

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TEXTRON SPECIALIZED VEHICLES INC.,
Petitioner,

v.

SZ DJI TECHNOLOGY CO. LTD.,
Patent Owner.

Case IPR2023-01217
Patent 11,462,116

**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 37 C.F.R. § 42.107**

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I. INTRODUCTION

The Board should not institute *inter partes* review of claims 1-23 of patentee DJI's U.S. Patent 11,462,116 ("the '116 patent") because Textron Specialized Vehicles, Inc. ("Petitioner") fails to show that it has a reasonable likelihood of prevailing.

The petition presents a flawed case for anticipation and obviousness of the involved claims. Petitioner glosses over many distinctions between Humphries and the invention described and claimed in the '116 patent, leading to Petitioner's inability to present a consistent invalidity theory from element to element of the claims.

First, Petitioner fails to provide any explanation or analysis that would justify its implicit construction that the claimed "restriction region" equates to any geofence object. Rather, a careful reading of Humphries reveals it actually teaches the opposite of what is claimed in the '116 patent. Petitioner also provides inconsistent mappings between the claimed restriction region and Humphries, at times relying on Humphries' geofence object alone and elsewhere relying on the geofence object plus the hysteresis buffer.

Petitioner is also unable to show any processor, or group of processors, in Humphries that satisfy the requirements of both receiving points associated with a restriction region and generating the claimed restriction strips. In attempting to

map to these claim elements, Petitioner rests on conclusory assertions with no connection to the actual prior art disclosure.

Finally, the petition also fails to establish Humphries discloses the claimed restriction strips and, as a result, fails to address with particularity where that limitation is found in the prior art. In fact, Petitioner is unable to even present a consistent mapping, relying on different aspects of Humphries for the same claim term from element to element.

All of Petitioner's grounds rely on Humphries, and the additional asserted references do not cure Humphries' deficiencies. Hence, Petitioner has failed to show unpatentability and institution of *inter partes* review should be *denied*.

II. CLAIM CONSTRUCTION

A claim subject to *inter partes* review receives its plain and ordinary meaning, interpreted in light of the specification of the patent in which it appears. 37 C.F.R. § 42.100(b). Although Petitioner asserts no claim construction is required (Pet., 18), Petitioner broadly, and incorrectly, interprets “restriction region” as merely referring to a geofence. 37 C.F.R. § 42.104(b)(3) (requiring an express construction of contested terms). Petitioner provides no claim construction analysis to justify such a broad reading, rendering the petition fatally deficient. *See AG v. 511 Innovations*, IPR2016-01792, Paper 15, 13 (2017) (denying

institution where petitioner failed to account for specification’s use of contested term).

Specifically, claim 1 requires support for a vehicle “restriction region”—a focal limitation repeated throughout the body of claim 1—with restriction strips along its boundary, that automatically causes the vehicle to take one or more response measures. EX1001, claim [1p], [1a], [1b], [1c], [1e].¹ The petition asserts without analysis that the claimed restriction region is a geofence. *See, e.g.*, Pet., 1 (“The ’116 Patent describes drawing **geofences** (claimed as ‘restriction regions’)...”), 19 (“Humphries discloses methods for creating **geofence object(s)** associated with a vehicle (which maps to the claimed ‘vehicle restriction region’).”). As an initial matter, Petitioner does not address whether it views the terms “geofence” and “geofence object” as coextensive. Regardless, even if they mean the same thing, Petitioner never explains why the claim term “restriction region” should be broadly interpreted to equate to a geofence or geofence object, let alone whether such an interpretation would have been consistent with the specification or understanding of one of ordinary skill in the art.

¹ Petitioner’s claim-element numbering.

As discussed below with respect to Ground 1, Petitioner is wrong in equating the claimed restriction region to a mere geofence. However, the Board need not even reach the flawed merits of Petitioner's prior art mapping in view of the facially deficient absence of any claim construction analysis. Petitioner merely concludes that a restriction region is another term for a geofence, without any supporting explanation. Accordingly, institution should be denied in view of Petitioner's failure to provide the requisite claim construction analysis on which its challenge implicitly relies. *ams AG*, IPR2016-01792, Paper 15, 13.

III. GROUNDS 1(A) AND 1(B): HUMPHRIES NEITHER ANTICIPATED THE INVOLVED CLAIMS NOR RENDERED THEM OBVIOUS

As detailed below, Grounds 1(a) and 1(b) fail to establish a reasonable likelihood of unpatentability because Petitioner fails to show the art it relies upon—Humphries—describes each and every limitation in the sole independent claim. First, Petitioner fails to establish that Humphries discloses the claimed restriction region. Petitioner not only fails to address the distinct purposes of the restriction region and Humphries' geofence object, but also fails to provide a consistent mapping, at times including relying on the geofence object alone while elsewhere including the hysteresis buffer of Humphries (or a portion of it) along with the geofence object. Second, Petitioner fails to establish that Humphries discloses one or more processors that receive points associated with a restriction region *and* generate restriction strips as claimed. Third, regardless of what

generates the restriction strips, Petitioner fails to show Humphries discloses the claimed strips at all, because its mapping to elements [1b], [1c], and [1d] is inconsistent yet again. Each of these problems provides an independent basis to deny institution.

A. Independent Claim 1

1. Petitioner fails to establish Humphries discloses a “restriction region” (Elements [1p], [1a], [1b], [1c], [1e])

Petitioner argues that Humphries’ “geofence object” discloses the claimed “restriction region.” *See, e.g.*, Pet., 19, 21, 24. However, as discussed above in Section II, this assertion rests on an unsupported assumption that the claimed restriction region is simply another term for a geofence. The petition’s failure to provide any underlying claim construction analysis is reason alone to deny the petition. Beyond that, as discussed in detail below, Petitioner claim 1 mapping never compares the “geofence object” in Humphries to the “restriction region” described throughout the ’116 patent disclosure. Even a cursory examination reveals they are inapposite. Also, as described below, Petitioner maps *different* elements of Humphries to the claimed restriction region, resulting in inconsistent characterizations and mappings. Thus, for at least two distinct reasons, Petitioner fails to show Humphries discloses the claimed restriction region.

- a) *The petition fails to substantiate its assertion that claim 1's "restriction region" is the same thing as Humphries' "geofence object"*

Claim 1 defines a "method for supporting a vehicle restriction region."

Petitioner inaptly correlates Humphries' "geofence object"—or in certain instances, the combination of Humphries' "geofence object" and its "hysteresis buffer"—to the claimed "restriction region." Petitioner's asserted basis for doing so is that Humphries' "geofence object is a restriction region as claimed because it corresponds to a geographic region of a map and 'depicts areas in which tracked objects are to be confined.'" Pet., 19. Petitioner cites no support for the proposition that a geofence object that confines tracked objects satisfies the restriction region requirement. Nor does Petitioner address either the usage of the term "restriction region" in the '116 patent specification or the separate disclosure of "predetermined regions" that *are* used to confine vehicles.

Petitioner omits discussion of the '116 patent's disclosure of restriction regions because the patent describes them as a region it is undesirable to allow vehicles to enter. The '116 patent's specification states that "[s]ome jurisdictions may have one or more no-fly zones where UAVs are not permitted to fly" (EX1001, 4:12-15) and "it may be prudent to restrict flight of aerial vehicles in certain regions." *Id.*, 4:16-17. The specification goes on explain that "[t]he flight restriction zones may be provided around and/or overlap regions where restriction

of flight is desired.”² *Id.*, 4:21-22. The specification further states that “[r]egions where restriction of flight is desired may also be referred to herein as flight restricted regions.” *Id.*, 4:23-24. Flight-restricted regions “may include one or more locations where unauthorized vehicles may not fly” or “prohibited airspace ... within which flight of aircraft is not allowed.” *Id.*, 6:12-18. Examples of such restriction regions include “airports, flight corridors, military or other government facilities, locations near sensitive personnel (such as when a President or other leader is visiting a location), nuclear sites ... or other types of no-fly zones.” *Id.*, 6:34-49. Therefore, the specification consistently refers to a “restriction region” as including an area where the vehicle is *excluded* from entry or at least warned upon transgression.

² The ’116 patent’s exemplary discussion of flight restrictions does not limit the claims to a particular vehicle type, as the specification also states that “the systems, devices, and methods disclosed herein in the context of aerial motion (e.g., flight) may also be applied in the context of other types of motion, such as movement on the ground or on water, underwater motion, or motion in space.” EX1001, 2:46-51.

On the other hand, the '116 patent only briefly mentions geofences, but makes it clear that the term has a different, broader meaning than the claimed restriction region. The discussion of geofences is provided in a portion of the specification disclosing a “flight limitation feature [that] may permit the UAV to fly only within a predetermined region” (i.e., a containment zone), rather than the “restriction region” described elsewhere in the specification:

An optional flight limitation feature may be provided for the UAV. The flight limitation feature may permit the UAV to fly only within a predetermined region. The predetermined region may include a lateral (e.g., latitude and/or longitude) limitation. The predetermined region may be within a defined three-dimensional space.

EX1001, 44:48-57. In the context of this flight limitation feature, the specification explains that a geofence “may be a virtual perimeter for a real-world geographic area.” *Id.*, 45:23-31. Again, Petitioner provides no explanation regarding why a mere “virtual perimeter for a real-world geographic area” should be considered a restriction region as claimed.³

³ To be clear, Patent Owner does not argue that the claimed restriction region cannot be satisfied by a geofence or a region bordered by a geofence, but rather

In contrast to the restriction regions described and claimed in the '116 patent, Humphries describes its “geofence object” as “ensuring location adherence” and “route adherence” of the tracked device, that is, constraining movement within the geofence. EX1004, 1:8-12, 3:17-20. Indeed, Petitioner acknowledges that “Humphries[] confines vehicles to the region encompassed by the geofence object ... by ‘*ensuring route adherence*’ of one or more vehicles in a fleet.” Pet., 20 (citing EX1004, 1:8-12) (emphasis original). Humphries’s geofence object ensures that a tracked device *stays within* the boundaries of the geofence object, *not kept outside* the boundaries. Accordingly, Humphries’ “geofence object” and the claimed “restriction region” have different and opposite meanings.

The petition fails to allege anything else in Humphries corresponds to the claimed restriction region. Even when mapping the combination of Humphries’ geofence object and hysteresis buffer to the claimed restriction region, Petitioner fails to show how the combination is something that vehicles would treat as an exclusion zone rather than as a containment zone. *See, e.g.*, Pet., 13 (“the

that Petitioner has failed to explain why the claimed restriction region extends to any and all geofences.

hysteresis zone effectively extends the restriction region by H” and “the system will consider O inside the fence because O is still inside the hysteresis buffer H”).

b) The petition maps Humphries to the claimed “restriction region” inconsistently

Aside from the distinction between the claimed restriction region and the containment-based geofence object in Humphries, Petitioner’s mapping fails for an additional reason, as it varies from page to page of the petition. In particular, Petitioner’s inconsistent use of Humphries’ “hysteresis buffer” illustrates why Petitioner’s failure to construe the claimed restriction region matters in this case. Humphries describes “a hysteresis buffer added to the boundary of the geofence object,” that is, a buffer zone added to the geofence. EX1004, 10:45-50, FIG. 7. Petitioner includes Humphries’ “hysteresis buffer” in its mapping to the claimed “restriction region”—or not—as suits its argument for a given limitation.

At times, Petitioner maps the restriction region to Humphries’ geofence alone. For example, Petitioner asserts “Humphries discloses methods for creating geofence object(s) associated with a vehicle (which maps to the claimed ‘vehicle restriction region’).” Pet., 19; *see also id.* (“Humphries discloses that a geofence object is a *restriction region* as claimed because it corresponds to a geographic region of a map and ‘*depicts areas in which tracked devices are to be confined.*’”) (emphasis original), 21 (“Humphries’ geofenced objects disclose the claimed ‘vehicle restriction region.’”) 27 (“Humphries describes that the determination as

to whether a tracked device is within a geofenced area (i.e., restriction region) includes analyzing whether the object is within a ‘hysteresis buffer’”).

Elsewhere, Petitioner combines both Humphries’ geofence object and hysteresis buffer to map to the claimed restriction region. For example, when summarizing Humphries, Petitioner argues “Humphries discloses that a geofenced area (i.e., restriction region) can include a ‘hysteresis buffer’ that adds a radius to the boundary of the geofence.” Pet., 12. The petition further states “the hysteresis zone effectively extends the restriction region by H.” Pet., 13. Petitioner employs the same interpretation when discussing element [1e], which recites “automatically causing a ground vehicle to undertake one or more response measures *based on* at least one of a location or a movement characteristic of the ground vehicle *relative to the restriction region*.” There, Petitioner urges “an alert will be generated” when “the tracked device is located outside *both the geofence object* and *the additional area provided by the hysteresis, H*.” See Pet., 36 (quoting EX1004, 11:13-17).

Petitioner excludes Humphries’ hysteresis buffer from its restriction region mapping when it needs the hysteresis buffer to address a different limitation. For example, Element [1b] recites “generating ... **one or more restriction strips** along a **boundary of the restriction region** by connecting adjacent points of the two or more points.” In arguing that Humphries discloses this limitation, Petitioner points

to the hysteresis buffer as “corresponding to the separately claimed ‘restriction strip’” and to the geofenced area as being the claimed restriction region. Pet., 27. Yet, in arguing that Humphries discloses element [1e], which recites “automatically causing a ground vehicle to undertake one or more response measures **based on** at least one of a location or a movement characteristic of the ground vehicle **relative to the restriction region**,” Petitioner acknowledges “‘an alert will be generated’” when “‘the tracked device is located outside **both the geofence object and the additional area provided by the hysteresis, H.**’” See Pet., 36 (quoting EX1004, 11:13-17); *see also id.*, 31 (acknowledging, regarding element [1c], “[a]t point O [in the hysteresis buffer], ‘the location of the tracked object is outside the geofence object 250,’ but because the object is still ‘located within the predetermined area defined by the tracked device,’ and ‘no alert will be generated by the tracked device.’”). Because Humphries discloses the alarm is generated when the tracked device is outside the hysteresis buffer (rather than when the tracked device is only outside the geofence object), Petitioner has to characterize **both** the geofence object and the hysteresis buffer as corresponding to the claimed restriction region. This creates a conflict between Petitioner’s mapping to elements [1pre]/[1a]/[1b] (where the alleged restriction region is the

geofence object on its own), and element [1e] (where the alleged restriction region is the geofence object plus the hysteresis buffer).⁴

Petitioner maps different limitations related to the restriction region inconsistently because Humphries does not support Petitioner's argument without such inconsistencies. Indeed, if consistent mapping throughout the petition as a whole is applied, Petitioner cannot show that Humphries discloses the restriction region recited throughout the claim.

Petitioner fails to establish Humphries discloses a "restriction region;" thus, Grounds 1(a) and 1(b) fail.

2. Petitioner fails to establish Humphries discloses "receiving, via one or more processors, two or more points associated with the restriction region" (Element [1a]) and "generating, via the one or more processors, one or more restriction strips" (Element [1]b)

Claim 1 requires one or more processors that receive two or more points associated with the restriction region *and* generate one or more restriction strips. Thus, the claim requires one or more processors that both receive the claimed points and generate the claimed restriction strips. That is, the same processor (or a

⁴ On the other hand, if Petitioner's [1e] argument is interpreted to rely on the geofence object alone, without the hysteresis buffer, as mapping to the restriction region, the petition fails to show how the alert is generated relative to this region.

group of processors collectively) receives the points and generates the restriction strips. Petitioner fails to show Humphries discloses any such processors.

a) Petitioner fails to show Humphries discloses Element [1a]

Element [1a] requires “receiving, via one or more processors, two or more points associated with the restriction region.” Petitioner alleges two aspects of Humphries satisfy this element: “mapping application 150, which is implemented at datacenter 104 on one or more processors” (Pet., 23-24) and “one or more processors of the tracked devices [120]” (Pet., 25). Neither mapping application/datacenter processors nor tracked device processors have been shown to meet the claim requirement.

(1) Mapping application 150/datacenter 140

Petitioner asserts “Humphries discloses that a datacenter 140 application called mapping application 150 receives two or more coordinates (which map to the claimed ‘*two or more points*’) associated with a geofence object (the claimed ‘*restriction region*’).” Pet., 21 (emphasis original). However, Petitioner fails to show where Humphries discloses that the mapping application 150 *receives* any coordinate, let alone two or more coordinates.

Humphries states that “the user can create geofence objects by using the mapping application 150.” EX1004, 5:22-23. The user “create[s] the geofence object(s) ... as boundaries.” *Id.*, 4:25-30. “Once the geofence objects are created,

the mapping application 150 *resolves* the boundaries into a set of coordinates (e.g., longitude and attitude).” *Id.*, 5:30-32 (emphasis added). Petitioner never explains how “resolving” a geofence object boundary into a set of coordinates is equivalent, or even similar, to “receiving” the set of coordinates. At best, resolving a boundary into a set of coordinates implies converting the received boundary into a set of coordinates after receipt. However, Petitioner fails to show how the mapping application 150 receives a set of coordinates, rather than a geofence object boundary that is, at best, subsequently converted into coordinates by the mapping application.

To the extent Petitioner is arguing that the mapping application 150 receives the set of coordinates from itself (after resolving them), Petitioner fails to cite Humphries to support this interpretation or give any reasoned explanation of how this happens. Nor does Petitioner explain why a skilled artisan would have considered “resolving” (or converting) a first data object (i.e., the boundaries) to a second data object (i.e., the set of coordinates) as “receiving” the second data object. The simple explanation is Petitioner cannot turn “resolving” into “receiving” because “resolving” is not the plain meaning of “receiving”.

Moreover, Petitioner’s reliance on the mapping application/datacenter for element [1a] additionally fails because it has not been shown to satisfy element [1b]. As noted above, claim 1 requires that the “one or more processors” recited in

element [1a] also generate one or more restriction strips as recited in element [1b]. While Petitioner's element [1b] discussion ends with a conclusory assertion that the "one or more processors of mapping application 150" disclose that element, this is entirely unexplained, as this is the first mention of the mapping application in that section of the petition. Pet., 27-29. Prior to the last, conclusory sentence, the entirety of the section addressing element [1b] is directed to tracked device 120. *Id.* As such, Petitioner fails to show that mapping application satisfies element [1b], and, by extension, element [1a].

(2) Tracked device 120

Second, Petitioner's alternative argument that Humphries' tracked device 120 receives coordinates also fails. Pet., 21, 25-27. As previously noted, claim 1 requires that the one or more processors recited in element [1a] also generate the restriction strips required by element [1b]. Yet, as discussed below in Section III.A.2.a).(2), Petitioner fails to show that tracked device 120 generates restriction strips as claimed. Accordingly, Petitioner's reliance on tracked device 120 for element [1a] also necessarily fails.

Thus, Petitioner fails to establish Humphries discloses Element [1a]. Grounds 1(a) and 1(b) therefore fail for this additional reason.

b) Petitioner fails to show Humphries discloses Element [1b]

Petitioner asserts that “Humphries discloses the generating step of [1b], including by one or more processors of mapping application 150 and one or more processors of tracked device 120.” Pet., 29. However, the petition fails to show that the claimed generating step is performed by any processor of either the mapping application 150 or the tracked device 120. As noted in the preceding section on element [1a], the petition appears to require spreading elements [1a] and [1b] over different devices and out of chronological order without acknowledging, much less justifying, the necessary modification. Petitioner’s mis-mapping of Humphries to these claim limitations does not establish anticipation and its conclusory assertion that this unacknowledged difference would have been obvious falls well short of meeting its burden of proof.

(1) Tracked device 120

Petitioner asserts “Humphries discloses that the tracked device 120 generates a ‘hysteresis buffer’ (corresponding to the claimed ‘restriction strip’) along a boundary of the geofenced object by connecting adjacent points of the two or more points.” Pet., 27. However, the petition identifies nothing in Humphries to support this conclusion. For example, Petitioner cites Humphries (at 12:14-51) for the proposition that “tracked device 120 generates the restriction strips using one or more processors.” Pet., 29. However, this passage is a generic description of “an

exemplary hardware computer system 700 employed within the tracked device 120” (EX1004, 12:14-15). Moreover, nothing in this passage describes the capability of the tracked device 120 to generate “one or more restriction strips along a boundary of the restriction region by connecting adjacent points of the two or more points,” as recited in element [1b].

Instead, Humphries discloses that the tracked device *does* not generate the hysteresis buffer at all. For example, claim 1 of Humphries recites, *inter alia*, “the ***set of coordinates include a hysteresis value*** that adds a predetermined area to the outer periphery of the boundary area.” And as discussed above, the coordinates themselves are “resolved” by the mapping application 150, not by the tracked device 120. *See supra*, section III.A.2.a. Therefore, Humphries neither taught nor suggested that the set of coordinates is generated by the tracked device 120.

Accordingly, the petition fails to establish that Humphries’ tracking device 120 in itself discloses element [1b].

(2) *Mapping application 150/datacenter 140*

Petitioner also baldly asserts that “Humphries discloses the generating step of [1b], including by one or more processors of mapping application 150.” Pet., 29. However, as noted above, Petitioner’s discussion provides no analysis as to why that might be the case. Aside from the last sentence of the section, the petition doesn’t even mention mapping application 150 in its element [1b] analysis.

Pet., 27-29. Indeed, Petitioner provides neither evidence nor explanation for how any processor of Humphries' mapping application 150 generates a restriction strip as claimed.

Even if Petitioner had argued a skilled artisan would have understood that a processor of the mapping application 150 generates the hysteresis buffer, the petition still fails to show that element [1b] is satisfied. A plain and ordinary reading of elements [1a] and [1b] requires the "one or more processors" of element [1a] be interpreted as the same "*the* one or more processors" of element [1b] (emphasis added). As discussed above, the processor of the mapping application 150 does not "receiv[e] ... two or more points associated with the restriction region." *See supra*, section III.A.2.a.i. Because Petitioner has not shown the processor of mapping application 150 satisfies element [1a], Petitioner also has not shown the processor of mapping application 150 satisfies element [1b].

Moreover, to the extent that Petitioner intended to assert that a combination of processors in both Humphries' mapping application 150 and tracked device 120 would satisfy element [1b] (Pet., 29 ("one or more processors of mapping application 150 and one or more processors of tracked device 120")), neither Humphries nor the petition describes what this combination entails. Petitioner also appears to assert parenthetically that the combination would have been obvious

(*id.*), but provides no *Graham* analysis, leaving no basis for Patent Owner to address or for the Board to consider.

Petitioner therefore fails to establish that Humphries discloses element [1b]. Grounds 1(a) and 1(b) thus fail for this additional reason.

3. Petitioner fails to establish Humphries discloses “one or more restriction strips” (Elements [1b], [1c], [1d])

As yet another independent basis to deny institution, Petitioner inconsistently maps the claimed “restriction strips” to Humphries. At times Petitioner argues the portion of Humphries’ hysteresis buffer having a width H (i.e., the portion outside the geofence object) constitutes a restriction strip, while elsewhere in the petition Petitioner must rely on the full width $2H$ of the buffer (i.e., the portion that extends into the geofence object in addition to the portion outside the geofence object). In doing so, Petitioner not only presents an inconsistent and fatally deficient challenge, it highlights the petition’s inability to map any aspect of Humphries to the restriction strips in a way that satisfies the claim as a whole.

First, in discussing elements [1b] and [1c], Petitioner argues that the hysteresis buffer having a height H corresponds to the claimed restriction strips. *See* Pet., 27-32. For example, for element [1b], the petition asserts that “[t]he polygon fence [] includes an area represented by a ***hysteresis, H*** , surrounding the boundary of the geofence object [].” Pet., 28 (citing EX1004, 10:50-52) (emphasis

added). Referring to Petitioner's annotations of Humphries's FIG. 7B below, Petitioner describes the hysteresis buffer as having a height H:

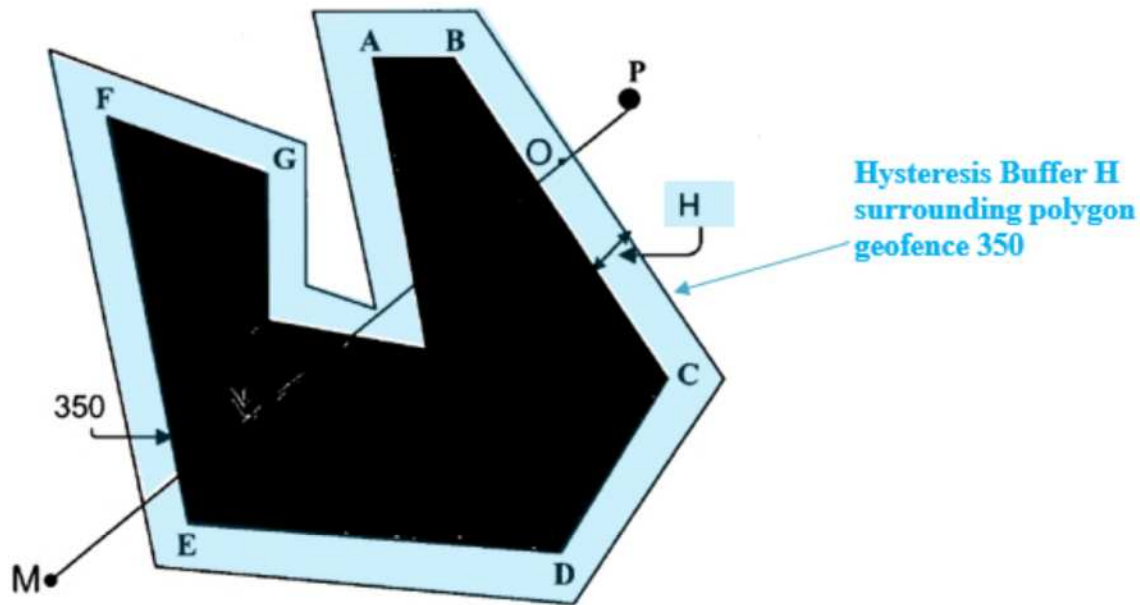


FIG. 7B

Petitioner concludes by stating “[t]he hysteresis buffer area for each line segment thus discloses the claimed ‘restriction strip(s).’” Pet., 29 (citing EX1003, ¶120).

Similarly, in discussing element [1c], Petitioner asserts that the limitation of “*the one or more restriction strips* defining at least a portion of the restriction region” is satisfied because “Humphries discloses that the *hysteresis buffers* define at least a portion of the geofenced object 350.” See Pet., 29-32 (emphasis added). Referring to Humphries FIG. 7B, Petitioner asserts “[a]s taught by Humphries, the

tracked device's 'status is set to inside' the geofence when it is located at point O, because it is inside the *hysteresis buffer H*." Pet., 1 (citing EX1004, 9:51-55; 10:2-5; 11:6-9) (emphasis added). Petitioner concludes "Humphries teaches that the *hysteresis buffer, H*, defines a portion of the geofenced object (i.e., restriction region) as required by [1c]." Pet., 32 (citing EX1003, ¶¶123-126) (emphasis added). Hence, Petitioner argues in relation to elements [1b] and [1c] that Humphries's *hysteresis buffer having a height H* corresponds to the claimed one or more restriction strips, and in doing so argues that the inner edge of that buffer H defines a portion of the geofence object.

Yet, when the petition discusses element [1d], Petitioner argues the full hysteresis buffer—which has a *height of $2H$* —corresponds to the claimed "one or more restriction strips." See Pet., 32-34. For example, Petitioner asserts that "[t]his hysteresis is formed using two circles having radius H, centered respectively at points A and B and connected by two lines tangential to each circle." Pet., 33. If the hysteresis buffer has two circles with radius H, then the circles necessarily have a *diameter of $2H$* , which also forms the height (or width) of the hysteresis buffer. See also Pet., 40 where Petitioner discusses claim 6, stating "[a]s shown in Figure 7C, the radius of both circles is defined by H, which based on the width of the *hysteresis buffer, $2H$* , which extends H from each side of line segment AB." The petition relies on an annotated FIG. 7C of Humphries

reproduced below, which shows the height (or width) of the hysteresis buffer being $2H$:

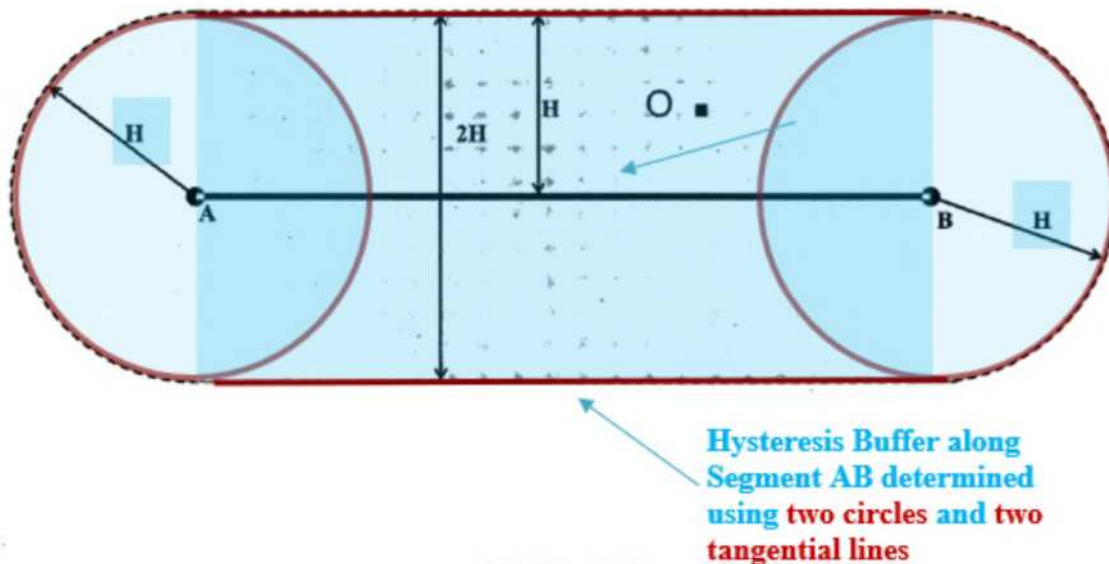


FIG. 7C

Pet., 34. Accordingly, when discussing element [1d], the petition maps the hysteresis buffer as having a height/width of $2H$.

This inconsistent mapping of the hysteresis buffer for different claim limitations shows that Petitioner fails to establish Humphries discloses the claimed “one or more restriction strips.” The petition’s theory cannot be reconciled because the width (diameter) defined by the circles cannot be both H and $2H$, as the petition urges with its reliance on Humphries’ FIGS. 7B and 7C, respectively, to define the buffer.

Nor has Petitioner provided any allegation or analysis that a hysteresis buffer with width $2H$ (which is the only buffer width the petition maps to element [1d]) defines a portion of the geofence object alleged to be the claimed restriction region. Rather, Petitioner alleges only that the inner edge of a buffer with width H would provide such a definition. Pet., 32 (“Humphries teaches that the hysteresis buffer, H , defines a portion of the geofenced object (i.e., restriction region), as required by [1c].”).⁵

Therefore, the petition fails to establish Humphries discloses elements [1b], [1c], and [1d] which recite the “restriction strips.” Grounds 1(a) and 1(b) thus fail for this additional reason.

⁵ To the extent Petitioner’s element 1[d] argument is interpreted to mean that the outer (rather than inner) edge of the hysteresis buffer defines a portion of the restriction region, this would be inconsistent with the petition’s assertion that Humphries’ geofence object discloses the claimed restriction region. The user-defined geofence object, for example as depicted in Humphries FIG. 2 (Pet., 20, 23), does not include the hysteresis buffer. *See, e.g.*, Pet., 27 (“Humphries describes ...a ‘hysteresis buffer,’ i.e., an added radius to the boundary of the geofence.”).

B. Dependent Claims 2-8, 10-12, and 15-23

Claims 2-8, 10-12, and 15-23 depend from claim 1. Thus, for the same reasons explained above, the petition fails to establish that Humphries anticipated these claims or rendered them obvious.

IV. GROUND 2 FAILS

Ground 2 of the petition asserts claim 13 would have been obvious over Humphries in light of Sheha. Pet., 54-57. Claim 13 depends from claim 1. Petitioner relies on Sheha for allegedly teaching “the boundary is an open boundary and the restriction region is an open region,” as recited in claim 13. Petitioner’s reliance on Sheha fails to cure the deficiencies of Humphries identified above with respect to claim 1. Thus, Ground 2 fails for the same reasons explained for Grounds 1(a) and 1(b).

V. GROUND 3 FAILS

Ground 3 asserts claims 14, 16, 20, and 21 would have been obvious over Humphries in light of Jin. Pet., 58-65. Claims 14, 16, 20, and 21 depend from claim 1. Petitioner relies on Jin for allegedly teaching “the movement characteristic includes at least one of a velocity, an acceleration, a deceleration, a direction of travel, or a projected path of the ground vehicle,” “determining which of the one or more response measures to cause the ground vehicle to undertake, based on the location or the movement characteristic of the ground vehicle relative

to the restriction region,” “causing the ground vehicle to undertake one or more response measures includes taking control away from a user of the ground vehicle,” and “causing the ground vehicle to undertake one or more response measures includes ceasing to take commands from a user of the ground vehicle,” as recited in the claims. Petitioner’s reliance on Jin fails to cure the deficiencies of Humphries identified above with respect to claim 1. Thus, Ground 3 fails for the same reasons explained for Grounds 1(a) and 1(b).

VI. GROUND 4 FAILS

Ground 4 of the petition asserts claim 14 would have been obvious over Humphries in light of Putz. Pet., 65-67. Claim 14 depends from claim 1. The petition relies on Putz for allegedly teaching “the movement characteristic includes at least one of a velocity, an acceleration, a deceleration, a direction of travel, or a projected path of the ground vehicle,” as recited in claim 14. Petitioner’s reliance on Putz fails to cure the deficiencies of Humphries identified above with respect to claim 1. Thus, Ground 4 fails for the same reasons explained for Grounds 1(a) and 1(b).

VII. GROUND 5 FAILS

Ground 5 asserts claims 9, 17, 20, and 21 would have been obvious over Humphries in light of Borugian. Pet., 68-75. Claims 9, 17, 20, and 21 depend from claim 1. Petitioner relies on Borugian for allegedly teaching “the minimum

width is defined to prevent the ground vehicle from encroaching in the restriction region,” “causing the ground vehicle to undertake the one or more response measures based on the location or the movement characteristic of the ground vehicle includes: calculating an estimated amount of time for the ground vehicle to approach the restriction region, or a time or distance for the ground vehicle to begin to experience a response measure,” “causing the ground vehicle to undertake one or more response measures includes taking control away from a user of the ground vehicle,” and “causing the ground vehicle to undertake one or more response measures includes ceasing to take commands from a user of the ground vehicle,” as recited in the claims. Petitioner’s reliance on Borugian fails to cure the deficiencies of Humphries identified above with respect to claim 1. Thus, Ground 5 fails for the same reasons explained for Grounds 1(a) and 1(b).

VIII. CONCLUSION

For the reasons set forth above, the Board should deny institution.

Respectfully submitted,

Dated: October 24, 2023

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this paper contains no more than 14,000 words, not including the portions of the paper exempted by § 42.24(b). According to the word-processing system used to prepare this paper, the paper contains 5,515 words.

Respectfully submitted,

Dated: October 24, 2023

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CERTIFICATE OF SERVICE

I certify that this Patent Owner's Preliminary Response was served today on the petitioner at the following electronic service addresses:

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