

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 No. IPR2023-01287
Patent No. 11,482,121

**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 1-30 of U.S. Patent No. 11,482,121 (“the ’121 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 challenged claims. Central to Petitioner’s grounds of challenge is the primary reference Humphries, which Petitioner asserts—alone or in combination with secondary references Marcus and Borugian—rendered the challenged independent claims unpatentable. However, to advance its challenge, Petitioner must gloss over the many distinctions between Humphries and the invention described and claimed in the ’121 patent, leading to Petitioner’s inability to present a coherent invalidity theory across all of its grounds.

First, Petitioner’s Grounds 1A and 1B allege that Humphries alone anticipates or renders obvious independent claims 1 and 18, but Petitioner’s analysis fails in many respects. Petitioner’s reliance on Humphries is based on the theory that Humphries’s geofence object maps to the claimed “restriction region”—a central limitation to the claims—because the geofence object “*depicts areas in which tracked objects are to be confined.*” Pet., 16 (emphasis original). However, Petitioner’s theory that Humphries’s geofence object is a “restriction region” because it confines tracked objects contradicts what the ’121 patent

describes is a “restriction region”—namely, an area where vehicles are *excluded* or at least operatively restricted upon entry. Apart from this, Petitioner also presents incomplete and insufficient explanation as to how Humphries’s system discloses many of the claimed limitations, including:

- “receiv[ing] one or more parameters of a designated restriction region”;
- the one or more parameters of the designated restriction region “include at least a location associated with a private property”; and
- “associat[ing] one or more response measures with the designated restriction region based on the one or more parameters.”

Furthermore, Petitioner’s faulty application of Humphries to the challenged claims carries over and infects its other grounds. For example, Petitioner’s Ground 2, which also challenges claims 1 and 18, brings in Marcus as allegedly teaching the one or more parameters of the designated restriction region “include at least a location associated with a private property.” However, in addition to relying on the same deficient analysis used for Humphries with respect to the other claim limitations, Petitioner’s rationale to combine Humphries and Marcus rests on a fatal defect: Petitioner alleges that a POSA would have been motivated to combine the references to achieve the benefit of “preventing an *airborne vehicle (a drone)* from...accessing prohibited areas” (Pet., 46), but the claims recite a system for managing a restriction region for a *ground vehicle*. Moreover, Petitioner’s failure

to grapple with its reliance on Humphries’s geofence object as an area in which tracked objects are to be confined and the claimed “restriction region” leads to an illogical combination of Humphries and Marcus that fails to sufficiently map to the challenged claims. Petitioner’s Grounds 3A-3B and 4A-4B, which challenge claims that depend from claims 1 and 18, also fail based on Petitioner’s flawed application of Humphries and alternative combination with Marcus.

Lastly, similar deficiencies apply to Petitioner’s Ground 5, which challenges independent claims 24 and 28 and relies on Borugian as allegedly disclosing a response measure in which a vehicle is shut down if the vehicle is determined to be within the designated restriction region. As with Ground 2, Petitioner’s invalidity theory again leads to an irrational combination that is in tension with Petitioner’s reliance on Humphries’s geofence object as the claimed “restriction region.” Because Ground 6 relies on the same flawed combination, Ground 6 also fails.

For these reasons, and as further detailed below, 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., 15), Petitioner broadly, and incorrectly, interprets “restriction

region” as encompassing Humphries’s “geofence objects,” which, according to Petitioner, are “areas in which tracked objects are to be confined.” Pet., 16; 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 ams 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, each of independent claims 1, 18, 24, and 28 requires a system for managing a “restriction region”—a focal limitation repeated throughout the body of the claims—that is associated with one or more response measures designed to affect operation of a vehicle when it is within or near the restriction region. *See, e.g.*, EX1001, claim 1[Pre], 1[b]-1[f].¹ The petition asserts without analysis that the claimed restriction region corresponds to Humphries’s “geofenced object,” which Petitioner contends confines tracked objects. *See, e.g.*, Pet., 1-2, 9, 16, 18 (Humphries’s “**geofenced objects** disclose the claimed ‘restriction region.’”), 26 (“the one or more parameters of the designated restriction region, *i.e.*, the boundaries of the geofence objects”), 29 (“the boundary of the geofence

¹ Petitioner’s claim-element numbering.

object (designated restriction region)"). Petitioner never explains why the claim term "restriction region" should be broadly interpreted to equate to a geofence object, like those of Humphries, let alone whether such an interpretation would have been consistent with the specification or understanding of one of ordinary skill in the art.

As discussed below, Petitioner is wrong in equating the claimed restriction region to Humphries's geofence object. *Infra*, section III.A.1. 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, without any supporting explanation, that Humphries's geofence object is a restriction region because the geofence object confines tracked devices. *See* Pet., 16. 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 1A AND 1B FAIL

As detailed below, Grounds 1A and 1B fail to establish a reasonable likelihood of unpatentability because Petitioner fails to show the art it relies upon—Humphries—describes each and every limitation of the independent claims.

First, Petitioner advances a theory that Humphries discloses the claimed "restriction region" because 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 objects are to be confined.*’” Pet., 16 (emphasis original). Petitioner, however, fails to establish that Humphries discloses the claimed “restriction region” under this theory because the petition fails to address and reconcile the distinct purposes of the restriction region and Humphries’s geofence object.

Second, the petition’s deficient element-by-element mapping of Humphries to the claims fails to satisfy Petitioner’s burden in establishing the unpatentability of the claims based on Humphries alone. For instance, with respect to the element requiring that the system “receive[s] one or more parameters of a designated restriction region,” the petition provides an incomplete analysis that fails to address the particular language of the claims. In addition, for the element that “the one or more parameters” include “at least a location associated with a private property,” Petitioner fails to meet its burden, under either a theory of inherent disclosure or an obviousness theory, that the boundaries of Humphries’s geofence object satisfy this claim limitation. Lastly, Petitioner fails to establish that Humphries’s system “associate[s] one or more response measures with the designated restriction region based on the one or more parameters” because Petitioner’s analysis maps the same feature of Humphries—the generation of an alert when a tracked device crosses a

geofence object boundary—to two separate elements of the claims without sufficient explanation justifying such a reading.

A. Independent Claims 1 and 18

1. The petition fails to establish Humphries discloses a “restriction region” (Elements 1[Pre], 1[b]-1[f], 18[Pre], 18[b]-18[f])

Petitioner argues that Humphries’s “geofence object” discloses the claimed “restriction region.” *See, e.g.*, Pet., 15-18, 20. However, as discussed above in Section II, this assertion rests on an unsupported assumption that Humphries discloses the claimed restriction region because Humphries discloses a “geofence object” that confines tracked devices, but Petitioner’s claim 1 mapping never compares the “geofence object” in Humphries to the “restriction region” described throughout the ’121 patent disclosure. *See also* Pet., 38-40 (providing substantially identical mapping for claim 18). Even a cursory examination reveals they are inapposite.

Claims 1 and 18 define a “system for managing a restriction region.” Petitioner inaptly correlates Humphries’s “geofence object” to the claimed “restriction region.” Petitioner’s asserted basis for doing so is that Humphries’s “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., 16 (emphasis original). Petitioner cites no support for the proposition that a geofence object that confines tracked objects satisfies the

restriction region requirement nor does Petitioner address the usage of the term “restriction region” in the ’121 patent specification.

Petitioner omits discussion of the ’121 patent’s disclosure of restriction regions, which describes them as a region where the operation of a vehicle is more restricted within the region relative to when the vehicle is outside the region. The ’121 patent’s specification states that “a flight restriction region may include any locations in which it may be desirable to limit operation of a UAV”; “[f]or example, flight restriction regions may include one or more locations where unauthorized aerial vehicles may not fly.” EX1001, 14:56-60. The specification goes on explain that “[f]light-restricted regions may include prohibited airspace, which may refer to an area (or volume) of airspace within which flight of aircraft is not allowed, usually due to security concerns.” *Id.*, 14:63-64; *see also id.*, 14:5-7 (“A flight restriction region (herein also referred to as a flight-restricted region) may have any location.”), 39:63-40:16 (explaining restriction regions apply to “a wide variety of movable objects,” including those configured to move “on ground”). Examples of restriction regions include “airports, military bases, borders, public sensitive areas, and private restriction regions.” *Id.*, 2:12-15; *see also id.*, 7:39-50, 14:56-15:38, 23:4-7, FIG. 10. The specification also illustrates an exemplary interface in which flight restriction regions are taken into account in the generation of a flight route that avoids such regions. *Id.*, 36:8-19, FIG. 7.

Therefore, the specification consistently refers to a “restriction region” as including an area where the vehicle is ***excluded*** from entry or its operation is at least limited upon transgression. *See, e.g., id.*, 22:29-58.

In contrast to the restriction regions described and claimed in the ’121 patent, Humphries describes its “geofence object” as “ensuring location adherence” and “route adherence” of the tracked device, that is, constraining movement within the geofence object. EX1004, 1:8-12, 3:17-20. Indeed, Petitioner asserts that “Humphries discloses ***confining vehicles to the region*** encompassed by the geofence object ... by ‘ensuring route adherence’ of one or more vehicles in a fleet” (Pet., 20 (emphasis added)) and theorizes that Humphries’s geofence object corresponds to the claimed restriction because a geofence object “*depicts areas in which tracked objects are to be confined*” Pet., 16 (emphasis original)). Thus, according to Petitioner, Humphries’s geofence object ensures that a tracked device freely operates and ***stays within*** the boundaries of the geofence object, ***not kept outside*** the boundaries (or at least faces restrictions upon entry). Accordingly, Humphries’s “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. For this reason, Petitioner fails to establish that Humphries discloses the claimed “restriction region.”

2. The petition fails to establish Humphries discloses receiving “one or more parameters of a designated restriction region” (Elements 1[b], 18[b])

Claims 1 and 18 recite that the system is configured to “receive one or more parameters of a designated restriction region for a ground vehicle.” Petitioner asserts Humphries discloses the limitation via “mapping application 150” where a user “can create and edit the geofence objects by using the mapping application 150” by “input[ting] one or more parameters, such as the boundaries of the geofence objects...using the tools illustrated in the drawing window 250 to draw the boundaries.” Pet., 19-20. Petitioner asserts “[t]he one or more parameters, such as boundaries of the geofence objects, designate a restriction region for a ground vehicle.” *Id.*, 20.

Petitioner fails to sufficiently explain how Humphries discloses the claim limitation. Specifically, Petitioner maps “the boundaries of the geofence objects” drawn by the user to the claimed one or more parameters, which Petitioner asserts “designate a restriction region for a ground vehicle.” *Id.* This is the extent of Petitioner’s analysis of the claim limitation. *See also* EX1003, ¶¶95-96 (Petitioner’s expert providing identical claim analysis). Claims 1 and 18, however, do not recite that the parameters that are received “designate a restriction region for a ground vehicle.” Instead, the claims recite that the one or more processors (or computer readable medium having instructions in the case of claim 18) receive

“one or more parameters of a designated restriction region.” In other words, the received parameters do not “designate a restriction region” (Pet., 20); rather, the claimed parameters are of a restriction region *already* “designated” as such. The petition does not explain how parameters that allegedly “designate a restriction region” map to parameters of a previously designated restriction region, unless those boundaries are received twice, which Humphries does not disclose and Petitioner does not allege occurs in Humphries.

For this reason, the petition fails to establish that Humphries discloses a system configured to “receive one or more parameters of a designated restriction region.”

3. The petition fails to establish Humphries discloses “private property” (Elements 1[b], 18[b])

Claim 1 further recites that “the one or more parameters of the designated restriction region include at least a location associated with a private property.”

Claim 18 similarly specifies the system is configured to “receive one or more parameters of a designated restriction region for a ground vehicle operating on private property.” Petitioner essentially presents two theories as to why Humphries discloses these limitations. First, Petitioner argues Humphries discloses the limitations in FIG. 2, “where the geofence objects represent a region on the map that encompass residential and commercial areas that include at least a location associated with a residential or commercial building—such as those that a

POSITA would have understood to exist, for example, within the city of Clinton, Mississippi.” Pet., 22-23. Second, Petitioner argues that “it would have been obvious to a POSITA that Humphries’s geofences could be drawn around that kind of property” (*i.e.*, private property). *Id.*, 23. Petitioner fails to meet its burden under both theories.

First, as an initial matter, Petitioner’s reliance on FIG. 2 of Humphries is based entirely on the presumption that FIG. 2 depicts a real-world location, but Petitioner cites to no evidence to corroborate this assertion. FIG. 2 is a blurry depiction of “an exemplary user interface display provided when accessing the mapping application” of Humphries. EX1004, 2:60-62. Nothing in Humphries’s description indicates that FIG. 2 depicts Clinton, Mississippi or any actual city and, even if Humphries did identify a city, nothing in the reference indicates that what is shown in FIG. 2 represents a real map of that city.

Moreover, Petitioner’s argument that Humphries discloses the claimed limitations because FIG. 2 shows geofence objects that allegedly encompass “residential and commercial areas that include at least a location associated with a residential or commercial building” amounts to an inherency theory. To be clear, Humphries does not expressly disclose that its geofence objects include a location that is associated with private property. Petitioner’s theory, instead, amounts to an assertion that, simply because a geofence object can be drawn somewhere over a

city, then that geofence object *may* encompass private property, in the form a residential or commercial building, somewhere within it. Such a contention is insufficient to support a theory that Humphries *inherently discloses*, which requires a showing that the limitation is *necessarily* present.² *Par Pharm. v. TWi Pharms., Inc.*, 773 F.3d 1186, 1196 (Fed. Cir. 2014) (inherency requires a showing that “the limitation at issue necessarily must be present”).

Third, Petitioner’s theory that the claim limitations are obvious simply because Humphries’s geofences “could be drawn around” private property also fails to support an unpatentability theory. As an initial matter, obviousness requires a showing that a POSA *would have* modified the reference as proposed, not could have. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (obviousness requires showing whether a POSA “not only could have made but would have been motivated to make the combinations or modifications of prior

² Indeed, Petitioner’s assertion that “a residential or commercial building” must be private property is also not based on sound reasoning, as residential and commercial buildings can also be public properties (*e.g.*, public housing). Thus, even if Humphries’s FIG. 2 could be said to encompass “a residential or commercial building,” that does not necessarily establish that the buildings are private property.

art to arrive at the claimed invention”). Petitioner’s bare assertion that a POSA “could” have drawn a geofence around private property is thus insufficient to support Petitioner’s burden in establishing obviousness.

Furthermore, Petitioner’s theories ignore the plain language of the claims. For example, claim 1 recites “the one or more parameters of the designated restriction region include at least a location associated with a private property.” Thus, the claim recites that the parameters themselves include a location that is associated with a private property. In addition, claim 18 recites the “one or more parameters of a designated restriction region” are “for a ground vehicle operating on private property.” Humphries does not disclose that the boundaries inputted by the user (which Petitioner maps to the claimed “one or more parameters”) include a location that has an association with a private property or that they are for a ground vehicle operating on private property, nor does Petitioner advance such a theory. *But see* Pet., 48 (relying on Marcus in Ground 2 “[t]o the extent it is argued that this claim element requires an association of the location with private property be included in the one or more parameters”).

Accordingly, for the reasons above, the petition fails to establish that Humphries discloses “the one or more parameters of the designated restriction region include at least a location associated with a private property,” as recited in

claim 1, and “one or more parameters of a designated restriction region for a ground vehicle operating on private property,” as recited in claim 18.

4. The petition fails to establish Humphries discloses “associate one or more response measures with the designated restriction region based on the one or more parameters” (Elements 1[e], 18[e])

Claims 1 and 18 recite that the system is configured to “associate one or more response measures with the designated restriction region based on the one or more parameters.” Petitioner asserts that Humphries discloses this claim limitation because “Humphries discloses that the tracked device 120 is configured to send an alert if it is determined that the device’s status has changed with respect to being inside or outside the boundary of the geofence object (designated restriction region).” Pet., 26. Petitioner, however, fails to show Humphries discloses this claim limitation because Petitioner’s analysis inappropriately conflates two limitations—namely, the “associate” limitation and the later-recited “implement” limitation—and fails to sufficiently explain how Humphries’s system separately “associate[s]” a response measure to a geofence object.

Specifically, as an initial matter, claims 1 and 18 recite that the system is configured to both “associate one or more response measures with the designated restriction region based on the one or more parameters” *and* “implement the one or more response measures to affect operation of the ground vehicle along a travel path when the ground vehicle is within or near the designated restriction region.”

Petitioner maps the claimed “associate” limitation to Humphries’s disclosure of generating an alert signal when a tracked device crosses a boundary of the geofence object. *See* Pet., 27-28 (asserting POSA would have understood Humphries’s alert generation application executes instructions for “generating an alert after determining whether the tracked device is located inside or outside the boundary of the geofence object”). Petitioner also relies on the same action as satisfying the claimed “implement” limitation. *See* Pet., 29 (“As discussed above, Humphries discloses that the one or more processors are configured to implement the one or more response measures, *e.g.*, ‘providing an alert,’ if it is determined that the device’s status has changed with respect to being inside or outside the boundary of the geofence object (designated restriction region).”).

However, “[w]here a claim lists elements separately, ‘the clear implication of the claim language’ is that those elements are ‘distinct component[s]’ of the patented invention.” *Becton, Dickinson and Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (quoting *Gaus v. Conair Corp.*, 363 F.3d 1284, 1288 (Fed. Cir. 2004)) (alterations in original). Petitioner maps the same feature of Humphries—*i.e.*, the generation of an alert when it is determined that a tracked device has crossed a boundary of the geofence object—to the two claim elements, without providing sufficient explanation as to why the same component

can satisfy both claim elements. Thus, Petitioner's mapping of Humphries to the claimed "associate" limitation is insufficient for this reason alone.

Moreover, beyond the fact that Petitioner relies on Humphries's disclosure of generating an alert when a boundary is crossed for two separate claim elements, Petitioner's analysis is also facially deficient because the petition fails to identify any association between the alleged "response measure" (the alert) and the alleged designated restriction region (the geofence object). At best, the petition introduces its analysis of this claim element with the conclusory assertion that "Humphries discloses that the tracked device 120 is configured to send an alert if it is determined that the device's status has changed with respect to being inside or outside the boundary of the geofence object (designated restriction region)." Pet., 26. However, the petition does not allege that a device that is "configured" to send an alert means that it has "associate[d]" the alert with a geofence object, let alone what aspect of Humphries might disclose such an association. And the petition's citations to Humphries do not add any clarity as all of the citations, at best, relate to the system's **generation** of the alert, rather than to whether and how the system is configured to associate the alert with the geofence object. *See* Pet., 26-28 (citing EX1004, 3:33-39, 5:39-44, 6:2-5, 6:12-15, 6:18-32, 11:13-17, FIG. 1).

Furthermore, to the extent Petitioner's challenge rests on an unstated assumption that the generation of an alert inherently discloses that the system "associate[s]" an

alert with a geofence object, the petition does not advance such a theory nor does the petition explain how the mere generation of an alert whenever a condition is satisfied (*i.e.*, boundary crossing) inherently means that the alert has first been associated with a geofence object.

Accordingly, for these reasons, the petition fails to establish that Humphries discloses a system configured to “associate one or more response measures with the designated restriction region based on the one or more parameters.”

B. Dependent Claims 2-3, 8, 11-11, 16-18, and 22-23

Claims 2-3, 8, 10-11, 16-18, and 22-23 depend from claims 1 or 18. Thus, for the same reasons explained above, the petition fails to establish that these claims are anticipated by or rendered obvious over Humphries.

IV. GROUND 2 FAILS

As detailed below, Ground 2 fails to establish a reasonable likelihood of unpatentability because Petitioner fails to show that the applied references, Humphries and Marcus, describe each and every limitation of the independent claims and would have been combined in a manner so as to meet the claimed invention.

First, Petitioner’s Ground 2 presents an alternative theory of unpatentability of claims 1 and 18 by relying on Marcus for the limited purpose of allegedly teaching the inclusion of parameters for a designated restriction region that include

a location associated with a private property. For the remaining limitations, Petitioner's analysis incorporates its Grounds 1A and 1B theories based on Humphries alone, making Petitioner's Ground 2 deficient for the same reasons.

Furthermore, Petitioner advances an obviousness theory that rests on unsound and incomplete reasoning. First and foremost, Petitioner's obviousness theory is premised on a motivation that does not even lead to the limitations of the challenged claims, making Petitioner's Ground 2 facially deficient. While Petitioner's rationale for combining Humphries and Marcus relies on benefits that would be conferred to systems for managing the travel of *airborne vehicles*, the claims recite systems for managing restricted regions for *ground vehicles*. Moreover, Petitioner relies on Marcus to propose a modification to Humphries's system that is not only in tension with the function of Humphries's geofence object as advanced by Petitioner, but also at odds with respect to Petitioner's mapping of Humphries to other limitations of the challenged claims.

A. Independent Claims 1 and 18

1. Petitioner's Grounds 1A and 1B deficiencies apply to Ground 2

Petitioner relies on the combination of Humphries and Marcus as alternatively rendering obvious the limitations of claims 1 and 18. In particular, Petitioner relies on Marcus as allegedly disclosing that "the one or more parameters of the designated restriction region include at least a location associated

with a private property.” Pet., 47-48; *see also id.*, 51 (relying on Marcus for same purpose with respect to claim 18). For all other limitations, Petitioner relies on Humphries and incorporates its mapping of Humphries as advanced for Grounds 1A and 1B. *See id.*, 47-49, 51-52. This includes Petitioner’s arguments that Humphries discloses the claimed “restriction region” (elements 1[Pre], 1[b]-1[f], 18[Pre], 18[b]-18[f]), “receiv[ing] one or more parameters of a designated restriction region” (elements 1[b], 18[b]), and “associat[ing] the one or more response measures with the designated restriction region based on the one or more parameters” (elements 1[e], 18[e]). Therefore, as detailed above, Petitioner fails to establish that Humphries discloses these limitations and Petitioner’s Ground 2 fails for the same reasons. *See supra*, sections III.A.1, III.A.3-4.

2. The petition’s proposed combination of Humphries and Marcus is illogical and fails to map to the limitations of the claims

Petitioner’s obviousness analysis applying the combination of Humphries and Marcus is also deeply flawed. Petitioner argues that a POSA “would have found it obvious to modify Humphries’s one or more parameters of the designated restriction region to include location information and additional restriction information relating to a private property, enabling more functionality with respect to controlling the boundary of the restricted region.” Pet., 45. Petitioner contends that a POSA “would have recognized Marcus’s location and further restriction information...would have provided the same benefit to Humphries as is taught by

Marcus—preventing an airborne vehicle (a drone) from trespassing, violating property rights, or otherwise accessing prohibited areas.” *Id.*, 46. However, as described below, Petitioner provides an incomplete analysis of Humphries and Marcus that not only fails to address each and every limitation of the claims, but also fails to reconcile the distinct disclosures of Humphries and Marcus, which results in an illogical and insufficient mapping of the proposed combination to the limitations of the claims.

First, Petitioner’s motivation to combine Humphries and Marcus is critically deficient because it is premised on a combination that does not address the limitations recited in the claims. Specifically, Petitioner’s rationale and motivation to combine Humphries with Marcus begins with the premise that both references are directed to systems that can be used to manage “airborne vehicles” (or “drones”). According to Petitioner, Humphries “explains that ‘the present invention’ can be employed with ‘airborne vehicles,’” while “Marcus discloses systems...[for] determining whether and/or when a drone is allowed in the restriction region based on further information specified by the user (*e.g.*, allowed types of drones or allowed times of access).” Pet., 44-45. Based on this common thread, Petitioner argues the proposed combination “would have provided the *same benefit* to Humphries as is taught by Marcus—preventing *an airborne vehicle (a drone)* from trespassing, violating property rights, or otherwise accessing

prohibited areas.” *Id.*, 46 (emphasis added); *see also id.*, 51 (arguing a POSA “would have understood that the user’s command allowing **drones** operating on private property, *e.g.*, delivering packages and taking off from the private property, is among the one or more parameters input by the user” (emphasis added)).

Thus, Petitioner’s rationale rests on the assertion that, because both Humphries and Marcus relate to systems applicable to airborne vehicles, a POSA would have been motivated to apply Marcus to Humphries to achieve the benefits allegedly taught by Marcus: to exclude “an airborne vehicle (a drone)” from prohibited areas. The claims, however, recite systems for managing a restriction region for **a ground vehicle, not** “an airborne vehicle.” *See* elements 1[b], 18[b]. Petitioner’s motivation to combine Humphries and Marcus is thus based on a rationale that is disconnected from the limitations expressly recited in the challenged claims. *See Axonics, Inc. v. Medtronic, Inc.*, 73 F.4th 950, 957 (Fed. Cir. 2023) (“[T]he motivation-to-combine portion of the [obviousness] inquiry is whether a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve *the claimed invention*.” (emphasis original) (internal quotations omitted)). Petitioner’s Ground 2 can therefore be denied for this reason alone.

Second, Petitioner’s analysis glosses over the distinct users of Humphries and Marcus in a way that fails to show how and why a POSA would have

combined Humphries and Marcus to arrive at the claimed invention. As noted above, Petitioner incorporates much of its analysis with respect to Grounds 1A and 1B to its Ground 2. *Supra*, section IV.A.1. This includes Petitioner’s argument that Humphries’s geofence object is the claimed restriction region “because it corresponds to a geographic region of a map and ‘*depicts areas in which tracked objects are to be confined.*’” Pet., 16 (emphasis original). Petitioner also maps Humphries’s disclosure of a user using its mapping application to draw the boundaries of a geofence object to the claimed “one or more parameters being input by a user via a user interface.” Pet., 20-21. Thus, as Petitioner advances in its analysis of Humphries, the user that is inputting the parameters of the designated restriction region is a user that is seeking to define a geofence object—*i.e.*, an area over which the tracked device will travel and is to be confined. *See* Pet., 16; EX1004, 4:26-31 (user creates geofence objects as “boundaries for tracking the movements of the tracked device 120”), 6:6-11 (describing route adherence application 126 as determining “if the tracked device is progressing along a predetermined route of geofenced objects”).

Petitioner proposes modifying Humphries such that the one or more parameters inputted by the user also includes information that a location is associated with private property as allegedly taught by Marcus. Pet., 47-48. In contrast to the user in Humphries, however, the “user” of Marcus that Petitioner

relies on as inputting such parameters is distinct from the user that creates Humphries's geofence object. Specifically, Marcus discloses "systems and methods for controlling drone operation using configurable flight zones and other flight path automation processes." EX1005, [0002]. Marcus states that "property owners or other responsible parties (hereinafter referred to as users) may prevent, control, calibrate, or monitor access to a private area and/or controlled area" by "input[ting] address or location information into a database." *Id.*, [0017]; *see also id.*, [0013] ("Individuals or organizations interested in preventing, limiting, calibrating, or monitoring access by drones to airspace above a property (or another's property) may input information into a database of configurable flight zones."). By using this database, Marcus discloses that the system can "receive a proposed flight request or plan for a drone" and "generate an acceptable or approved flight plan by application of the configurable flight zone database information to ensure that the proposed flight plan does not include a flight path that causes the drone to operate in designated configurable flight zones or locations." *Id.*, [0031].

Thus, Petitioner relies on two different users with two different roles for its combination: (1) the user in Humphries who seeks to plan the travel route of a vehicle by drawing the route as a geofence object, and (2) the user in Marcus who seeks to exclude a vehicle from traveling over the user's property as the vehicle

traverses its planned route. Yet Petitioner does not address or even acknowledge these distinct users and their contrasting roles. Instead, Petitioner treats the two users as interchangeable and one and the same, but advances no reason why it would have been obvious to shift the functionality specific to one user (*i.e.*, route planning) to another user who uses the system for a different function (*i.e.*, travel prohibition).³

Furthermore, the distinction between these two types of users becomes even more apparent when the type of information that these distinct users input into the system is considered. In Marcus, the user inputs information relating to an area aimed at ***excluding*** drone travel within the area, whereas, in Humphries, the user creating the geofence object inputs information aimed at ***confining*** drone travel within the geofence object. However, the petition asserts, without explanation, that a POSA would have modified Humphries such that the user would input ***exclusion***

³ Petitioner does not propose a construction where the claimed “user” is two or more users. Even so, it is not clear how this would resolve the issue that Petitioner’s theory is premised on mapping the claimed restriction region to Humphries’s geofence object “because it corresponds to a geographic region of a map and ‘*depicts areas in which tracked objects are to be confined.*’” Pet., 16 (emphasis original).

information of the geofence object (the alleged “restriction region”) in order to “prevent[] an airborne vehicle (a drone) from trespassing, violating property rights, or otherwise accessing prohibited areas” (Pet., 46) when that same user is defining the geofence object as the area to which the tracked device is to be **confined**. Such a combination leads to an illogical and contradictory result.

Lastly, Petitioner’s incomplete analysis of Humphries and Marcus leads to a similar tension in Petitioner’s mapping of the claimed “implement the one or more response measures to affect operation of the ground vehicle along a travel path when the ground vehicle is within or near the designated restriction region” (element 1[f]). Petitioner again incorporates its analysis of Humphries with respect to Grounds 1A and 1B for this limitation and does not rely on any aspect of Marcus as part of this limitation. Pet., 49. Thus, Petitioner’s combination relies on Humphries’s generation of an alert signal when it is determined that a tracked device has crossed the boundary of the geofence object (*e.g.*, when the tracked device has crossed the boundary into or out of the geofence object). *Id.*, 29-30.

Petitioner only proposes modifying Humphries to include “information that the location is associated with private property” as part of the one or more parameters of the geofence object. Pet., 46, 48. Petitioner alleges this modification would achieve the benefit of “preventing an airborne vehicle (a drone) from trespassing, violating property rights, or otherwise accessing

prohibited areas.” *Id.* However, Petitioner ignores that Marcus teaches that its system prevents an airborne vehicle from trespassing into prohibited areas by altering planned flight paths to travel around the prohibited areas. *See* EX1005, [0031]-[0034], FIG. 1. Petitioner fails to explain why its proposed modification—*i.e.*, including “information that the location is associated with private property” as part of the geofence object parameters—would achieve the purported benefit of preventing trespassing into prohibited areas, especially when the combined system as proposed by Petitioner merely generates an alert when the tracked device has crossed into or out of the geofence object as taught by Humphries.

For these reasons, the petition fails to set forth a sufficient rationale explaining why a POSA would have been motivated to combine Humphries and Marcus.

B. Dependent Claims 2-3, 8-11, and 16-23

Claims 2-3, 8-11, and 16-23 depend from claims 1 or 18. Thus, for the same reasons explained above, the petition fails to establish that these claims are rendered obvious over the combination of Humphries and Marcus.

V. GROUNDS 3A AND 3B FAIL

Ground 3A of the petition asserts claims 4-7 are obvious over Humphries in view of Morgan, while Ground 3B alternatively asserts the claims are obvious over Humphries, Marcus, and Morgan. *Pet.*, 55-62. Claims 4-7 depend directly or

indirectly from independent claim 1. Petitioner relies on Morgan for allegedly teaching the limitations recited in these dependent claims. Petitioner's reliance on Morgan fails to cure the deficiencies of Humphries, and of Humphries and Marcus, identified above with respect to claim 1. Thus, Grounds 3A and 3B fail for the same reasons explained above for Grounds 1A-1B and 2.

VI. GROUNDS 4A AND 4B FAIL

Ground 4A of the petition asserts claims 12-15 are obvious over Humphries in view of Cronin, while Ground 4B alternatively asserts the claims are obvious over Humphries, Marcus, and Cronin. Pet., 62-68. Claims 12-15 depend directly or indirectly from independent claim 1. Petitioner relies on Cronin for allegedly teaching the limitations recited in these dependent claims. Petitioner's reliance on Cronin fails to cure the deficiencies of Humphries, and of Humphries and Marcus, identified above with respect to claim 1. Thus, Grounds 4A and 4B fail for the same reasons explained above for Grounds 1A-1B and 2.

VII. GROUND 5 FAILS

As detailed below, Ground 5 fails to establish a reasonable likelihood of unpatentability because Petitioner fails to show that the applied references, Humphries and Borugian, describe each and every limitation of the independent claims and would have been combined in a manner so as to meet the claimed invention.

First, Petitioner’s Ground 5 relies on Borugian for the limited purpose of allegedly teaching the specific response measure recited in independent claims 24 and 28, where the operation of the ground vehicle is affected “by forcing the ground vehicle to stop movement” when the ground vehicle “is within or near the designated restriction region.” For the remaining limitations, Petitioner’s analysis incorporates its Ground 1A and 1B theories based on Humphries alone, making Petitioner’s Ground 5 deficient for the same reasons. Furthermore, like Ground 2, Petitioner fails to sufficiently explain how the proposed combination discloses each and every limitation of the claims and further relies on Borugian to propose a modification to Humphries’s system that is at odds with how Petitioner relies on Humphries’s geofence object as the “designated restriction region.”

A. Independent Claims 24 and 28

1. Petitioner’s Grounds 1A and 1B deficiencies apply to Grounds 4A and 4B

Like claims 1 and 18, claims 24 and 29 are each directed to a “system for managing a restriction region.” *See* elements 24[Pre], 28[Pre]. Both claims also recite that the system is configured to “receive one or more parameters of a designated restriction region for a ground vehicle” (elements 24[b], 28[b]).

For these limitations, Petitioner incorporates its mapping of Humphries as advanced for Grounds 1A and 1B. Pet., 70. For the same reasons detailed above, Petitioner fails to establish that Humphries discloses these limitations.

Specifically, Petitioner fails to show that Humphries discloses the claimed “restriction region” and “receiv[ing] one or more parameters of a designated restriction region” (*supra*, section III.A.3). *Supra*, sections III.A.1, 3. Thus, Petitioner fails to establish that claims 24 and 28 are obvious over Humphries and Borugian.

2. The petition advances an insufficient rationale to combine Humphries and Borugian

Claims 24 and 28 recite that the system is configured to “associate one or more response measures with the designated restriction region” and “implement the one or more response measures to affect operation of the ground vehicle along a travel path when the ground vehicle is within or near the designated restriction region by forcing the ground vehicle to stop movement.” *See* elements 24[e]-[f], 28[e]-f[f]. Petitioner relies on Borugian as allegedly disclosing these claim elements and asserts that a POSA would have been motivated to modify Humphries to include this feature of Borugian. *See* Pet., 70-72 (asserting a POSA would have modified Humphries “to add the capability of shutting down the vehicle as taught by Borugian to enforce adherence to the designated routes and further increase safety in any hazardous situations”). Like its Ground 2, however, Petitioner again fails to adequately address all of the required elements of the claims and fails to reconcile its theory as to how Humphries discloses the claimed

restriction region with the distinct embodiment of Borugian that Petitioner relies upon in the proposed combination.

First, as with claims 1 and 18, claims 24 and 28 require that the system “associate[s] one or more response measures with the designated restriction region based on the one or more parameters.” The one or more response measures are implemented “to affect operation of the ground vehicle...by forcing the ground vehicle to stop movement.” With respect to these limitations, Petitioner essentially advances the same flawed analysis as it advanced for Grounds 1A and 1B. *Supra*, section III.A.5. That is, Petitioner points to Borugian’s disclosure of the generation of an alert and the shutdown of the ground vehicle when it is determined that the vehicle has entered a restricted area as satisfying the claimed “associate” limitation. Pet., 71 (“Borugian discloses that the driver is alerted, and the ground vehicle can be shut down if it is determined that the vehicle is within or near the designated restriction region or deviated from the authorized route.”).

However, although not particularly addressed in its analysis, Petitioner relies on the same action—*i.e.*, the generation of an alert and the shutdown of the vehicle—as satisfying both the “associate” limitation and the “implement” limitations of the claims. *See* Pet., 71 (arguing POSA “would have understood that one or more processors within the onboard computer 18 or the system 10 need to be configured to implement the response measure of shutting down the vehicle in

this situation”), 72 (asserting generally “[t]he combined system would have predictably resulted in a system that comprises one or more processors configured to force the ground vehicle to stop movement when the ground vehicle is within or near the designated restriction region”). Thus, for the same reasons explained above with respect to Grounds 1A and 1B, Petitioner fails to explain how the combination of Humphries and Borugian discloses a system that “associate[s] one or more response measures with the designated restriction region based on the one or more parameters.” *Supra*, section III.A.4.

Second, Petitioner’s ground relies on an embodiment of Borugian in which a vehicle is shut down if the vehicle is found to have deviated from its planned route and encroached into a restricted area. Pet., 70-72 (citing EX1008, 4:1-3, 12:1-29, 12:49-66). For instance, Borugian describes a process that involves “determin[ing] whether the vehicle has entered a restricted perimeter or is approaching a restricted perimeter at 114.” *Id.*, 12:1-8; *see also id.*, 3:66-4:3, 11:48-49 (“FIG. 9 is a flow chart that illustrates the deviation from a planned route check 50.”), FIG. 9. Borugian explains that, if it is determined that the vehicle has entered a restricted perimeter, the driver is notified and given a certain time to respond. *Id.*, 12:38-43. If “a route deviation authorization code was not entered within the prescribed period of time, *or the vehicle has not left the restricted perimeter*,” Borugian

discloses that the system “begins vehicle shut down 128.” *Id.*, 12:61-65 (emphasis added).

Thus, the embodiment relied upon by Petitioner is one in which a vehicle is shut down if it is found to be ***within*** a restricted area. Petitioner maps this embodiment to the claimed response measure that “affect[s] operation of the ground vehicle along a travel path ***when the ground vehicle is within or near the designated restriction region*** by forcing the ground vehicle to stop movement.” Petitioner argues that a POSA would have implemented such a feature in Humphries “to add the capability of shutting down the vehicle as taught by Borugian to enforce adherence to the designated routes and further increase safety in any hazardous situations.” Pet., 72.

Petitioner’s analysis, however, ignores what it maps to “the designated restriction region” of the claims. Specifically, Petitioner relies on Humphries’s geofence object as the claimed “designated restriction region.” Pet., 70 (incorporating-by-reference analysis for elements 1[pre] and 1[b]). As noted above, Petitioner argues that Humphries’s geofence object is the claimed “restriction region” because “it corresponds to a geographic region of a map and ‘*depicts areas in which tracked objects are to be confined.*’” *Id.*, 16 (emphasis original); *see also id.*, 17 (“Humphries discloses confining vehicles to the region encompassed by the geofence object...by ‘ensuring route adherence’ of one or

more vehicles in a fleet.”). Thus, according to Petitioner’s theory, Humphries ensures route adherence by confining vehicles to travel *within* the designated restriction region.

The embodiment of Borugian that Petitioner relies on as allegedly satisfying the claimed response measure contradicts the purpose of Humphries’s geofence object. That is, it makes little sense that a POSA would be motivated to implement a feature in which a vehicle is shut down when it is *within* the boundary of Humphries’s geofence object (*i.e.*, the designated restriction region) because the vehicle would be shut down when it is adhering to the planned route. Accordingly, for this reason, Petitioner fails to advance a sufficient rationale to combine Humphries and Borugian such that the system “implement[s] the one or more response measures to affect operation of the ground vehicle is within or near the designated restriction region by forcing the ground vehicle to stop movement,” as recited in claims 24 and 28.

B. Dependent Claims 25-26 and 29-30

Claims 25-26 and 29-30 depend from claims 24 or 28. Thus, for the same reasons explained above, the petition fails to establish that these claims are rendered obvious over the combination of Humphries and Borugian.

VIII. GROUND 6 FAILS

Ground 6 of the petition asserts claim 27 is obvious over Humphries and Borugian in view of Morgan. Pet., 73-75. Claim 27 depends from independent claim 24. Petitioner relies on Morgan for allegedly teaching the limitations recited in this claim. Petitioner's reliance on Morgan fails to cure the deficiencies of Humphries and Borugian identified above with respect to claim 24. Thus, Ground 6 fails for the same reasons explained above for Ground 5.

IX. CONCLUSION

Accordingly, for at least the reasons set forth above, institution of *inter partes* review should be *denied*.

Dated: November 24, 2023

Respectfully submitted,

/Matthew A. Argenti/
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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 7,742 words.

Respectfully submitted,

Dated: November 24, 2023

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CERTIFICATE OF SERVICE

I certify that the foregoing Patent Owner's Preliminary Response Pursuant to 37 C.F.R. § 42.107 was served this 24th day of November 2023, on the Petitioner at the electronic service addresses of the Petitioner at the following electronic service addresses:

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