ex. 2001 at ¶ 60. Claims 1 and 19 of the '971 Patent disclose that the navigation device generates a “whole route” through one or more waypoints to the destination. Ex. 1001 at Claims 1 and 19. Element 1D refers to segments of the “whole route” the “a route leading to a first next waypoint” and the “a route after said first next waypoint.” *Id.* The “combination of Khavakh and Lefebvre fails to disclose this critical element.” Ex. 2001 at ¶ 61. “The navigation device of Khavakh determines that the user is ‘off route’ by simply applying a map matching system with no regard to whether or not the user is on the first or second segments of the

route, *i.e.*, before or after the waypoint along the route.” *Id.* at ¶ 62; *see also* Ex. 1005 at 29:62-30:1. “Similarly, the navigation device of Lefebvre determines that the user is off the route by applying a simple map matching, comparing the user’s location to the route, without any consideration of whether the user’s position is along the route before or after the waypoint.” Ex. 2001 at ¶ 62; *see also* Ex. 1006 at 4:30-33 (“This ‘off route criteria’ can correspond to the estimated current vehicle position differing by more than a predetermined amount of distance from the desired navigation route.”)); *see also* Ex. 1006 at 4:47-51 (“off route detection can occur by requiring that the vehicle not only be on a stored roadway path, but that the vehicle be on a stored roadway path which comprises a segment of the calculated vehicle navigation route and that the vehicle is proceeding in a desired direction.”). The “combination of Khavakh and Lefebvre thus results in a device which determines whether or not the user is off-route by either calculating the distance from the route or determining if the user is on a route segment, with no regard to determining if the user is ‘traveling along a route after said first next waypoint.’” Ex. 2001 at ¶ 64. “The combination fails to disclose this critical element” and the Board should decline to grant the Petition on this basis alone. *Id.*

B. Khavakh and Lefebvre Fail to disclose Claim 1[E]] “an input unit configured to input a command indicating whether or not to travel via said first next waypoint in response to the message outputted by said output unit” and 19[E] “inputting, by utilizing an input unit of the navigation apparatus, a command indicating whether or not to travel via said first next waypoint in response to the outputted message”.

The “combination of Khavakh and Lefebvre fails to disclose element 1E or 19E. Khavakh discloses one of two rerouting outcomes.” *Id.* at ¶ 65. First the “rerouting function in the navigation application 47 prompts the end-user to indicate whether he or she wants a new route (*e.g.*, a re-route) to be calculated.” Ex. 1005 at 30:17-20. Second, Khavakh discloses an alternative where “the rerouting function can be implemented automatically without waiting for the end-user to request that the rerouting be performed.” *Id.* at 30:20-22. Importantly, any “rerouting” performed by Khavakh would include all of the waypoints input into the route. This is because the waypoint in Khavakh are “a location through which the route to be calculated by the route calculation object 50 is constrained to pass.” *Id.* at 8:24-26. “As such, any rerouting performed by Khavakh would not allow the user to bypass a waypoint or to indicate ‘whether or not to travel via said first next waypoint’.” Ex. 2001 at ¶ 67.

Similarly, Lefebvre defines one of four possibilities when the user is off route, as discussed above, (1) “Plan a new Route”; (2) “Guide me Back to Planned Route”; (3) “Suspend”; and (4) “Cancel”. See Ex. 1006 at Fig. 2; 9:43-10:59. If the user

selects the “Plan a New Route” feature the navigation device of Lefebvre simply “sets the start point of a new trip at the vehicle’s current location” and which “utilizes the previous destination, route preference, and trip detour data that were stored as trip data in the memory portion 11A of computer 11.” *Id.* at 9:45-63. This option thus results in calculating a new route, which would include any waypoints, not allowing the user to decide “whether or not to travel via said first next waypoint” as required by claims 1 and 19. Ex. 2001 at ¶ 69. Similarly, if the user selects “Guide me Back to Planned Route”, the navigation device of Lefebvre simply sets “a first destination point for a trip at point 25 at which the vehicle travel deviated from the current navigation route and set[s] the next destination points for the trip to the previous trip destination which were not yet reached during the previous vehicle travel. . . the route calculation block 39 calculates a route which includes getting back to the deviation point 25 and then, using the same trip preferences and detours previously specified, reaching the end destinations that were previously specified.” Ex. 1006 at 10:6-16. “Lefebvre’s second option results in a route being calculated back to the deviation points from the original route, including all of the destinations of the original route, by rerouting the user back to the deviation point and continuing the original route from there.” Ex. 2001 at ¶ 70. “Lefebvre’s second option thus fails to disclose allowing the user to determine ‘whether or not to travel via said first next waypoint’ as required by claims 1 and 19.” *Id.* The “Suspend” and “Cancel” options

of Lefebvre simply turn of the route guidance and save the route in the suspend option or delete it in the cancel option. *See* Ex. 1006 at 10:23-59. “Neither of these options would include allowing the user to select ‘whether or not to travel via said first waypoint’.” Ex. 2001 at ¶ 71. As such, “the combination of Lefebvre and Khavakh fails to disclose element 1E and 19E and do not render claims 1 or 19 obvious.” *Id.* at 72.

C. A POSITA Would Not Be Motivated to Combine Khavakh with Lefebvre.

A POSITA viewing the navigation system of Khavakh would not review or consider the Lefebvre reference at all as the combination would not include each element of claims 1 and 19 as discussed above. The “combination of Khavakh and Lefebvre would not have resulted in the inventions of the ’971 Patent and would not have performed the same function.” *Id.* at ¶ 74. As addressed extensively above, “the combination would have led to a device which allows the user to set a route including one or more waypoints, and in the event the vehicle is off-route, would have presented the user with the message of Lefebvre and Lefebvre’s four options, none of which would have allowed the user to decide whether or not to travel via or bypass the first next waypoint.” *Id.*

VI. GROUND 2 - PETITIONER'S KHAVAKH, LEFEBVRE, AND RDX COMBINATION FAILS TO RENDER OBVIOUS DEPENDENT CLAIMS 3-4, OR 17.

Petitioner relies on the combination of Khavakh, Lefebvre, and RDX for ground 2. But, Petitioner fails to show that, as discussed above, the combination of Khavakh and Lefebvre discloses elements 1[D] and 1[E] of independent claim 1. As such, it is axiomatic that claims 3-4 and 17—which are dependent claims of Claim 1—cannot be rendered obvious by the combination of Khavakh, Lefebvre, and RDX. Petitioner does not even attempt to argue that the RDX reference discloses elements 1D and 1E, instead relying on the RDX reference for its waypoint deletion feature. *See* Petition at 118-119. As the RDX reference fails to disclose elements 1D and 1E, and Petitioner makes no argument that it does, the combination of Khavakh, Lefebvre, and RDX fails to render dependent claims 3-4 and 17 obvious as the combination of Khavakh and Lefebvre fails to render independent claim 1 obvious.

A. A POSITA Would Not Be Motivated to Combine Khavakh with Lefebvre and RDX.

For the same reasons as addressed above, “a POSITA viewing the navigation system of Khavakh would not review or consider the Lefebvre and RDX reference at all as the combination would not include each element of claims 1 and 19 as discussed above.” Ex. 2001 at ¶ 74. “In other words, the combination of Khavakh, with Lefebvre and RDX would not have resulted in the inventions of the '971 Patent for the same reasons as addressed above, *i.e.*, the combination would still be missing

claim elements 1D, 1E, 19D, and 19E.” *Id.* “[T]he combination would have led to a device which allows the user to set a route including one or more waypoints, and in the event the vehicle is off-route, would have presented the user with the message of Lefebvre and Lefebvre’s four options, none of which would have allowed the user decide whether or not to travel via or bypass the first next waypoint.” *Id.*

VII. CONCLUSION

The Board should exercise its discretion to deny the petition on each of Ground 1 and 2. For Ground 1, Petitioner has not carried the burden that there is a motivation to combine Khavakh with Lefebvre, nor has Petitioner shown that even if combined, the combination of Khavakh and Lefebvre disclose each and every limitation of Claims 1-2, 7-12, 16-17, and 19. For Ground 2, Petitioner has not carried the burden that there is a motivation to combine Khavakh with Lefebvre and RDX, nor has Petitioner shown that even if combined, the combination of Khavakh with Lefebvre and RDX disclose each and every limitation of Claims 3-4 and 14.

Accordingly, Patent Owner respectfully requests the Board deny institution of this petition under Grounds 1 and 2.

Respectfully submitted,

/Neal Massand/

Neal Massand
Counsel for Patent Owner

CERTIFICATE OF COMPLIANCE

Per 37 C.F.R. §42.24(a) and (d), the undersigned hereby certifies that the Petition complies with the type-volume limitation of 37 C.F.R. §42.24(a)(i) because, exclusive of exempted portions, it contains 4061 words as counted by the word-processing program used to prepare it.

Dated: February 28, 2024

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that the above-captioned Mandatory Notice was served on counsel of record for the Petitioner by filing this document through the Patent Review Processing System as well as by delivering a copy via electronic mail to:

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Dated: February 28, 2024

/s/ Neal Massand
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