

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOBILEYE GLOBAL, INC.,
Petitioner

v.

FACET TECHNOLOGY CORP.,
Patent Owner

IPR2024-01111
U.S. Patent No. 9,671,328 B2

PATENT OWNER'S PRELIMINARY RESPONSE

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Patent Owner's Exhibit List

Exhibit No.	Description
2001	Exclusive Patent License Agreement between Facet Technology Corp. and Mandli Communications, Inc. (and patent assignment coversheet), recorded at Reel No. 062371, Frame 0313
2002	Statutory Disclaimer of certain claims filed in file wrapper of U.S. Patent No. 9,671,328
2003	U.S. Provisional Patent Appl. No. 60/296,596
2004	Docket Control Order filed in <i>Facet Tech. Corp. v. Mobileye Glob., Inc.</i> , No. 2:24-cv-00058 (E.D. Tex.)
2005	Excerpts from U.S. District Court — Judicial Caseload Profile (2024 Ed.), <i>available at</i> https://www.uscourts.gov/file/78884/download
2006	Complaint Filed in <i>Facet Tech. Corp. v. Mobileye Glob., Inc.</i> , No. 2:24-cv-00058 (E.D. Tex.)
2007	Cover Pleading to Plaintiff's Disclosure Of Asserted Claims And Infringement Contentions, as served on August 26, 2024 in <i>Facet Tech. Corp. v. Mobileye Glob., Inc.</i> , No. 2:24-cv-00058 (E.D. Tex.)
2008	Cover Pleading to Defendant's Invalidity Contentions, as served on November 4, 2024 in <i>Facet Tech. Corp. v. Mobileye Glob., Inc.</i> , No. 2:24-cv-00058 (E.D. Tex.)

Pursuant to 35 U.S.C. § 313 and 37 C.F.R. § 42.107, Patent Owner Facet Technology Corp. (“Patent Owner” or “Facet”) ¹hereby submits its Patent Owner’s Preliminary Response.

I. INTRODUCTION

Petitioner challenges claims 1-22. Pursuant to 35 U.S.C. § 253 and 37 C.F.R. § 1.321(a), a statutory disclaimer of claims 17-22 has been filed in the file wrapper of the ’328 Patent. Ex. 2002. Accordingly, disclaimed claims 17-22 are moot and are not a basis for institution of *inter partes* review. 37 C.F.R. § 42.107(e) (“No *inter partes* review will be instituted based on disclaimed claims.”).

Remaining are independent claims 1 and 9 and their challenged dependent claims. As discussed below, both of those claims recite a computer system which is configured to “detect objects of interest” and then subsequently “determine” whether those detected objects of interest include a reflective surface of a road marker.

¹ As set forth in Patent Owner’s mandatory disclosures (Paper No. 4), Facet Technology Corp. (hereinafter “Patent Owner”), the party submitting this paper, is the exclusive licensee to the ’328 Patent, expressly having “all substantial rights” in that patent. Ex. 2001 § 1.1, Schedule 1 § 1.1. To the extent that the Board requires additional documentation to confirm Facet Technology Corp.’s authority to file this preliminary response and participate in this *inter partes* review proceeding, it is prepared to do so.

Petitioner relies solely on the Gallagher reference for those limitations. However, Gallagher uses a single-step method where road markers are identified based simply on “peak responses sensed” in the light sensor’s intensity data, without any prior identification of potential objects of interest. Moreover, claim 1 further recites that, after the reflective surface of an object of interest is identified, another determination is made to determine whether that reflective surface is a road marker. But, as to that limitation, Petitioner again points to the same disclosure in Gallagher of the single-step of identifying road markers based on peak light sensor responses. Because the Gallagher reference’s single-step identification of road markers based on peak light sensor responses does not satisfy the specific configuration of the computer system of claims 1 and 9, all of Petitioner’s obviousness grounds for the remaining challenged fail.

Moreover, as discussed below, because the *Fintiv* factors weigh in favor of denial, the Board should exercise its discretion to deny institution under section 314(a).

For all of these reasons, institution should be denied.

II. OVERVIEW OF THE ’328 PATENT

The ’328 Patent relates to systems and methods for recognizing road markers (e.g. road signs, pavement markings, etc.) depicted in a videostream. Ex. 1001 (’328 Patent), Abstract. Most road markers are designed to be retroreflective, i.e. to reflect

nearly all light back towards the source light or slightly off-angle from the source light, with minimal scattering. *Id.* at 1:64-2:8. As a result, a great deal of light from the headlights of a vehicle on the road can be reflected from a retroreflective road marker to the driver's eyes, allowing for the driver to readily observe the road markers, particularly at night. *See* Ex. 2003 ('596 Prov. App.) at 66-67. However, it is important to ensure that the reflective performance of such road markers are not degraded, so that they can continue to be seen by drivers. Thus, identifying road markers and measuring their retroreflectivity is helpful in evaluating the visibility of a sign and whether it has deteriorated due to a breakdown in the pigments or reflective material. Ex. 1001 at 2:8-15. However, prior to the '328 patent, such systematic evaluation of road markers by highway and street maintenance departments has been difficult, often requiring holding a handheld retro reflectometer directly in front of a sign. *Id.*

Thus, the inventors of the '328 Patent identified a critical problem in identifying and creating an accurate inventory of road and traffic signs along a given street or highway. The '328 Patent provides several advantages over the prior art, allowing measurement of the retroreflectivity of a traffic sign without the need to target individual signs and automatically determining sheeting classification. *Id.* at 4:18-4:30. The '328 Patent describes using an automated system to detect and determine the reflective surfaces along a roadway, capturing images along the

roadway, using a light sensor to illuminate the roadway and measure light intensity, and using a computer processing system connected to the image capture system and light sensor that can detect objects of interest within the field of view of the light source. *Id.* at 3:66-4:17. The patent further describes that the computer processing system can determine an object's location, whether the object includes a reflective surface, the retroreflectivity of the surface, and whether the reflective surface is a road marker. *See id.* at 4:18-23, 9:1-19, 12:7-42, cls. 1, 9.

III. LEVEL OF ORDINARY SKILL IN THE ART

Petitioner asserts that a person of ordinary skill in the art ("POSITA") would have had at least a bachelor's degree in mechanical engineering, electrical engineering, computer science, physics, or related discipline, and four years of experience in research, design, or development in computer vision systems. Pet. at 6. For the purposes of this preliminary response, Patent Owner does not presently dispute that characterization, as Patent Owner believes that institution should be denied regardless of the specific level of skill in the art. However, Patent Owner reserves the right to assert a different level of ordinary skill in the art if this IPR is instituted.

IV. CLAIM CONSTRUCTION

Petitioner has not proposed that any claim terms receive an express construction. Pet. at 6-7. For the purposes of the Board's decision on institution,

Patent Owner does not contend that any claim term should receive an express construction. In the event that this Petition is instituted, Patent Owner reserves the right to raise different or additional claim construction issues in its Patent Owner Response.

V. PETITIONER HAS FAILED TO DEMONSTRATE A REASONABLE LIKELIHOOD THAT THE REMAINING CHALLENGED CLAIMS ARE UNPATENTABLE²

A. Ground 1: The Combination of Gallagher and Schofield Fails to Render Obvious Any Remaining Challenged Claims

1. Claim 9

(a) Gallagher Fails to Disclose or Suggest “a computer processing system ... configured to *detect* objects of interest within the field of view *and* for each object of interest: *determine* whether the object of interest includes at least one light intensity value associated with a reflective surface of a road marker in the field of view”

(1) Limitations 9D and 9E Recite a Two-Step Approach Where the “Determin[ing]” is Performed on Already “Detect[ed]” “Objects of Interest”

Claim 9 recites a “computer processing system” which, among other things, is configured to *both* “detect objects of interest within the field of view” *and* “for

² In this preliminary response, Patent Owner only presents arguments against institution of this Petition. In the event that this Petition is instituted, Patent Owner reserves the right to raise additional or different arguments in its Patent Owner Response.

each [such detected] object of interest: determine whether the object of interest includes at least one light intensity value associated with a reflective surface of a road marker in the field of view.” Ex. 1001 (’328 Patent), cl. 9. That is, the “determin[ing]” is performed on “object[s] of interest” which have already been “detect[ed].” *Id.* That is consistent with the specification of the ’328 Patent, which recites:

A computer processor 450 **identifies an object of interest 460** in a portion of the intensity frame 420 **and determines the object of interest attributes 465 associated with that object of interest. Preferably, the objects of interest are identified from the digital imagery stream 390 generated by the color image capture system 250 in the manner as taught by U.S. Pat. No. 6,266,442. Alternatively, other techniques known in the art for isolating an object of interest in a videostream can be used. ...**

For each object of interest 460, a background intensity measurement 470 and a foreground intensity measurement 480 is generated. Using an intensity algorithm 490, a light intensity sensor characterization 275 and a look-up-table 475, the computer processor 450 determines a background luminance value 500 and a foreground luminance value 510. Based on the background luminance value 500, the foreground luminance value 510, a characterization of light source wavelength 540, the background sheeting color 505 and the foreground sheeting color 506 the computer processor 450 characterizes a

background R_A 520 and a foreground R_A 530 which are preferably reported separately for that object of interest.

Ex. 1001 ('328 Patent) at 8:31-56 (emphasis added).

(2) The Cited Disclosures of Gallagher Fail to Disclose or Suggest the Claimed Two-Step Approach Where “Determin[ing]” is Performed on Already “Detect[ed]” “Objects of Interest”

Petitioner relies solely on Gallagher’s teachings for these limitations, and present no obviousness argument for these limitations. Pet. at 20-23. However, Petitioner fails to cite to any disclosure in Gallagher of the computer system “*detect*[ing] objects of interest within the field of view” *and* “for each [such detected] object of interest: determin[ing] whether the object of interest includes at least one light intensity value associated with a reflective surface.” Ex. 1001 ('328 Patent), cl. 9. In particular, Petitioner relies on the listing of steps (a)-(g) illustrated in Gallagher Fig. 4. Ex. 1005 (Gallagher), [0053]-[0071]; Pet. at 21-23 (citing Ex. 1005, [0055]-[0056], [0060]-[0066]).

Gallagher’s “step a” is purely a data collection step. Ex. 1005, [0056] (“getting the data from the output of the ADC 13 on the reflected light detected by the light sensors 6”). Thus, “step a” performs neither a “detect[ing]” of objects of interest or a “determin[ing]” performed on already detected objects of interest.

Gallagher’s “step b” is a data “filtering” step to “smooth out fluctuations” in the collected data caused by noise. Ex. 1005, [0057]. Thus, “step b” performs

neither a “detect[ing]” of objects of interest or a “determin[ing]” performed on already detected objects of interest.

Gallagher’s “step c” is a data “calibrat[ion]” step to “to calibrate for different positions in the light sensor module 6 a.” Ex. 1005, [0058]-[0059]. Thus, “step c” performs neither a “detect[ing]” of objects of interest nor a “determin[ing]” performed on already detected objects of interest.

Gallagher’s “step d” provides an indicator to the vehicle operator to “enable[] the operator to maintain the vehicle 3 in a proper position on the road” for obtaining measurements. Ex. 1005, [0060]. This is not done by analyzing any *recorded* data, but merely by informing the driver “which light sensor 6 is [currently] reading the highest reflectance reading” at any point in time so that the driver can align the central sensor to capture the highest readings. *Id.* at [0060]-[0062]. Rather than detecting any objects of interest from the collected data, this is a continuous indicator provided to the driver. *Id.* Notably, there is no disclosure or suggestion that the operator indicator in “step d” (or any information relating to the indicator) is saved, recorded, or provided to any of the later steps. *Id.* Thus, “step d” performs neither a “detect[ing]” of objects of interest nor a “determin[ing]” performed on already detected objects of interest.

Gallagher’s “step e” merely records the vehicle position from the vehicle gearbox revolution sensor. Ex. 1005, [0063]. Although this data is later used to

“determine the location of each road marking,” (*Id.*, [0020], [0064]) Gallagher’s “step e” itself cannot detect of objects of interest because no analysis of the collected intensity sensor data occurs in “step e” (or any of the prior steps). *Id.*, [0063]-[0064]. Thus, “step e” performs neither a “detect[ing]” of objects of interest or a “determin[ing]” performed on already detected objects of interest.

Gallagher’s “step f” “determin[es] the background reflectance level on the road and establishing non-marker reflectance levels.” *Id.*, [0065]. Although this step performs a determination, it is determining the *reflectance levels* of “non-marker[s].” This is not a detection or determination relating to “object[s] of interest” as claimed—the objects of interest in Gallagher are road markers (not non-markers). *See, e.g.*, Ex. 1005, Abstract, [0001]-[0002], [0033], [0064]. Thus, “step f” does not determine whether an object of interest includes at least one light intensity value associated with a reflective surface. Indeed, no such determination could take place in “step f” because, as discussed, neither in “step f” (or any of the prior steps) has there been any detection of an object of interest. Thus, “step f” performs neither a “detect[ing]” of objects of interest or a “determin[ing]” performed on already detected objects of interest.

The final enumerated step of Gallagher that Petitioner relies on for limitations 9D and 9E is Gallagher’s “step g.” Pet. at 20-22.³ Gallagher’s “step g” recites “selecting, from data obtained in step a., which reflectance levels indicate a road marker.” Ex. 1005, [0066]. Gallagher discloses that this selecting is performed by recognizing that “the peak responses sensed are determined as the highly reflective surfaces of a road marker.” *Id.* That is, rather than the claimed detect[ing]” of objects of interest and subsequent “determin[ing]” performed on already detected objects of interest, Gallagher’s “step g” reflects a single step approach. In particular, in Gallagher, road markers are identified as being road markers simply on the presence of peak responses in the collected light sensor data, without any prior detection of objects of interest. Indeed, Petitioner itself admits that Gallagher merely “identif[ies] road markers based on ‘peak responses sensed’ by light sensors.” Pet. at 14. Thus, Gallagher cannot disclose a computer system “*detect*[ing] objects of interest within the field of view” *and* “for *each* [such detected] object of interest: determin[ing] whether the object of interest includes at least one light intensity value

³ Gallagher describes steps (h) to (l) in paragraphs [0067] to [0071]. Ex. 1005, [0067]-[0071]. However, the Petition’s sections for claim limitations 9D and 9E do not cite to any of those steps. Pet. at 20-22. Similarly, Petitioner’s expert’s analysis of limitations 9D and 9E do not cite to any of the paragraphs in Gallagher describing steps (h) to (l) (i.e. paragraphs [0067] to [0071]). Ex. 1003 ¶¶ 70-74.

associated with a reflective surface” as recited by limitations 9D and 9E of the ’328 Patent.

The other cited disclosures of Gallagher similarly fail to demonstrate a computer system recited in claim 9 of the ’328 Patent. For example, the Petition’s analysis of limitations 9D and 9E also cites to Gallagher’s paragraphs [0023], [0033], [0045], and [0047]. Pet. at 20-23. But those paragraphs are consistent with Gallagher merely performing a single-step identification of road markers based on peak responses in the collected light sensor data. Paragraph [0023] recites “determining the location of any missing road markers by recognizing patterns in existing road marker locations and with being provided with information on the spacing of known valid road markers.” Ex. 1005, [0023]. This step plainly occurs *after* Gallagher’s identification of road markers from the peak responses (otherwise it would not know that road markers are *missing*). As such, paragraph [0023] performs neither a “detect[ing]” of objects of interest nor a “determin[ing]” performed on already detected objects of interest. Paragraph [0033] merely notes that Gallagher can test “a wide variety” of road markers, signs, painted lines, etc. *Id.*, [0033]. Paragraph [0045] merely notes that Gallagher uses a computer program to carry out testing of the integrity of road markings. *Id.*, [0045]. Finally, paragraph [0047] merely describes analogue to digital converter (ADC 13) and notes that its output is received by Gallagher’s computer. *Id.*, [0047]. Thus, none of these

additional cited disclosures of Gallagher disclose performing “detect[ing]” of objects of interest or the claimed “determin[ing]” performed on an already detected object of interest.

Thus, none of the cited portions of Gallagher demonstrate that Gallagher discloses the particular computer system recited in limitations 9D and 9E of claim 9. Accordingly, Petitioner has not shown that the cited references disclose or suggest a computer system configured to “detect objects of interest within the field of view” and “for each [detected] object of interest: determine whether the object of interest includes at least one light intensity value associated with a reflective surface of a road marker” as recited by limitations 9D and 9E of the ’328 Patent.

(b) Petitioner Presents No Obviousness Argument for Limitations 9D and 9E

Although Ground 1 asserts a combination of Gallagher and Schofield, Petitioner presents no evidence or argument that Schofield discloses or suggests a computer system configured as recited in limitations 9D and 9E. Nor does Petitioner present any evidence or argument that Schofield—or anything else—would motivate a POSITA to modify Gallagher to practice limitations 9D and 9E. In particular, Petitioner’s obviousness analysis in Ground 1 relating to claim 9 is limited to two places: (1) an analogous arts argument on pages 13 and 14; (2) limitation 9F on pages 23-26. Pet. at 13-14, 23-26. Indeed, Petitioner’s only other discussion of

obviousness over Schofield in Ground 1 is in connection with other claims. Pet. at 27-30, 32, 34-39, 41-44. Accordingly, Petitioner has presented no obviousness theory that could address Gallagher's failure to disclose a computer system configured as recited in limitations 9D and 9E. Accordingly, Petitioner has failed to demonstrate a reasonable likelihood that claim 9 is obvious.

2. Claims 10-13

Claims 10-13 depend from claim 9. Ex. 1001 ('328 Patent), cls. 10-13. Petitioner's arguments in Ground 1 for alleged obviousness of claims 10-13 are based on Petitioner's obviousness arguments for Ground 1, claim 9, which fail as discussed above. Pet. at 26-30; *supra*, V.A.1. Thus, Petitioner has not demonstrated that claims 10-13 are obvious.

3. Claim 1

(a) Gallagher Fails to Disclose or Suggest a “a computer processing system ... configured to *detect* objects of interest within the field of view *and* for each object of interest: *determine* whether the object of interest includes a reflective surface based on the light intensity values; [and] *determine* whether the reflective surface is a road marker based on an assessment of the reflective surface; and”

(1) Limitations 1E, 1F, and 1G Recite a Three-Step Approach

Like claim 9, limitations 1E and 1F recite a “computer processing system” which, among other things, is configured to *both* “detect objects of interest within

the field of view” *and* “for each [such detected] object of interest,” perform a determination. That is, in limitation 1E, the computer system is “configured to detect objects of interest within the field of view.” Ex. 1001 (’328 Patent), cl. 1. And, in limitation 1F, “for each [detected] object of interest,” the computer system “determine[s] whether the object of interest includes a reflective surface based on the light intensity values.” *Id.* Thus, like limitation 9E of claim 9, the “determin[ing]” in limitation 1F of claim 1 is performed on “object[s] of interest” which have already been “detect[ed].” *Id.*

Moreover, claim 1 recites in limitation 1G an *additional* determination dependent on the determination in limitation 1F: “determine whether the reflective surface [determined in limitation 1F] is a road marker based on an assessment of the reflective surface.” Thus, claim 1 recites a computer system that is configured to perform a three-step approach which: (1) °detects objects of interest; (2) °determines whether the detected objects of interest include a reflective surface; and (3) °determines whether such determined reflective surface is a road marker.

As discussed below, Petitioner fails to show that the references disclose or suggest limitations 1E, 1F, and 1G.

(2) The Cited Disclosures of Gallagher Fail to Disclose or Suggest “Determin[ing]” Performed on Already “Detect[ed]” “Objects of Interest” as Recited in Limitations 1E and 1F

Petitioner’s arguments for limitations 1E and 1F of claim 1 fail for the same reasons discussed above in claim 9, limitations 9D and 9E. *See Supra* V.A.1.a. Petitioner relies solely on Gallagher for limitation 1F. Pet. at 39-40. Moreover, although Petitioner cites Schofield in limitation 1E, the Petition relies on Schofield solely for the additional limitation recited in limitation 1E (but not limitation 9D) that the computer processing system is operably connected to an “image capture sensor.” Pet. at 39.

However, Petitioner fails to cite to any disclosure in Gallagher of the computer system “*detect*[ing] objects of interest within the field of view” *and* “for each [detected] object of interest: determine whether the object of interest includes a reflective surface based on the light intensity values.” Indeed, like its analysis of limitation 9E in claim 9, Petitioner’s analysis of limitation 1F relies on the listing of steps (a)-(g) illustrated in Gallagher’s Fig. 4. Pet. at 38-41 (citing Ex. 1005, [0055]-[0056], [0060]-[0066]). As discussed above in connection with claim 9, none of Gallagher’s enumerated steps, or other cited disclosures, discloses or suggests performing “*determin*[ing]” the presence of a reflective surface on already detected objects of interest. *Supra*, V.A.1.a.

Petitioner does conclusorily assert, in connection with limitations 1A and 1E, that a POSITA would be motivated to use Schofield's imaging sensor module to further improve the detection of objects of interest. Pet. at 34-35, 39. However, neither Petitioner nor its expert presents any evidence or argument that Schofield discloses or suggests, "determin[ing] whether [a previously detected] object of interest includes a reflective surface based on the light intensity values" as recited in limitation 1F. *Id.* (citing Ex. 1003 ¶¶110-111). Nor do they present any non-conclusory evidence or argument explaining how Schofield's disclosures regarding object detection with an image "frame" sensor could be combined with Gallagher such that identifications of objects of interest by Schofield's imaging sensor could subsequently be used by Gallagher's photodiode-based algorithm to perform the "determination" of limitation 1F.

Indeed, in addressing limitation 1F, Petitioner argues that this limitation is satisfied by Gallagher alone, and in particular, quotes Gallagher's "step g" disclosure of "selecting, from data obtained ..., which reflectance levels indicate" a reflective surface of a marker. Pet. at 39 (quoting Ex. 1005, [0066]). As discussed in connection with claim 9, Gallagher's single-step procedure—where road markers are identified as being road markers from the light sensor data based simply on the presence of peak responses in the collected light sensor—does not satisfy the

claimed structure of where a determination is performed on previously detected objects of interest. *Supra*, V.A.1.a.

Thus, Petitioner has not shown that the cited references disclose or suggest a computer system configured to “detect objects of interest within the field of view” and “for each [detected] object of interest: determine whether the object of interest includes a reflective surface based on the light intensity values” as recited by limitations 1E and 1F of the ’328 Patent.

(3) The Cited Disclosures of Gallagher Fail to Disclose or Suggest “Determin[ing]” the Presence of a Road Marker Based on a Previously Identified Reflective Surface as Recited in Limitations 1F and 1G

Assuming, *arguendo*, that the Board believed that Petitioner had advanced an obviousness theory in claim 1 for a computer system configured to determine whether a previously detected object of interest includes a reflective surface (as recited in limitation 1F), Petitioner’s arguments for claim 1 would still fail. In particular, as discussed, limitation 1G refers to and uses the results of the prior limitation 1F. That is, limitation 1F takes the objects of interest detected in limitation 1E and then determines whether they include a reflective surface. In turn, limitation 1G takes the reflective surface of limitation 1F and determines whether it is a road marker.

Petitioner relies solely on Gallagher’s disclosures for limitation 1G. Pet. at 40-41. However, contrary to the specific structure of limitations 1F and 1G, Petitioner simply points to the same disclosure in Gallagher for both limitations 1F and 1G: paragraph 66 of Gallagher. Pet. at 40. Furthermore, Petitioner and its expert’s explanations for limitation 1G are entirely conclusory—merely quoting paragraph 66 and asserting that it satisfies limitation 1G. Pet. at 40-41; Ex. 1003 ¶¶ 115.

Moreover, as discussed above in connection with claim 9, paragraph 66 of Gallagher is Gallagher’s “step g.” *Supra* V.A.1.a; Ex. 1005, [0066].⁴ Gallagher’s “step g” recites “selecting, from data obtained in step a., which reflectance levels indicate a road marker.” Ex. 1005, [0066]. This is performed by recognizing that “the peak responses sensed are determined as the highly reflective surfaces of a road marker.” *Id.* That is, rather than “determining” whether detected objects of interest include a reflective surface, and then “determining” whether those reflective surfaces are road markers (as required by limitations 1F and 1G), Gallagher’s “step

⁴ Gallagher describes steps (h) to (l) in paragraphs [0067] to [0071]. Ex. 1005, [0067]-[0071]. However, the Petition’s sections for claim limitations 1E to 1F do not cite to any of those steps. Pet. at 38-41. Similarly, Petitioner’s expert’s analysis of limitations 1E to 1F do not cite to any of the paragraphs in Gallagher describing steps (h) to (l) (i.e. paragraphs [0067] to [0071]). Ex. 1003 ¶¶ 109-115.

g” reflects a single step approach. That is, in Gallagher, road markers are identified as being road markers from the light sensor data based simply on identifying peak responses in the collected light sensor data, without any prior detection of objects of interest or any prior determination that they have any reflective surfaces. Indeed, Petitioner itself admits that Gallagher merely “identif[ies] road markers based on ‘peak responses sensed’ by light sensors” (i.e. without any intermediate determination as to the presence of reflective surfaces). Pet. at 14.

Thus, Petitioner has not shown that the cited references disclose or suggest disclose a computer system “determin[ing] whether [an] object of interest includes a reflective surface based on the light intensity values” and “determin[ing] whether [that] reflective surface is a road marker based on an assessment of the reflective surface” as recited by limitations 1F and 1G of the ’328 Patent.

4. Claims 2-4, 8

Claims 2-4 and 8 depend from claim 1. Ex. 1001 (’328 Patent), cls. 2-4, 8. Petitioner’s arguments in Ground 1 for alleged obviousness of claims 2-4 and 8 are based on Petitioner’s obviousness arguments for Ground 1, claim 1, which fail as discussed above. Pet. at 41-42; *supra*, V.A.3. Thus, Petitioner has not demonstrated that claims 2-4 or 8 are obvious.

5. Claims 17-18

A statutory disclaimer has been submitted for claims 17-18. Ex. 2002. Thus, Petitioner's ground for those claims is moot. 37 C.F.R. § 42.107(e).

B. Ground 2: The Combination of Gallagher, Schofield, and Frank Fails to Render Obvious Any Remaining Challenged Claims

1. Claims 15-16

Claims 15-16 depend from claim 9. Ex. 1001 ('328 Patent), cls. 15-16. Petitioner's obviousness arguments in Ground 2 for alleged obviousness of claims 15-16 are apparently based on Petitioner's arguments that Gallagher and Schofield render obvious claim 9, which fail as discussed above. Pet. at 47. Petitioner offers no argument or evidence that Frank cures any of the deficiencies of Gallagher and Schofield identified above with respect to claim 9. *Id.* at 44-47. That is, because Petitioner has failed to demonstrate that Gallagher and Schofield render obvious each limitation of claim 9, Petitioner's obviousness arguments in Ground 2 for claims 15-16 fail for the same reasons discussed above for claim 9 in Ground 1. *See supra*, V.A.1.

2. Claims 19 and 21-22

A statutory disclaimer has been submitted for claims 19 and 21-22. Ex. 2002. Thus, Petitioner's ground for those claims is moot. 37 C.F.R. § 42.107(e).

C. Ground 3: The Combination of Gallagher, Schofield, Frank, and ASTM Fails to Render Obvious Any Remaining Challenged Claims

1. Claim 14

Claim 14 depends from claim 9. Ex. 1001 ('328 Patent), cl. 14. Petitioner's obviousness arguments in Ground 3 for alleged obviousness of claim 14 are apparently based on Petitioner's arguments that Gallagher and Schofield render obvious claim 9, which fail as discussed above. Pet. at 57. Petitioner offers no argument or evidence that Frank or ASTM cure any of the deficiencies of Gallagher and Schofield identified above with respect to claim 9. *Id.* at 55-57. That is, because Petitioner has failed to demonstrate that Gallagher and Schofield renders obvious each limitation of claim 9, Petitioner's obviousness arguments in Ground 3 for claim 14 fail for the same reasons discussed above for claim 9 in Ground 1. *See supra*, V.A.1.

2. Claim 20

A statutory disclaimer has been submitted for claim 20. Ex. 2002. Thus, Petitioner's ground for claim 20 is moot. 37 C.F.R. § 42.107(e).

D. Ground 4: The Combination of Gallagher, Schofield, Leonard, and Popovich Fails to Render Obvious Any Remaining Challenged Claims

1. Claims 5-7

Claims 5-7 all depend directly or indirectly from claim 1. Ex. 1001 ('328 Patent), cls. 5-7. Petitioner's obviousness arguments in Ground 4 for alleged

obviousness of claims 5-7 are apparently based on Petitioner's arguments that Gallagher and Schofield render obvious claim 1, which fail as discussed above in connection with Ground 1. Pet. at 69. Petitioner offers no argument or evidence that Leonard or Popovich cures any of the deficiencies of Gallagher and Schofield identified above with respect to claim 1. *Id.* 61-69. That is, because Petitioner has failed to demonstrate that Gallagher and Schofield renders obvious each limitation of claim 1, Petitioner's obviousness arguments in Ground 4 for claims 5-7 fail for the same reasons discussed above for claim 1 in Ground 1. *See supra*, V.A.3.

VI. THE BOARD SHOULD EXERCISE ITS SECTION 314(a) DISCRETION TO DENY INSTITUTION

Subsequent to the filing of the Petition, a docket control order was entered in *Facet Tech. Corp. v. Mobileye Glob., Inc.*, No. 2:24-cv-00058 (E.D. Tex.), which is the litigation asserting the '328 Patent against Petitioner. *Id.*, Dkt. 25 (Ex. 2004 hereto), Pet. at 75. That order sets a trial date of February 17, 2026. Ex. 2004 at 1. By contrast, if instituted, a final written decision in this *inter partes* review would likely be issued by March 10, 2026. 35 U.S.C. § 314(b) (decision on institution expected by approximately March 10, 2025, three months from this preliminary response); 35 U.S.C. § 316(a)(11) (final written decision expected by approximately March 10, 2026, one year from decision on institution). Moreover, the February 17, 2026 trial date is quite realistic. The February 17, 2026 trial date is approximately

24-25 months from the January 26, 2024 filing date of the litigation. Indeed this is less aggressive than the typical case in the Eastern District of Texas, whose most recent median time from filing to trial in civil cases is 21.3 months. Ex. 2005, *available at* <https://www.uscourts.gov/file/78884/download>.

Here, each of the *Fintiv* factors weigh in favor of discretionary denial. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper No. 11 (P.T.A.B. March 20, 2020) (precedential). As to *Fintiv* factor 1, there is no stay of Patent Owner’s Eastern District of Texas (“EDTX”) action against Petitioner. Nor is there any reason to believe that a stay will be granted.

Fintiv factors 2 and 3 also weigh in favor of discretionary denial. The ’328 Patent is asserted in Patent Owner’s EDTX action against Petitioner. Ex. 2006 (complaint) at 1, 6; Pet. at 75. As discussed, the trial in that case is scheduled for trial on February 17, 2026, nearly a month before the expected Final Written Decision date if this IPR is instituted. And, the litigation has already significantly progressed. In particular, discovery has already begun and the parties have already exchanged infringement and invalidity contentions. Ex. 2004 (Docket Control Order) at 4-5; Ex. 2007 (infringement contentions); Ex. 2008 (invalidity contentions).

Fintiv factor 4 also weighs in favor of discretionary denial. Overlap between this IPR and the litigation is significant. Plaintiff identified the asserted claims as

claims 1, 3-4, 9-13, and 17-19 of the '328 Patent. Ex. 2007 at 1. Moreover, Petitioner's invalidity contentions served in the EDTX case include nearly all of the same references as in this Petition. Ex. 2008 (invalidity contentions) at 27 (identifying claim chart "B-4" as including the Gallagher, Schofield, and Frank references); *id.* at 14 (identifying Popovich reference); *id.* at 17 (identifying ASTM reference). Nor has petitioner offered any stipulation to remove or reduce such overlap. Pet. at 74.

Fintiv factor 5 weighs in favor of discretionary denial. The parties in this IPR are the same as in the pending litigation in EDTX. Ex. 2006 at 1 (complaint).

Finally, *Fintiv* factor 6 weighs in favor of discretionary denial. As discussed above, the merits of the petition are extraordinarily weak as to the remaining challenged claims. The remaining independent claims require a computer system configured to perform multiple steps to identify a road marker. However, Petitioner relies on the Gallagher reference for those limitations, despite admitting that Gallagher identifies road markers based on a single step of identifying "peak responses sensed" by light sensors. Pet. at 14.

Because all *Fintiv* factors weigh in favor of denial, the petition should be discretionarily denied pursuant to the Board's discretion under 35 U.S.C. § 314(a).

VII. CONCLUSION

For the above reasons, Patent Owner requests that institution of this Petition for *inter partes* review be denied.

Dated: December 10, 2024

Respectfully submitted,

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Certificate of Service 37 C.F.R. § 42.6(e)

The undersigned certifies that on December 10, 2024, I will cause true and correct copies of the foregoing Patent Owner's Preliminary Response, and all associated exhibits or appendices referred to therein, to be served electronically upon the following attorneys who have consented to service via email. Pet. at 75-76.

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Certificate of Compliance Pursuant to 37 C.F.R. § 42.24

This paper complies with the type-volume limitation of 37 C.F.R. § 42.24.

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