

**UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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Amazon.com, Inc. and Amazon Services LLC,  
Petitioners

v.

LightGuide, Inc.,  
Patent Owner

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**Case No. IPR2023-01423**

**U.S. Patent No. 10,528,036**

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

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**PATENT OWNER'S EXHIBIT LIST**

| <b>Ex. No.</b> | <b>Description</b>                                                                                                                                                                                                                                |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ex. 2001       | U.S. Pat. No. 7,515,981 (Ryznar)                                                                                                                                                                                                                  |
| Ex. 2002       | Reserved                                                                                                                                                                                                                                          |
| Ex. 2003       | National Judicial Caseload Profile statistics at <a href="https://www.uscourts.gov">https://www.uscourts.gov</a> accessed on November 14, 2023.                                                                                                   |
| Ex. 2004       | <i>WorldCat</i> record for <i>Fifth IEEE International Conference on Automatic Face and Gesture Recognition</i> title search at <a href="https://search.worldcat.org/title">https://search.worldcat.org/title</a> conducted on November 14, 2023. |
| Ex. 2005       | Results of keyword search on <i>WorldCat</i> at <a href="https://search.worldcat.org">https://search.worldcat.org</a> for “human computer interaction” conducted on November 15, 2023.                                                            |
| Ex. 2006       | Results of search on Linda Hall Library catalog at <a href="http://catalog.lindahall.org">catalog.lindahall.org</a> on November 15, 2023, for <i>Fifth IEEE International Conference on Automatic Face and Gesture Recognition</i> .              |
| Ex. 2007       | <i>WorldCat</i> record for Proceedings of the ACM SIGMM 2004 Workshop from <a href="https://search.worldcat.org/title">https://search.worldcat.org/title</a> on 11-15-2023.                                                                       |
| Ex. 2008       | Results of keyword search on <i>WorldCat</i> at <a href="https://search.worldcat.org">https://search.worldcat.org</a> for “Computer Science-Conference Papers” conducted on November 15, 2023.                                                    |

|          |                                                                                                                                                                                                         |
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| Ex. 2009 | Results of keyword search on WorldCat at <a href="https://search.worldcat.org">https://search.worldcat.org</a> for “Multimedia systems” conducted on November 15, 2023.                                 |
| Ex. 2010 | <i>WorldCat</i> record for <i>International Conference on 2005 Intelligent Robots and Systems</i> from <a href="https://search.worldcat.org/title">https://search.worldcat.org/title</a> on 11-17-2023. |
| Ex. 2011 | Amazon Preliminary Invalidity Contentions dated 6-5-2023                                                                                                                                                |
| Ex. 2012 | Supplemental Complaint, <i>Lightguide v. Amazon</i> , EDTX 10-2-2023                                                                                                                                    |
| Ex. 2013 | Results of keyword search on WorldCat at <a href="https://search.worldcat.org">https://search.worldcat.org</a> for “Artificial intelligence” conducted on December 1, 2023.                             |
| Ex. 2014 | Results of keyword search on WorldCat at <a href="https://search.worldcat.org">https://search.worldcat.org</a> for “robotics” conducted on December 1, 2023.                                            |
| Ex. 2015 | Order Denying Motion to Transfer, Dkt. 115, Case No. 2:22-cv-00433 (E.D. Tex.) dtd 9-29-2023                                                                                                            |
| Ex. 2016 | Order of Dismissal, Dkt. 35, Case No. 2:23-cv-00053 (W.D. Wa.) dtd 11-7-2023                                                                                                                            |

## **I. INTRODUCTION**

LightGuide, Inc. (“Patent Owner” or “LightGuide”) designs, manufactures, and sells interactive operational guide systems for various manufacturing and other operations. Its public customers include Ford, General Electric, Boeing, Caterpillar, Hewlett-Packard, and Medtronic—and, for a time, Amazon itself.

Amazon.com, Inc. (“Petitioner” or “Amazon”) purchased multiple visual guide systems from LightGuide before Amazon began using infringing systems that copied LightGuide’s patented technology, leading to the litigation between the parties. See Section IX, *infra* (Fintiv Factor 6). Amazon is now a competitor of LightGuide and its customers in the use of the patented technology.

The Board should decline institution because each ground relies on references that are neither patents nor “printed publications.” Additionally, the challenged claims are patentable over the references.

## **II. BACKGROUND**

### **A. Procedural History**

LightGuide asserted the ’036 Patent against Amazon in *LightGuide, Inc. v. Amazon.com, Inc. and Amazon.com Services LLC*, 2:22-cv-00433 (E.D. Tex. 2022) filed November 7, 2022.

This Petition was filed more than ten months later on September 15, 2023.

## **B. The '036 Patent**

### **1. The Invention**

U.S. Pat. No. 10,528,036 (“the '036 Patent”)—entitled “Light Guided Assembly System and Method”—is directed to an interactive operational guide system including a camera and remote monitoring of the operation and the individual being guided. '036 Patent, Cl. 7; 20:23-66.

The system guides an individual in performing actions using a guide system controller controlling a directional light device to project and direct visual indicators onto physical objects. '036 Patent, Cl. 7. The system can be deployed for numerous applications, including assembly and order fulfillment. Ex. 1001 ('036 Patent), 14:3-12.

### **2. Prosecution History**

The application leading to the '036 Patent asserts priority to a provisional application filed in February 2011. Ex. 1002 ('036 Patent File History), 0002-0063. The '036 Patent is entitled to a priority date of no later than October 1, 2010.

## **III. CLAIM CONSTRUCTION**

For purposes of this Preliminary Response only, Patent Owner interprets all claim terms in accordance with their plain and customary meaning and reserves the right to propose constructions and other arguments in this IPR, the litigation, or any other proceeding.

#### **IV. PERSON OF ORDINARY SKILL IN THE ART**

The POSITA is a person having at least a bachelor's degree in electrical engineering, computer engineering, computer science, mechanical engineering, or the equivalent, and one or more years of experience working in the field of systems for guiding and monitoring operational steps. See '036 Patent, 1:19-21. Lack of work experience can be remedied by additional education, and vice versa. See '036 Patent, 1:19-39.

#### **V. THE PETITION DOES NOT ESTABLISH THE REFERENCES ARE PRINTED PUBLICATIONS**

##### **A. The Petition is Facially Deficient**

The Board would not institute this IPR if the Petition failed to provide any arguments and failed to explain any evidence to show the claims were obvious. The burden to establish the references are prior art printed publications is just as substantive and just as critical. The Petition's utter failure to even assert that the references are printed publications warrants denial of institution.

The Petition does not state (let alone make a showing) that its non-patent references are "printed publications," as required by 35 U.S.C. § 311(b). *See Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1380 (Fed. Cir. 2018) ("Medtronic, the patent challenger, bears the burden of establishing that a particular document is a printed publication"). An assertion that references are prior art in general is not an

assertion that the references are “prior art consisting of patents or printed publications.”

For example, the Petition’s entire argument that the non-patent references of Ground 1 (Kjeldsen, Ex. 1005; Pinhanez-III, Ex. 1015) constitute prior art consists of three sentences:

Kjeldsen and Pinhanez-III were publicly available because they were stored, catalogued, and made available for review by libraries and were cited in research papers well before the earliest priority date of the ’036 patent. Declaration of Librarian James Mullins, PhD. (Ex. 1008, “Mullins”) ¶¶ 45-65, 113-150. The Declaration of Rick Kjeldsen (Ex. 1009) ¶¶ 2-4 and the Internet Archive Declaration (Ex. 1007) at 1-2 and 72-78 also support public availability of Kjeldsen. Thus, Kjeldsen and Pinhanez-III are prior art to the ’036 patent under pre-AIA 35 U.S.C. §§ 102(a) and (b).

Pet., 4. The Petition makes the same conclusory assertions for the references in Grounds 2-4. *See* Pet., 4 (*Pinhanez-I*, Ground 2), Pet., 5 (*Pinhanez-II*, Ground 3), Pet., 5-6 (*Machino-I*, *Machino-II*, Ground 4). These conclusory assertions, which make no showing that the references are patents or printed publications, are insufficient for institution.

The Petition’s statement that Kjeldsen and Pinhanez “are prior art ... under pre-AIA 35 U.S.C. §§ 102(a) and (b)” (*id.* at 4) is not an assertion that they are printed publications. Those pre-AIA statutory sections include multiple other

categories of prior art, such as “known or used by others,” “in public use,” or “on sale.”

The Petition also does not argue, much less establish, any of the requirements for a reference to qualify as a printed publication. A document is a printed publication only if it was “[1] disseminated or [2] otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it.” *Acceleration Bay LLC v. Activision Blizzard Inc.*, 908 F.3d 765, 772 (Fed. Cir. 2018) (citing *In re Wyer*, 655 F.2d 221, 226 (CCPA 1981) (brackets added).

As to the first test, the Petition does not allege the references were disseminated (distributed) to interested persons. See Pet., 3-4. None of the words “disseminate,” “disseminated” or “dissemination” appear anywhere in the Petition.

As to the second test, the Petition asserts the references were “stored, catalogued and made available for review,” but does not argue they were indexed or otherwise organized so that persons interested in the subject matter of the ’036 Patent—guide systems for guiding and monitoring factory or kitting operations—could locate any of the references. Pet., 4. That a reference allegedly was catalogued and “available for review” does not establish public accessibility.

For example, in *Acceleration Bay*, a published article was held not to be a printed publication because even though it was catalogued, it was not adequately

indexed to be searchable “in a meaningful way.” 908 F.3d at 773 (Fed. Cir. 2018). Likewise, in *In re Cronyn*, a thesis catalogued by name did not qualify as a printed publication because it “had not been either cataloged or indexed in a meaningful way” such that an interested person could locate it. 890 F.2d 1158, 1159, 1161 (Fed. Cir. 1989).

The Petition’s bald assertion that the references were “made available for review” (Pet., 4) does not establish publicly accessibility. The thesis in *Cronyn* was “available for review” at the library, but it was not a printed publication. 890 F.2d at 1159. In *In re Bayer*, 568 F.2d 1357, 1361 (CCPA 1978), a thesis was not a printed publication even though it was “available for review” at the University of Toledo library. In *Acceleration Bay*, the reference was not publicly accessible even though it was “available for review” on a website. 908 F.3d at 773.

The Petition thus fails to make a threshold showing that the references were disseminated, or that they were indexed by subject matter or searchable or otherwise organized such that persons interested in the subject matter of the ‘036 patent could locate them, exercising reasonable diligence.

The Petition’s assertion for Ground 4 is similar to Ground 1. The Petition argues without explanation that the Ground 4 references were “published” and “stored, catalogued, and made available for review” and “cited in research papers.” Pet., 5-6. As with Ground 1, the Petition does not make a threshold showing that the

references were disseminated or organized such that they could be obtained by an interested person exercising reasonable diligence.

The Petition's failure to make a threshold showing that the references of Ground 1 and Ground 4 are printed publications means that all four grounds fail, and, accordingly, the Board should deny institution.

**B. The Arguments and Evidence in the Expert Declarations Should Not Be Considered Because They Are Improperly Incorporated By Reference**

The Petition does not present, “with particularity,” evidence that the references are printed publications. *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29 (PTAB Dec. 20, 2019) (precedential), at 13; 2019 WL 7000067 (2019), at \*5 (“Thus ... **the petition** must establish “with particularity, evidence” that the reference is a printed publication). The Petition does not present, nor does it analyze, **any** evidence of public accessibility. Instead, it improperly seeks to incorporate over one hundred paragraphs from declarations without any analysis.

The Petition's conclusory assertion about the public availability of the Kjeldsen and Pinhanez-III references (Pet., 3-4) refers without explanation to the Mullins Declaration at ¶¶45-65 and 113-150; the Kjeldsen declaration at ¶¶2-4; and the Internet Archive Declaration at ¶¶1-2 and 72-78—65 paragraphs. The Petition's conclusory assertion about Pinhanez-I (Pet., 4) refers without explanation to the Mullins Declaration at ¶¶65-87; the Kjeldsen declaration at ¶¶2, 3, 5; and the Internet

Archive Declaration at ¶¶1-2 and 61-62—another 30 paragraphs. The conclusory assertion that Pinhanez-II was publicly available (Pet., 5) refers without explanation to the Mullins Declaration at ¶¶88-112; the Kjeldsen declaration at ¶¶2, 3, 6; and the Internet Archive Declaration at ¶¶1-2 and 63-71—39 additional paragraphs. The conclusory assertion that Machino-I and Machino-II were publicly available (Pet., 5-6) refers without explanation to the Mullins declaration at ¶¶151-212—another 62 paragraphs.

As stated in 37 C.F.R. § 42.6(a)(3), “[a]rguments must not be incorporated by reference from one document into another document.” The Petition thus improperly seeks to incorporate 196 paragraphs of arguments and evidence from various declarations.<sup>1</sup> The Board should not consider such arguments and evidence.

As the Board explained in *Vivint, Inc. v. SB IP Holdings LLC*:

A petition can provide general reasoning, and the expert declaration can provide more or further detail in support of that reasoning. **What a petitioner may not do is to simply state conclusions in the petition, and rely on the expert declaration to provide all of the reasoning, explanation, and analysis.**

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<sup>1</sup> The incorporated subject matter from the declarations adds more than 21,000 words to the 13,688 words found in the Petition.

IPR2022-00814, Paper 15 (PTAB Oct. 16, 2023); 2023 WL 6878619 at \*5 (emph. added). The latter is precisely what the Petition attempts to do: simply assert conclusions and rely on large swaths of expert declarations to provide all reasoning, explanation, and analysis.

The Board has routinely rejected arguments and evidence from cited declarations when, as here, the petition fails to provide adequate reasoning and analysis. *Instrumentation Lab. Co., v. Hemosonics LLC*, IPR2017-00855, Paper 55 (PTAB Feb. 13, 2019); 2019 WL 625561 at \* 8 (declining to consider “information that Petitioner does not discuss sufficiently in the Petition, but instead simply incorporates by reference to cited portions of the Mize Declaration.”); *Uber Tech., Inc. v. Surgetech LLC*, IPR2023-00735, Paper 13 (PTAB Oct. 12, 2023); 2023 WL 6847490 at \*9 (denying institution due to improper incorporation by reference of large sections of expert declaration); *Limelight Networks, Inc., v. Mass. Inst. of Tech.*, IPR2017-00249, Paper 9 (PTAB May 18, 2017); 2017 WL 2199158 at \*3; *Nexxon Ltd. v. OneD Material, LLC*, IPR2017-00851, Paper 7 (PTAB Aug. 25, 2017); 2017 WL 3671117 at \* 4.

Federal Circuit caselaw is consistent. For example, in *3M Co. v. Evergreen Adhesives, Inc.*, the Federal Circuit rejected 3M’s arguments not made in the petition because its reference to expert testimony was “an attempt to introduce argument by citation.” 860 Fed.Appx. 724, 725-727 (Fed. Cir. 2021) (The Board is not to be

forced to “play archeologist with the record” for arguments made outside the parties’ briefing). *See also, e.g., Medtronic, Inc. v. Teleflex Life Sciences Ltd.*, 2023 WL 7800137 (Fed. Cir. Nov. 16, 2023) at \*4 (rejecting incorporation by reference as violative of word limits); *Microsoft Corp. v. DataTern, Inc.*, 755 F.3d 899, 910 (Fed. Cir. 2014) (rejecting incorporation by reference as “fundamentally unfair”).

The Board should deny institution because the Petition does not set forth any basis for concluding, much less carry its burden to prove, that its non-patent references are printed publications as required by 35 U.S.C. § 311(b).

**VI. EVEN IF THE MULLINS DECLARATION WERE CONSIDERED, IT WOULD NOT ESTABLISH THE REFERENCES ARE PRINTED PUBLICATIONS**

Even if the Board is forced to “play archeologist with the record” including the 687-page Mullins declaration, it fails to establish the references of Grounds 1-4 are printed publications. If the Board agrees that Mullins does not establish Pinhanez-III and either Machino reference as printed publications, all four grounds fail and institution must be denied.<sup>2</sup>

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<sup>2</sup> The IA declaration (Ex. 1007) and the Kjeldsen declaration (Ex. 1009) do not address the public accessibility of Pinhanez-III (Ex. 1015) or either Machino reference (Exs. 1017, 1018). Accordingly, the only way Grounds 1-4 survive

The Mullins declaration should be disregarded because the evidence provided by Dr. Mullins for all references is based on online searches conducted in 2023. Dr. Mullins’s searches in 2023 do not establish public accessibility as of 2010. See, e.g., Mullins Decl., ¶¶16, 51, 55. *In re Cronyn*, 890 F.2d at 1160 (reference must be publicly accessible “before the critical date”).

The Mullins declaration argues only public accessibility (e.g., accessible online or via a library). It does not argue any reference is prior art by virtue of dissemination. See Mullins Decl., ¶¶43-212.

**A. Ground 1: Pinhanez-III Is Not a Printed Publication**

The Petition relies on Pinhanez-III (Ex. 1015) to meet limitation 7.4 of the ’036 Patent for a “monitor” remotely located from the claimed “guide system controller” and “directional light device.”

The Mullins declaration asserts that Pinhanez-III, *Projector-Camera Systems for Telepresence*, was publicly accessible based on Dr. Mullin’s search of the *WorldCat* database in May 2023. Mullins Decl., ¶¶121-125. It does not assert public accessibility based on dissemination (distribution) of copies.

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would be if the Board were (1) to consider the Mullins declaration, and (2) to determine it establishes the public accessibility of Pinhanez-III and both Machino references.

First, the declaration asserts that a *WorldCat* record identifying (but not providing) a compilation entitled the *Proceedings of the ACM SIGMM 2004 Workshop on Effective Telepresence* (hereinafter, “SIGMM Compilation”)<sup>3</sup> could be found by a search on *WorldCat*. Mullins Decl., ¶¶121-122. It does not indicate what kind of search was conducted to find the record for the SIGMM Compilation. The Mullins declaration fallaciously argues that Pinhanez-III was publicly accessible by searching for something different, the SIGMM Compilation having a different name and different authors.<sup>4</sup>

The test is not whether the reference could have been retrieved if the person was told in advance the name of the article (*Projector-Camera Systems for Telepresence*) and that the article was contained in a specific compilation

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<sup>3</sup> The Mullins declaration asserts that the Pinhanez-III article and the lengthy compilation in which it allegedly appeared are the same thing. See Mullins Decl., ¶114. This is incorrect. They are different documents. This false conflation (throughout the declaration) of references and compilations of documents allegedly containing them renders the evidence on public accessibility inherently unreliable and entitled to no weight.

<sup>4</sup> The *WorldCat* record provides a title and authors different from the Pinhanez-III reference. Mullins Decl., App. D-3, 0254. See Ex. 2007, 1.

(*Proceedings of the ACM SIGMM 2004 Workshop on Effective Telepresence*). Public accessibility requires more than “technical accessibility.” *Acceleration Bay*, 908 F.3d at 772. Pinhanez-III was not publicly accessible because it was not “searchable or indexed in a meaningful way” such that an interested person could locate it with reasonable diligence. *Id.*

Second, the evidence presented for the alleged accessibility of the SIGMM Compilation does not establish public accessibility of the Pinhanez-III reference. Dr. Mullins provides **no evidence** (nor is he qualified to do so) that person looking for articles relating to the subject matter of the '036 Patent would search for the compilation named *Proceedings of the ACM SIGMM 2004 Workshop on Effective Telepresence*.

Third, the Mullins declaration also does not assert that the *WorldCat* entry for the SIGMM Compilation references the Pinhanez-III article. See Mullins Decl., App. D-3, 0254-0255. Nor could it. The Patent Owner obtained the *WorldCat* record for the SIGMM Compilation by title search at <https://search.worldcat.org/title> and it does not reference Pinhanez-III. See Ex. 2007. Thus, an interested person would not locate Pinhanez-III by searching *WorldCat* for the SIGMM Compilation. See Mullins Decl., ¶123.

Fourth, Dr. Mullins asserts Pinhanez-III could have been located by “searching the subject headings” on *WorldCat* (“e.g., *Computer Science* –

*Conference papers and proceedings; Multimedia systems; Multimedia systems – Congresses; Video telephone; and/or Video telephone – Congresses*”). See Mullins Decl., ¶123. The declaration provides **no evidence** that a person interested in the subject matter of the '036 Patent would select “video telephone” or “multimedia systems” as search terms to locate relevant documents.

Dr. Mullins also provides **no evidence** that an interested person, exercising reasonable diligence, **could** locate Pinhanez-III using the proposed search terms. A keyword search on *WorldCat* for articles between 1990 and 2010 using *Multimedia systems* yielded **257,064** results. See Ex. 2009. And a keyword search using *Computer Science – Conference papers and proceedings* (another search term proposed by Dr. Mullins) yielded **1,122,728** results. See Ex. 2008. There is no public accessibility where the proposed search would require the interested artisan to be “skimming through potentially hundreds of titles.” See *Acceleration Bay*, 908 F.3d at 773. Here, the proposed search produces **millions** of titles. An interested person would not have located Pinhanez-III using reasonable diligence. *Id.*; *In re Cronyn*, F.2d at 1161.

Fifth, the Mullins declaration refers to a Library of Congress OPAC record for the *Proceedings of the ACM SIGMM 2004 Workshop on Effective Telepresence* (the SIGMM Compilation). Mullins Decl., ¶126, App. D-4. This record was allegedly obtained by searching the Library of Congress OPAC system using the

ISBN number obtained from *WorldCat* (App. D-3).<sup>5</sup> Thus, the Library of Congress OPAC record was improperly located with hindsight based on the *WorldCat* record, and therefore Pinhanez-III was not publicly accessible through this search either. See Mullins Decl., ¶¶121-129. Further, the Mullins declaration does not provide any evidence that an interested person would have had reason to search for a compilation about “telepresence” published by a group focused on “multimedia systems.”

The argument that a physical copy of the SIGMM Compilation (book) was allegedly held at the Library of Congress (Mullins Decl., ¶¶ 129-135) fails to establish that the Pinhanez-III article<sup>6</sup> was reasonably accessible for the reasons explained previously. In particular, the Mullins declaration provides no evidence that

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<sup>5</sup> The link at the top of the Library of Congress record is <https://catalog.loc.gov/vwebv/search?searchArg1=1581139330> ... (emph. added). See Mullins Decl., ¶126, 0257. The search term “1581139330” is the ISBN number for the SIGMM Compilation (obtained from the *WorldCat* record of D-3). See Mullins Decl., App. D-1, 0245.

<sup>6</sup> The Pinhanez-III reference also restricts access to the article. See Pinhanez-III, 0002. The access restriction weighs against public accessibility. *See Medtronic*, 891 F.3d at 1382; *In re Klopfenstein*, 380 F.3d at 1350-51.

Pinhanez-III was indexed and/or searchable or otherwise organized in a manner that an interested person could locate it exercising reasonable diligence.

Finally, the Mullins declaration's assertions regarding the citation of Pinhanez-III by later authors also is not evidence that it was publicly available. See Mullins Decl., ¶¶136-149.<sup>7</sup> Dr. Mullins provides no evidence (and would not be qualified to present evidence) that a person interested in the subject matter of the '036 Patent would seek out the Schmitt, Olwal, or Weber articles, whose titles referred to "Ubiquitous Computing," "Unobtrusive Augmentation of Physical Environments," and "Mobile Devices." See Mullins Decl., ¶¶136-149.

The three citing authors could have obtained knowledge of the reference privately from its author. Further, there is no evidence the citing articles were read by anyone, let alone the group of people interested in the subject matter of the '036 Patent.

The declaration also does not establish that any of these articles were themselves publicly accessible by 2010. The retrieval of Schmitt (Mullins Decl., App. D-7) using an unspecified search on [www-igi-global.com](http://www-igi-global.com) does not establish

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<sup>7</sup> The allegation that Pinhanez-III was a "a scholarly reference" does not establish it as publicly accessible. Mullins Decl., ¶¶ 141, 145, 149. *See In re Bayer*, 568 F.2d 1357 (CCPA 1978) (master's thesis was not publicly accessible).

public accessibility. Mullins Decl., ¶139. The retrieval of the Olwal thesis using an apparent title search conducted on the DiVA portal of Sweden in April 2023 does not establish it was publicly accessible. Mullins Decl., ¶¶142-143. The retrieval of the Weber article using an unspecified search conducted on an unexplained website <https://d1wqtxts1xzle7.cloudfront.net> does not establish it was publicly accessible by 2010. Mullins Decl., ¶¶146-147. Showing a reference could be found if one knew ahead of time exactly what to look for and where to find it does not make the reference a printed publication. *Acceleration Bay*, 908 F.3d at 773 (technical accessibility is insufficient).

Even if the above described deficiencies of the citing articles were set aside, they are at best weak, indirect evidence insufficient to meet the Petitioner’s burden.

Accordingly, Pinhanez-III was not publicly accessible.

**B. Ground 1: Kjeldsen Is Not a Printed Publication**

The Petition relies on Kjeldsen (Ex. 1005) for limitations 7.1-7.3, i.e., the claimed “guide system,” “directional light device,” and “camera.”

First, Dr. Mullins does not attempt to show the reference itself—entitled *Interacting with Steerable Projected Displays* by Kjeldsen (Ex. 1005, “the Kjeldsen article”)—was publicly accessible. Instead, he attempts to show that a 436-page

compilation of materials with different authors<sup>8</sup> and a different (and seemingly unrelated) name—the *Fifth IEEE International Conference on Automatic Face and Gesture Recognition*—was publicly accessible. Mullins Decl., ¶51. This fails to establish the public accessibility of the reference itself—the Kjeldsen article.

Second, Dr. Mullins provides no evidence that a person interested in articles related to the subject matter of the '036 Patent would search for a compilation entitled *Fifth IEEE International Conference on Automatic Face and Gesture Recognition*.<sup>9</sup> Nor does he provide any evidence that such a person would endeavor to locate the Kjeldsen article by conducting searches on conferences involving “automatic face and gesture recognition.” In so doing, Dr. Mullins fails to establish

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<sup>8</sup> According to the *WorldCat* record (Mullins Decl., App. A-3, 0102-0105), the authors are the “IEEE International Conference on Automatic Face & Gesture Recognition” and the “IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence.” Mullins Decl., App. A-3, 0103. See Ex. 2004, 1 (same).

<sup>9</sup> Indeed, Dr. Mullins is not qualified (and does not purport to be qualified) in the subject matter of the '036 Patent. See Mullins Decl., ¶¶ 6-10. Even if Dr. Mullins had asserted that such a person would search for a compilation of articles on facial and gesture recognition, it would be entitled to no weight.

the public accessibility of the Kjeldsen reference.

Third, Dr. Mullins asserts the Kjeldsen reference was publicly available by 2010 based a search producing a *WorldCat* record identifying (but not providing) the above-mentioned compilation *Fifth IEEE International Conference on Automatic Face and Gesture Recognition* proceedings (“FGRC Compilation”).<sup>10</sup> The declaration does not indicate what kind of search was conducted to find the record for the FGRC Compilation. Mullins Decl., ¶51 (only stating “I obtained [the *WorldCat* record] by completing a search on WorldCat ...”).

Significantly, Dr. Mullins does not provide any evidence that the Kjeldsen article is referenced in the *WorldCat* record for the FGRC Compilation. Mullins Decl., ¶¶50-54. Nor could he because the Kjeldsen article is **not** referenced. The Patent Owner conducted a title search (*Fifth IEEE International Conference on Automatic Face and Gesture Recognition*) at <https://search.worldcat.org/title>, that produced a *WorldCat* record substantially identical to Dr. Mullins’ record. See Ex.

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<sup>10</sup> The Mullins declaration asserts, purportedly in the interest of “consistently and clarification,” that the Kjeldsen article and the FGRC Compilation book allegedly containing it are the same. Mullins Decl., ¶ 44. They are not the same. They are two different documents. This defect, alone, defeats the declaration’s attempt to establish public accessibility of the reference.

2004; Mullins Decl., ¶54 (referencing App. A-3), 0103-0105. This search confirms what Mullins declaration shows: the *WorldCat* record for the FGRC Compilation does not mention or reference the Kjeldsen article in any way:





**Fifth IEEE International Conference on Automatic Face and Gesture Recognition : proceedings : 20-21 May, 2002, Washington, D.C.**

**Authors:** [IEEE International Conference on Automatic Face & Gesture Recognition](#), [IEEE Computer Society Technical Committee on Pattern Analysis and Machine Intelligence](#)

**Summary:** This text presents information on communication networks and systems as presented at the 5th IEEE International Conference Automatic Face and Gesture Recognition (FGR 2002).

 **Print Book**, English, ©2002

**Edition:** [View all formats and editions](#)

**Publisher:** IEEE Computer Society, Los Alamitos, Calif., ©2002

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**Genre:**  
Conference papers and proceedings

**Physical Description:**  
xi, 436 pages : illustrations ; 28 cm + 1 CD-ROM

Ex. 2004 (*WorldCat* record for FGRC Compilation, excerpted). See Mullins Decl., App. A-3, 0103-0105.

Accordingly, even if an interested researcher had reason to search *WorldCat* to locate the FGRC Compilation (which is not the case), the record does not disclose the existence of the Kjeldsen article, let alone its subject matter or how to locate it. This evidence based on *WorldCat* does not establish public accessibility of the reference. *Acceleration Bay*, 908 F.3d at 773.

Moreover, the declaration's assertion that Kjeldsen "could have been retrieved" by searching "subject headings" such as "*Face perception; Gesture; Human computer interaction; Image processing digital techniques; Optical pattern recognition*" (Mullins Decl., ¶54) lacks any supporting evidence. The declaration provides no evidence that a person interested in the relevant subject matter would conduct searches using the keywords proposed by Dr. Mullins (which is not surprisingly because Dr. Mullins is not qualified to opine as much). Plainly, a person interested in the subject matter of the '036 Patent would not conduct a search for "face perception" or "optical pattern recognition" to locate relevant documents.

Fourth, Dr. Mullins also provides no evidence that an interested person, exercising reasonable diligence, could have located the Kjeldsen article by using the proposed subject heading keywords. See Mullins Decl., ¶54. That his proposed keyword search would not work is easily proven. Here, the proposed search produces not just hundreds but **hundreds of thousands** of titles. A keyword search of "human computer interaction" (proposed by Dr. Mullins) on *WorldCat* at <https://search.worldcat.org/> for articles between 1990 and 2010 produced **217,428 results**. See Ex. 2005. See *Acceleration Bay*, 908 F.3d 765 at 773.

Fifth, Dr. Mullins also refers to an OPAC record for the FGRC Compilation allegedly downloaded from the Linda Hall Library in 2023. Mullins Decl., ¶55, App. A-4. He does not indicate how the Linda Hall OPAC record was obtained (e.g., what

kind of search was conducted). Regardless, the Linda Hall record also only lists the title of the FGRC Compilation. It does not mention the Kjeldsen article. See Mullins Decl., App. A-4, 0106-0107. The Patent Owner confirmed this by searching the Linda Hall Library catalog for the FGRC Compilation. See Ex. 2006. Accordingly, even a search performed today using the Linda Hall OPAC does not lead to the Kjeldsen article.

That the Linda Hall Library allegedly has possession of the FGRC Compilation is irrelevant (see Mullins Decl., ¶¶57-59) because, again, Dr. Mullins does not establish an interested person would search for the FGRC Compilation to locate the Kjeldsen article in the first place. He also does not show how, if at all, the FGRC Compilation was indexed at the Linda Hall Library in 2010, let alone that it was done so in a manner that would lead an interested person to the Kjeldsen article. *Id.*

The Mullins declaration's final argument is that Kjeldsen was publicly accessible because an article by Kim (*A Development of Interactive Game 'Ting Ting' Using Real and Virtual Objects*) allegedly published in 2004 cited the Kjeldsen article. Mullins Decl., ¶¶61-64 (referencing Appendix A-5). This citation at most indicates that Mr. Kim perhaps obtained knowledge of the Kjeldsen article privately

from its author, not that Kjeldsen was publicly accessible.<sup>11</sup> The citation to an article by the author of a later document, without more, does not establish the article was publicly accessible. *In re Cronyn*, 890 F.2d at 1159. Further, there is no evidence the Kim article was read by anyone, let alone a person interested in the subject matter of the '036 Patent.

Dr. Mullins also does not provide any evidence (and would not be qualified to provide evidence) that an interested person interested in systems for reducing manufacturing mistakes would have had reason to seek out Kim's article on an interactive game named *Ting Ting*. Mullins Decl., App. A-5, 0108-0115 ("*Interactive Game 'Ting Ting'*"). Nor does he establish the Kim article was publicly accessible in 2010. That Kim allegedly was downloaded by Dr. Mullins using an unspecified search in 2023 does not establish Kim was publicly accessible in 2010. Mullins Decl., ¶62. Nor would the fact that Kim allegedly was published in a lengthy compendium of a proceeding, an assertion made without evidence or explanation (*id.* at ¶61), establish that Kim was indexed or otherwise publicly accessible.

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<sup>11</sup> That a single person working in the field of interactive gaming had a copy of the Kjeldsen article does not establish that the public interested in the subject matter of the '036 Patent, operational guide systems, would have known of it. *In re Bayer*, 568 F.2d 1357 at 1361.

Even if the deficiencies identified above are set aside, the Kim article is at best weak evidence of public accessibility that does not meet the Petitioner's burden.

Accordingly, Kjeldsen was not publicly accessible.

**C. Ground 2: Pinhanez-I Is Not a Printed Publication**

Ground 2 relies on Pinhanez-I for limitation 7.2 for the claimed “guide system controller.”

The Mullins declaration asserts that Pinhanez-I (*Ubiquitous Interactive Graphics*, Ex. 1006) was publicly accessible because three later references allegedly cited Pinhanez-I. See Mullins Decl., ¶¶73-86.<sup>12</sup> As explained for Pinhanez-III, *supra*, the alleged citation of Pinhanez-I in other articles does not demonstrate that it was publicly accessible.

First, Dr. Mullins does not provide any evidence (and would not be qualified to offer evidence) that an interested person would have reason to seek out the three articles that allegedly reference Pinhanez-I: Flagg (App. B-6), Bhasker (App. B-7), and Borkowski (App. B-8) Mullins Decl., ¶¶74-83.

The citing authors could have easily obtained knowledge of the reference privately from its author. Further, there is no evidence that the three citing articles

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<sup>12</sup> Apparently, Dr. Mullins was unable to find any evidence that Pinhanez-I could be located online or at a library in 2010.

were read by anyone, let alone by persons interested in the relevant subject matter.

Dr. Mullins also does not establish these articles were themselves publicly available by 2010. The assertion that “Flagg was presented as a paper” at a conference, without evidence or explanation, does not establish public accessibility. Mullins Decl., ¶78. Allegedly retrieving Flagg in 2023 using an unexplained search also does not establish public accessibility. The retrieval of Bhasker in 2023 using an unexplained search does not establish public accessibility. Mullins Decl., ¶80. The assertion, without evidence or explanation, that Bhasker allegedly was published in a journal does not establish public accessibility either. Mullins Decl., ¶79. The retrieval of Borkowski using an unexplained search in 2023 does not establish its public accessibility. Mullins Decl., ¶¶83-84.

Even if these deficiencies are set aside, the citing articles are at best weak and indirect evidence the reference was publicly accessible by 2010.

Accordingly, Pinhanez-I was not publicly accessible.

**D. Ground 3: Pinhanez-II Is Not a Printed Publication**

The Petition relies on Pinhanez-II for the limitations in Claims 3, 6, 9, and 12, providing that a “separate computer system or controller” provides the input signals to the “guide system controller.”

The Mullins declaration asserts Pinhanez-II was publicly accessible on the basis that two later references allegedly cited Pinhanez-II. See Mullins Decl., ¶¶98-112.<sup>13</sup>

First, Dr. Mullins does not provide any evidence that an interested person would seek out the Butz or Nakada articles, which had the titles “Searchlight - A Lightweight Search Function” and “A Supporting System for Finding Lost Objects by Spotlight.” Mullins Decl., ¶¶99, 104, App. C-4 (Butz), App. C-5 (Nakada).

The citing authors could have easily obtained knowledge of the reference privately from its author, and there is no evidence the citing articles were read by anyone, let alone persons interested in the subject matter of the '036 Patent.

The Mullins declaration also does not establish that Butz and Nakada were publicly accessible in 2010. The assertion, without evidence or explanation, that Butz appeared in a multi-hundred page set of proceedings from a 2004 conference in Vienna, Austria does not establish public accessibility. Mullins Decl., ¶100. Nor does its retrieval using an unexplained search in 2023 establish that Butz was indexed or searchable in 2010. Mullins Decl., ¶101. The retrieval of Nakada based on an unexplained search conducted in 2023 does not establish public accessibility

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<sup>13</sup> Apparently, Dr. Mullins also was unable to find evidence that Pinhanez-II could be located online or at a library in 2010.

either. Mullins Decl., ¶¶104-105. The assertion, without evidence or explanation, that Nakada was published in a technical report does not establish that it was indexed or searchable in 2010. Mullins Decl., ¶107.

Even if these deficiencies are set aside, the citing references are at best weak, indirect evidence insufficient to meet the Petitioner's burden.

Accordingly, Pinhanez-II was not publicly accessible.

**E. Ground 4: Machino-I Is Not a Printed Publication**

Ground 4 relies on Machino-I (Ex. 1016) combined with Machino-II as applied to all Claims 1-12.

The Machino-I reference is undated. It bears no purported publication information. Ex. 1016.

First, as with Pinhanez-III, the analysis of public accessibility of Machino-I is fundamentally flawed because Dr. Mullins does not show the reference itself (Ex. 1016, *Robot-Augmented Communication: A Remote-collaboration System Based on a Shared Field of View in Real Space*) was publicly accessible. Instead, he attempts to show that a four-volume compilation of materials having a different name and different authors (*2005 IEEE/RSJ International Conference on Intelligent Robots and Systems*) allegedly containing Machino-I was publicly accessible. Mullins Decl., App. E-3, 0473. See Ex. 2010, 1. That does not establish public accessibility of the reference.

Second, Dr. Mullins provides no assertion or evidence (and would not be qualified to provide evidence) that an interested person would search for, let alone search through, a four-volume compilation entitled *2005 IEEE/RSJ International Conference on Intelligent Robots and Systems* to locate Machino-I. *Acceleration Bay*, 908 F.3d at 772.

Third, the Mullins declaration asserts Machino-I was publicly available by 2010 based on a search of the *WorldCat* database producing a *WorldCat* record identifying (but not providing) the compilation *2005 IEEE/RSJ International Conference on Intelligent Robots and Systems* (“IRS Compilation”). Mullins Decl., ¶¶159, 161 (App. E-3), 0473-0474.<sup>14</sup> As with the other references, the Mullins declaration is deficient because it does not disclose what kind of search was performed on *WorldCat*.

Dr. Mullins does not provide any evidence that the *WorldCat* record for the IRS Compilation references Machino-I. See Mullins Decl., ¶¶159, 161. It does not. See Mullins Decl., App. E-3, 0473-0474. The Patent Owner retrieved the *WorldCat* record for the IRS Compilation (see Ex. 2010), and it does not reference Machino-I.

Fourth, the declaration asserts that Machino-I “could have been located” by

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<sup>14</sup> As before, the declaration improperly conflates the Machino-I article with the lengthy IRS Compilation in which it allegedly appears. See Mullins Decl., ¶159.

searching for subject keywords (e.g., “*Artificial intelligence; Intelligent control systems; and/or Robotics*”) in *WorldCat*. Mullins Decl., ¶161. But Dr. Mullins provides no evidence that an interested person would select “artificial intelligence,” “intelligent control systems,” or “robotics” for a search. Further, the declaration provides no evidence that an interested person exercising reasonable diligence could successfully locate Machino-I using the proposed search terms. See Mullins Decl., ¶161. The Patent Owner checked. A search on *WorldCat* between 1990 and 2010 using “artificial intelligence” produced **448,786 titles**. Ex. 2013. A search using “robotics” produced **326,581 titles**. Ex. 2014. See *Acceleration Bay*, 908 F.3d at 773 (no public accessibility where “potentially hundreds of titles.”).

Fifth, the Mullins declaration refers to a download of a Library of Congress OPAC record for the IRS Compilation. Mullins Decl., ¶¶162-164, App. E-4, 0476-0478. The declaration is deficient because it does not disclose what kind of search was performed. Additionally, Machino-I was not publicly accessible via the Library of Congress online catalog because there is no evidence that an interested person would search for the IRS Compilation to locate Machino-I. See Mullins Decl., ¶164.

That a physical copy of the IRS Compilation allegedly was available at the Library of Congress (see Mullins Decl., ¶¶165-168) also does not show public accessibility because, again, the declaration provides no evidence that an interested person would search for the IRS Compilation to locate Machino-I. Further, the

declaration does not show how, if at all, Machino-I was indexed at the Library of Congress, much less that it was done so in a manner that would lead an interested person exercising reasonable diligence to it.

Finally, the assertion that Machino-I was publicly available based on the alleged citation of Machino-I in two articles does not demonstrate it was publicly accessible, as explained for the other references. Mullins Decl., ¶¶169-178. See Section VI.A-B, *supra*.

Dr. Mullins does not provide any evidence (and would not be qualified to provide evidence) that an interested person would have reason to seek out Matsumaru-I (Mullins Decl., App. E-7, 0485-0495) or Matsumaru-II (Mullins Decl., App. E-8, 0497-0506), whose titles refer to interfaces with a “mobile robot.” There is no evidence the citing articles were read by anyone, let alone read by the relevant interested persons. Further, the citing authors could have easily obtained knowledge of the reference privately.

Additionally, the declaration does not establish the public accessibility of the two articles; there is no mention of subject matter indexing or searchability. The retrieval of Matsumaru-I using an unexplained search on an unexplained website at <https://benthamopen.com> does not establish Matsumaru-I was publicly accessible. Mullins Decl., ¶172. The assertion, made without evidence or explanation, that Matsumaru-I allegedly was published in a journal does not establish public

accessibility either. Mullins Decl., ¶171. The retrieval of Matsumaru-II using an unexplained search from an unexplained website at <https://www.fujipress.jp> does not establish Matsumaru-II as being publicly accessible. Mullins Decl., ¶176. The assertion, made without evidence or explanation, that Matsumaru-II was published in a journal does not establish public accessibility. Mullins Decl., ¶¶ 175, 178.

Even ignoring these deficiencies, the citing articles are weak, indirect evidence insufficient to establish the reference was publicly accessible in 2010.

Accordingly, Machino-I was not publicly accessible.

**F. Ground 4: Machino-II Is Not a Printed Publication**

Ground 4 also relies on the Machino-II article (*Remote-Collaboration System Using Mobile Robot with Camera and Projector*, Ex. 1017), which allegedly was included in a compilation entitled *Proceedings 2006 IEEE International Conference on Robotics and Automation*.<sup>15</sup> Mullins Decl., ¶¶189-197.

First, as with Machino-I, the Mullins declaration's analysis is fundamentally flawed because it does not show that Machino-II is publicly accessible. Instead, it attempts to show that a compilation of materials having a different name and

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<sup>15</sup> The Mullins declaration again incorrectly conflates Machino-II and the compilation as being the same document. Mullins Decl., ¶181.

different authors allegedly containing the reference was publicly accessible. See Mullins Decl., App. F, 30591-0583 (*WorldCat* record). Further, Dr. Mullins provides no evidence (and would not be qualified to provide any evidence) that an interested person would search for the *2006 IEEE International Conference on Robotics and Automation* to locate Machino-II.

Second, the Mullins declaration asserts Machino-II was publicly available by 2010 based on a search of the *WorldCat* database in 2023 producing a record identifying (but not providing) the compilation *2006 IEEE International Conference on Robotics and Automation* (the “RA Compilation”). Mullins Decl., ¶¶189-191 (referencing App. F-3). The declaration is deficient because it does not disclose what search was conducted to obtain the record. Further, it also provides no evidence that Machino-II is referenced in the *WorldCat* record for the RA Compilation. And the *WorldCat* record of Appendix F-3 does not reference Machino-II. *See id.* Accordingly, Machino-II was not publicly accessible.

Third, the declaration also asserts Machino-II “could have been located” by searching subject headings (“*Automation; Automation-Congresses; and/or Robotics*”) in *WorldCat*. Mullins Decl., ¶191. The declaration provides no evidence that an interested person would select the terms “automation,” “automation-congresses,” or “robotics” for a keyword search. Nor does it provide any assertion or evidence that an interested person exercising reasonable diligence could have

successfully located Machino-II using the proposed search. See Mullins Decl., ¶¶191-192. Indeed, a keyword search on *WorldCat* for “robotics” produced **326,581** titles. Ex. 2014. Thus, an interested person exercising reasonable diligence would not be able to locate Machino-II. *Acceleration Bay*, 908 F.3d at 772.

The declaration refers to a download of a Western University Libraries OPAC record for the RA Compilation. Mullins Decl., ¶¶193-194. Appendix F-4 does not reference Machino-II at all. And the Mullins declaration again provides no evidence that an interested person would seek out the RA Compilation. The assertion that the RA Compilation could be obtained by title search or keyword search (Mullins Decl., ¶194) is not supported by evidence, and moreover, it is irrelevant because Dr. Mullins fails to show that an interested person would search for the RA Compilation in the first instance.

The declaration refers to Appendix F-5 as a download from *IEEE Xplore* of a record for Machino-II. Mullins Decl., ¶¶ 196-197. The declaration is deficient because it does not explain the search used to obtain the record for Machino-II. The Mullins declaration does not explain how an interested person would have been able to search for and locate Machino-II on the *IEEE Xplore* in 2010. The lack of any explanation on how the article allegedly could be located (see Mullins Decl., ¶¶196-197) reflects it was not publicly accessible.

The assertion (Mullins Decl., ¶¶198-211, referencing Appendices F-7 to F-9) that Machino-II was publicly available based on its alleged citation in three articles (Park, Kawata, and Nitsuma) does not demonstrate Machino-II was publicly accessible for the reasons explained *supra* for Machino-I. Dr. Mullins does not provide evidence that an interested person would have reason to seek out the later articles, whose titles concern “Spatial Memory for Collaboration Support System” and “Interactive Child Watch System for the Participation of Parents in Day-Care Activities.” Mullins Decl., ¶¶ 204, 208. There is no evidence the citing articles were read by anyone, let alone read by the relevant interested persons. Further, the citing authors could have easily obtained knowledge of the reference privately.

The declaration provides no evidence that these later articles themselves were publicly accessible. The citing articles are at best weak, indirect evidence insufficient to meet the Petitioner’s burden.

Accordingly, Machino-II was not publicly accessible.

## **VII. THE INTERNET ARCHIVE DECLARATION DOES NOT ESTABLISH THE REFERENCES ARE PRINTED PUBLICATIONS**

The Internet Archive declaration (“IA declaration”) contains **76 pages** of printouts of web pages that the Petition does not explain. IA Decl., Ex. A, 0003-0078; Pet., 3-6. This improperly requires the “archeological” exercise the Federal Circuit rejected in *3M v. Evergreen*. 860 Fed.Appx. at 725. For this reason, and for

the reasons explained in Section V, *supra*, the Petition fails to establish public accessibility based on the IA declaration.

Even if it could be considered (it cannot), the IA declaration fails to establish the references are printed publications. Indeed, the IA declaration only purports to provide evidence that the archived web pages are authentic, not that they are publicly accessible. Ex. 1007 (IA Decl.), ¶8 (“Attached hereto as Exhibit C are true and accurate copies of the Internet Archive’s record of the archived files ...”).

**Pinhanez-III (Ex. 1015) (Grounds 1-3)**

Grounds 1-3 rely on Pinhanez-III, which is not addressed by the IA declaration. A finding that Pinhanez-III has not been shown to be publicly accessible removes Grounds 1-3 from the Petition.

**Kjeldsen (Ex. 1005) (Ground 1)**

The Petition references pages 72-78 of the IA declaration for Kjeldsen. Pet., 4. Pages 73-78 provide a printout of an article allegedly archived in April 2005 from [www.research.ibm.com/ed/publications/fg02.pdf](http://www.research.ibm.com/ed/publications/fg02.pdf) that is similar to Ex. 1005 (Kjeldsen). The IA declaration provides no evidence that the archived webpage at pages 73-78 was publicly accessible to interested persons. Public accessibility requires more than technical accessibility. *Acceleration Bay*, 908 F.3d at 773.

Mr. Frank-White provides no evidence (and would not be qualified to provide such evidence, see IA Decl., ¶¶1-2) that an interested person would seek out the

[www.research.ibm.com](http://www.research.ibm.com) or the Internet Archive. No information is provided by the IA declaration or the Petition demonstrating that [www.research.ibm.com](http://www.research.ibm.com) or the Internet Archive (with “more than 450 billion pages stored in the Internet Archive’s web archive” (IA Decl., ¶3)) was indexed or catalogued or otherwise organized such that an interested person could conduct keyword or other searches to locate Kjeldsen in 2010 exercising reasonable diligence. Nor does the IA declaration demonstrate that, even if such searching were possible, it would turn up a sufficiently small number of results that a person would have located Kjeldsen using reasonable diligence in 2010. *Acceleration Bay*, 908 F.3d at 772.

Accordingly, the Kjeldsen reference was not publicly accessible.

**Pinhanez-I (Ex. 1006) (Ground 2)**

Turning to Ground 2, the Petition references pages 51-62 regarding Pinhanez-I. Pet., 4. Pages 52-62 provide an article archived in October 2005 from [www.research.ibm.com:80/people/p/pinhanez/publications/rc22495.pdf](http://www.research.ibm.com:80/people/p/pinhanez/publications/rc22495.pdf). IA Decl., ¶52. No evidence is provided (nor could be provided by Mr. Frank-White) that an interested person would seek out [www.research.ibm.com](http://www.research.ibm.com) or the Internet Archive. No evidence is provided by the declaration or the Petition that [www.research.ibm.com](http://www.research.ibm.com) or the Internet Archive indexed or catalogued or otherwise organized papers such that that an interested person could locate Pinhanez-I through keyword or other searches exercising reasonable diligence. Further, the Petition and

IA declaration do not address the “LIMITED DISTRIBUTION” marking (see IA Decl., ¶52), which is another factor undermining public accessibility. *Medtronic*, 891 F.3d at 1382; *In re Klopfenstein*, 380 F.3d at 1351.

Accordingly, the IA declaration fails to establish that Pinhanez-I reference was publicly accessible.

**Pinhanez-II (Ex. 1014) (Ground 3)**

Turning to Ground 3, the Petition references pages 63-71 of the IA declaration regarding Pinhanez-II. Pages 63-71 provide an article allegedly archived in April 2008 from [www.research.ibm.com/people/p/pinhanez/publications/procams03.pdf](http://www.research.ibm.com/people/p/pinhanez/publications/procams03.pdf). IA Decl., ¶64. The Petition and IA declaration fail to establish Pinhanez-II as publicly accessible for the same reasons as Kjeldsen, *supra*.

**Machino-I (Ex. 1016), Machino-II (Ex. 1017) (Ground 4)**

Ground 4 is based on Machino-I and Machino-II. Neither is addressed by the IA declaration. Apparently, the Petitioner and the IA declarant could not find a single archived web page in the Wayback Machine for either reference.

**VIII. THE KJELDSSEN DECLARATION DOES NOT ESTABLISH THE REFERENCES ARE PRINTED PUBLICATIONS**

The Kjeldsen declaration does not address Pinhanez-III or the Machino references. As explained in Section VI, *supra*, the Petition’s four grounds are removed and institution must be denied if the Board agrees that the Mullins

declaration (Ex. 1008) fails to establish Pinhanez-III and either of the Machino references as publicly accessible.

As for the Kjeldsen declaration, the Petition makes these conclusory assertions without any explanation of the argument or the evidence:

1. “The Declaration of Rick Kjeldsen (Ex. 1009) ¶¶ 2-4 ... support[s] public availability of Kjeldsen.” Pet., 4.
2. Pinhanez-I “is an IBM Research Report that was published and made publicly available by the latest 2003 ... Kjeldsen Decl. (Ex. 1009) ¶¶ 2-3, 5.” Pet., 4.
3. Pinhanez-II “was made publicly on the Internet [*sic*] and in the Proceedings of the ICCV Workshop on Projector-Camera Systems in 2003 ... Kjeldsen Decl. ¶¶ 2-3, 6.” Pet., 5.

The Petition does not assert that the Kjeldsen declaration demonstrates that any reference was publicly accessible by dissemination (distribution). See Pet., 3-6.

Instead, the Petition generally asserts the Kjeldsen declaration supports the public availability of the references (Pet., 4-5), but does not assert that declaration shows that any of the references were indexed, catalogued and searchable or otherwise organized such that an interested person could locate them with reasonable diligence.

The declaration’s vague assertion, without supporting evidence or

explanation,<sup>16</sup> that the Kjeldsen article and Pinhanez I-II were “continuously available on the internet” does not establish public accessibility. Kjeldsen Decl., ¶3. The declaration provides no evidence that the references were “available ... at various web sites.” Kjeldsen Decl., ¶3. Public accessibility requires more than technical accessibility. *Acceleration Bay*, 908 at 773. Even if these vague assertions were credited, there is no evidence that any “various web sites” cataloged and indexed or otherwise organized articles such that an interested person would be able to locate the references exercising reasonable diligence in 2010. *Id.*

The declaration provides no evidence supporting the bald assertion that “each of these articles was available to the community of interested researchers in various ways, including through journals, conference proceedings, and in-person demonstrations.” Kjeldsen Decl., ¶3. The broad and unspecific reference to “journals” and “conference proceedings” apparently refers to the same items (e.g., compilations) that fail to meet the legal requirements for “printed publications,” as explained in Section VI.

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<sup>16</sup> The Kjeldsen declaration should not be considered because much of it is not based on firsthand personal knowledge. See Fed. R. Evid. 602. The declaration does not aver that the factual assertions are based on firsthand personal knowledge.

Regarding “in person demonstrations,” there is no assertion by the Petition or showing in the Kjeldsen declaration supporting a finding of public accessibility by virtue of public presentation. *In re Klopfenstein*, 380 F.3d 1345 (Fed. Cir. 2004). There is no showing that the alleged demonstrations were made to persons interested in the subject matter of the ’036 Patent. There also are no facts regarding the length of time the reference allegedly was presented. *Id.* at 1350.

The conclusory assertion that Kjeldsen (Ex. 1005) was “published” (Kjeldsen Decl., ¶4) is at best evidence of technical accessibility, **not public accessibility**, the touchstone for whether a reference is a printed publication. *Acceleration Bay*, 908 F.3d at 773 (reference published on University of California Technical Reports Library website was not publicly accessible); *In re Klopfenstein*, 380 F.3d at 1349.

The assertion that Kjeldsen (Ex. 1005) was presented to attendees who received copies is not supported by evidence (other than the declarant’s interested and hearsay recollection of events more than 20 years ago) and, even if accepted, does not establish public accessibility. Kjeldsen Decl., ¶4. Neither the Petition nor the Kjeldsen declaration addresses critical factors such as the duration of the alleged presentation, expectations of confidentiality, restrictions on disclosure, and whether the persons who allegedly attended a conference on “Automatic Face and Gesture Recognition” were the relevant persons interested in the subject matter of the ’036 Patent (operational guide systems), among other relevant factors. *See Medtronic*,

891 F.3d at 1382; *In re Klopfenstein*, 380 F.3d at 1350. As explained in Section VI.B, there is no evidence—in the Petition, the Mullins declaration, the IA declaration, or the Kjeldsen declaration—that an person interested in the subject matter of the '036 Patent would search for information relating to facial and gesture recognition.

The assertion that Kjeldsen **presumably** “would have been made available” on research.ibm.com or IBM’s research library database does not establish it was stored on the website/database in the relevant timeframe, nor that any documents on the website/database were indexed and searchable or otherwise organized such that an interested person could locate the reference with reasonable diligence. See Kjeldsen Decl., ¶4. The declarant also does not provide evidence that an interested person would have reason to seek out the IBM website/database in the first instance.

The vague and confusing assertion that Pinhanez-I (Ex. 1006) maybe was accessible at some unspecified point in time “through some combination of Claudio Pinhanez’s webpage, other team member’s web pages, the ED-Projector webpage or IBM’s library database” does not establish public accessibility. Kjeldsen Decl., ¶5. Nor does the unsupported assertion that “anyone running a web search” would be able to locate it. *Id.* There is no evidence as to where the “ED-projector website” was located and no evidence supporting that it “would have been indexed by those [unspecified] search engines.” *Id.* The declarant’s recollection of some individuals

“mentioning that they found the ED-projector project via the web,” aside from being inadmissible and interested hearsay, does not establish the website was indexed and catalogued or otherwise organized so that an interested person could locate Pinhanez-I.

Regarding Pinhanez-II (Ex. 1014), Mr. Kjeldsen does not state he attended the International Conference on Computer Vision in France in 2003, let alone that he presented Pinhanez-II there. Kjeldsen Decl., ¶6. Nothing in his declaration establishes that Mr. Kjeldsen had firsthand knowledge of any of the facts alleged as to the Pinhanez-II. The declaration does not indicate how many, if any, attendees allegedly saw Pinhanez-II being presented. The assertion that attendees received copies is plainly hearsay and is not supported or corroborated by evidence or explanation. Neither the Petition nor the Kjeldsen declaration addresses critical factors such expectations of confidentiality, restrictions on disclosure, and whether the attendees at this conference were relevant persons interested in the subject matter of the '036 patent, among other things.

The declaration does not provide evidence that Pinhanez-II was accessible at [lear.inrialpes.fr](http://lear.inrialpes.fr) or [research.ibm.com](http://research.ibm.com) in the relevant timeframe either. It does not establish any facts showing [lear.inrialpes.fr](http://lear.inrialpes.fr) or [research.ibm.com](http://research.ibm.com) were sufficiently indexed, searchable, or otherwise organized such that an interested person could locate Pinhanez-II with reasonable diligence. Kjeldsen Decl., ¶6.

In summary, the Kjeldsen declaration does not establish that any of Kjeldsen, Pinhanez-I, or Pinhanez-II were publicly accessible. It does not even address Pinhanez-III or the Machino references.

**IX. THE BOARD SHOULD DECLINE TO INSTITUTE UNDER FINTIV**

Instituting a trial in this IPR would be a waste of resources for the PTAB and the parties, particularly because the district court has a trial date that is eight months ahead of the due date for a final written decision. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential). The Petition's *Fintiv* argument is predicated on the EDTX district court case being transferred to the Western District of Washington (WDWA). Pet., 73-78. However, the EDTX court has since denied the motion to transfer venue to WDWA, and the WDWA suit was dismissed. See Ex. 2015, 2016.

*Fintiv* Factor 1 strongly weighs against institution. It is well known that EDTX courts are reluctant to issue stays, and there is no basis to stay this competitor case, particularly where there is a trial date of July 15, 2024, well in advance of any March 27, 2025, final written decision. Ex. 1012, 0001. See *Maxell Ltd. v. Apple Inc.*, 2020 WL 10458088 at \*1-2 (E.D. Tex. 2020) (J. R.W. Schroeder III) (denying motion to stay where plaintiff initiated suit more than a year ago and trial date was well in advance of due date for a final written decision).

*Fintiv* Factor 2 strongly weighs against institution. The trial date of July 15, 2024, is more than eight months ahead of the statutory deadline for a decision in this IPR. And the projected date for trial applying the median time from-filing-to-disposition for 2023 is April 2024. See Ex. 2003, 35.

*Fintiv* Factor 3 strongly weighs against institution. At the projected date for institution, the parties will have completed fact discovery, nearly completed expert discovery, fully briefed claim construction, and will be drafting summary judgment motions. Ex. 1012, 0003.

*Fintiv* Factor 4 also strongly weighs against institution because Amazon has not submitted a *Sotera* stipulation. See Pet., 73 n.6. *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01015, Paper 12 (PTAB Dec. 1, 2020) (precedential); 2020 WL 7049372, at \*7.

*Fintiv* Factor 5 also weighs against institution because the same parties are named in the IPR and in the litigation.

*Fintiv* Factor 6 also strongly weighs against institution because it considers other factors such as how long the petitioner waited to file the petition, whether the patent owner practices the patent, whether the parties are competitors, and the merits of the petition. Here, the Petitioner did not file the Petition for more than ten months after the complaint was filed. See Ex. 1012, 0005.

The Patent Owner practices the '036 Patent by designing, making, and selling operational guide systems covered by the Patent. Amazon's pick-and-stow "Nike System" used in fulfillment centers is an infringing copy of LightGuide's patented technology. The parties are competitors because Amazon Robotics sells and Amazon uses the "Nike System" that employs the patented technology that LightGuide makes and sells and its customers use. Amazon initiated a business relationship with LightGuide after learning of LightGuide's technology at a trade show. Amazon went on to purchase multiple LightGuide guide systems: one for \$62,000 in March 2017, a second for \$41,000 in September 2017, and a third for \$37,000 in March 2018. See Ex. 2012 (LightGuide Complaint), 10-11. Amazon executives and engineers visited LightGuide's Innovation Lab in February 2018 to discuss how the patented technology could be used in Amazon fulfillment centers. *Id.*, 10-12. Amazon went on to copy the LightGuide technology with its implementation of the infringing Nike visual guide system. *Id.*, 15-17.

Finally, the merits of the Petition are weak. As explained, *supra*, the non-patent references applied in the grounds are not printed publications. Further, the Petition fails to establish a reasonable likelihood that Claims 1-12 are unpatentable over the references.

**X. THE BOARD SHOULD DECLINE TO INSTITUTE BECAUSE THE MERITS DO NOT SUPPORT CONDUCTING A TRIAL**

Separate from the *Fintiv* analysis and the fact that the Petition has not shown the references are printed publications, the Board should discretionarily decline to institute under § 314(a) because, at least for the vast majority of challenged claims, the Petition has not demonstrated a reasonable likelihood of obviousness over the applied references. *See, e.g., Deeper, UAB v. Vexilar, Inc.*, IPR2018-01310, Paper 7 (PTAB Jan. 24, 2019); 2019 WL 328753 at \*16 (denial where reasonable likelihood of prevailing for only two of twenty-three claims); *Chevron Oronite Co., LLC v. Infineum USA LP*, IPR2018-00923, Paper 9 (PTAB Nov. 7, 2018) (informative); 2018 WL 5862261 at \*4 (declining to institute where reasonable likelihood of prevailing for only two out of twenty claims).

**XI. NO COMBINATION OF THE REFERENCES TEACHES OR SUGGESTS EVERY LIMITATION OF THE CHALLENGED CLAIMS**

The Petition fails to show that the claims are obvious over the references. As discussed in Sections V-VIII, *supra*, the Petition utterly fails to demonstrate that the applied references are printed publications. Because of that deficiency, the Patent Owner provides in this section some, but not all, of the reasons why the applied references fail to meet all limitations of the claims.

**A. Ground 1: Claims 7-12 Are Patentable Over Kjeldsen and Pinhanez-III<sup>17</sup>**

**1. Kjeldsen and Pinhanez-III fail to disclose limitation 7.4 for “a monitor ... being remote from said directional light device and said guide system controller”**

The plain language of limitation 7.4 is that the monitor for displaying the camera image is remote from both the guide system controller and the directional light device. '036 Patent, Cl. 7.

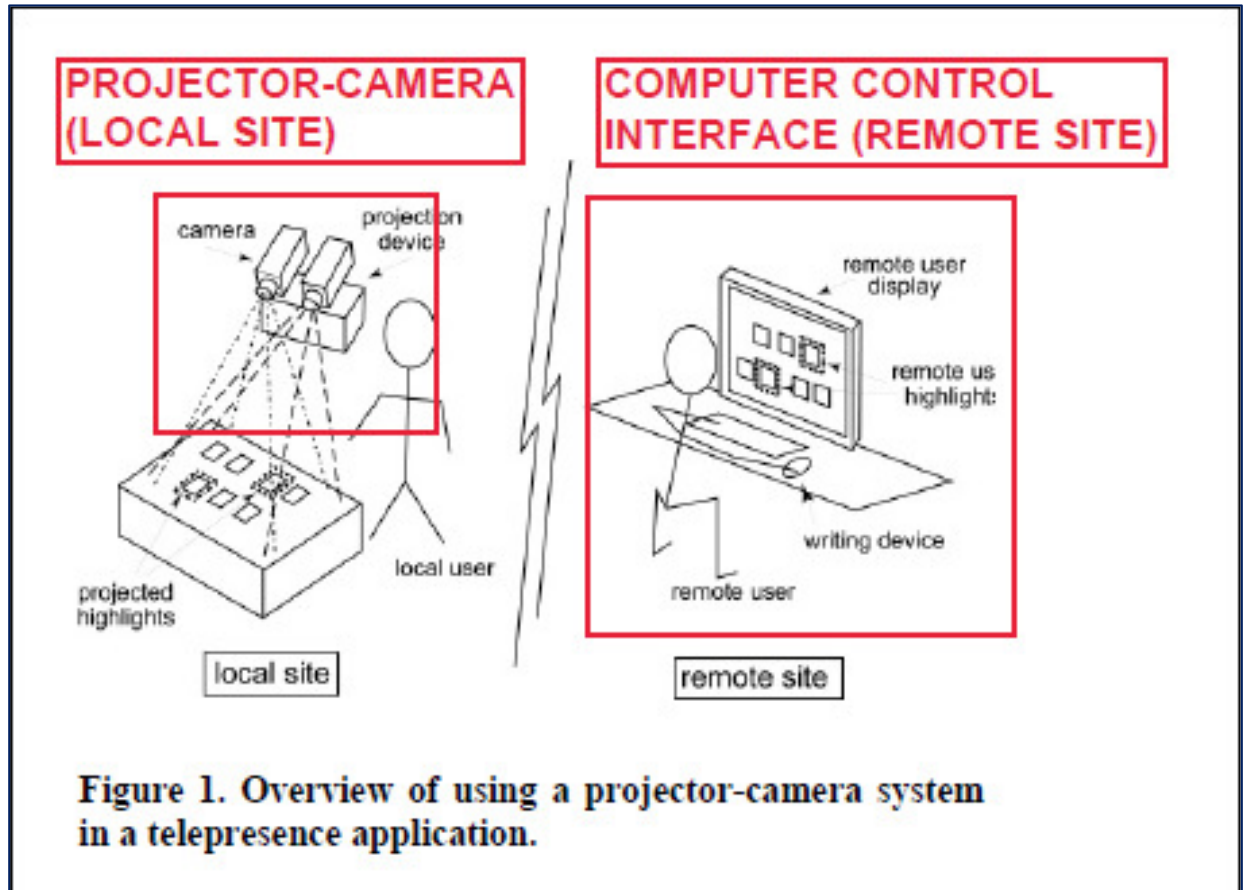
Kjeldsen references a computer (“host computer”) that is connected to the projector. Kjeldsen, 0001. But Kjeldsen does not disclose where the host computer is located. The Petition relies on the combination of Kjeldsen and Pinhanez-III for limitation 7.4. Pet., 34. But Pinhanez-III plainly teaches that there is a computer co-located with the monitor at the session chair’s “remote site” (“... allows the chair to grab any portion of **his computer desktop** and project it on the remote environment”) and makes no mention of any other computer that controls operations at the local site. Pinhanez-III, 0003.

This is made clear by Figure 1 of Pinhanez III and its accompanying description, which explicitly discloses that the “remote user” – the session chair –

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<sup>17</sup> Claim 1 is patentable over the references of Grounds 1-4 for substantially the same reasons set forth herein for Claim 7.

has a computer that he/she uses while sitting at his/her desk looking at the “remote user display” which is on the very same desk, as illustrated below:



Ex. 1015 (Pinhanez-III), 0002, Fig. 1 (annotated in red). See Pet., 18.

Pinhanez-III make no mention of any other computer or controller that is not located in the same “remote site” as the remote monitor. “**A user in a remote space** can access/view and control both the projector and the camera through a display ... The **remote user** can also control the projector in the local environment to project highlights, video, text, etc. in the local environment. As the projector is

steerable, these virtual objects can be moved on to real objects and people in the local environment by the remote user.” Pinhanez-III, 0003.

Because the computer at the remote site in Pinhanez-III includes a “remote user display,” (claimed *monitor* according to the Petition, Pet., 34), the remote user display (*monitor*) and the computer (alleged *guide system controller*) are co-located at the remote site. Therefore, the alleged *monitor* is not remote from the *guide system controller*, as required by limitation 7.4.

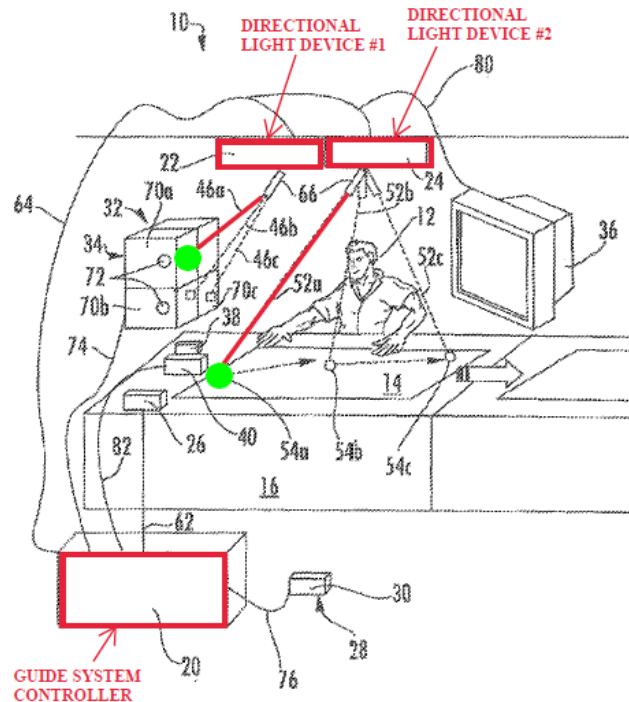
The Petitioner’s sole argument is that because the ED projector is located locally, there must also be a “host computer” located locally: “Because the projector is located in the local environment away from the remote monitor ..., the host computer is also located locally and *remote from* said monitor.” Singhose Decl., ¶181. But Kjeldsen makes crystal clear that the ED-projector itself does **not** include a host computer: “The ED-Projector is composed of an LCD projector, a computer-controlled pan/tilt mirror, and a pan/tilt/zoom camera.” Singhose Decl., ¶123. The projector is connected to the display output of a host computer that also controls the mirror and the camera. Nowhere does Kjeldsen teach that the “host computer” must be located locally with the ED Projector. Pinhanez-III discloses the very opposite: the only disclosed computer is located remotely from the projector so that the session chair can control the projector.

Accordingly, Claim 7 is patentable over the Kjeldsen/Pinhanez-III combination of Ground 1, as are Claims 8-12, which each depend from Claim 7.

**2. The Petition Does Not Establish that Kjeldsen and Pinhanez-III Meet Limitation 7.2**

Limitation 7.2 provides that the “guide system controller ... control[s] said directional light device to project a visual indicator ... onto a physical object.” In short, the guide system controller controls the directional light device as to **where** it projects as well as **what** it projects.

The specification of the '036 Patent repeatedly describes the guide system controller as controlling the directional light device as to the **direction** it projects the light onto a physical object.'036 Patent, 8:6-8, 8:21-24. '036 Patent, 1:55-60, 2:34-39, 3:8-11. The '036 Patent describes at 6:18-31 how the GSC (control module 20) controls a DLD to first direct its light towards a location on a parts bin (green circle on parts bin 34) and later to direct its light to a location on the workstation (green circle on workstation 16):



'036 Patent, Fig. 1 (annotated in red and green).

Accordingly, the limitation provides that the guide system controller **controls where** the directional light device projects.

The Petition alleges that the claimed *directional light device* (limitation 7.1) is Kjeldsen's LCD projector/mirror. Pet., 10-11, 31-32. The Petition's discussion of 7.2 alleges that the claimed *guide system controller* is met by a one-sentence reference to a "host computer" in Kjeldsen: "The projector is connected to the display output of a host computer." Pet., 25 (citing Kjeldsen, 0001), 33. But that excerpt cited by the Petition does not show that the host computer controls **where** the LCD projector projects its light. See Pet., 25, 32-33. For this reason alone, the Petition fails to prove Claim 7 is unpatentable based on Kjeldsen and Pinhanez-III.

The Petition also argues that the host computer is a *guide system controller* because the host computer: (1) provides “display output” to the projector; and (2) “it includes application software that determines what the projector should display.” Pet., 25, 33 (citing Singhose, ¶¶140-141.).

First, a POSITA would recognize that the “display output” of the host computer is graphics data that is fed to the LCD projector for display. This graphics data does not control where the LCD projector projects its light. The only evidence provided by the Petitioner’s expert is a conclusory assertion, provided without citation to other evidence and without any reasoning, that should be given no weight. Ex. 1003 (Singhose Decl.), ¶140 (“Thus, the host computer includes a *guide system controller* within the meaning of the ’036 Patent because it controls the projector through its display output.”).

The Petition’s second argument is that “application software” running on the **host computer** controls the LCD projector. Pet., 25. Kjeldsen does not explain this “application software,” nor does the Petition. Kjeldsen discusses two computers: a host computer and a vision system. Kjeldsen states: “A **vision system** examines the video stream for user actions and generates events for **application software**. ... The **vision system** ... examines portions of the video stream for image events ... and generates an application event in response.” Kjeldsen, 0003 (emph. added). The Petition makes no effort to explain the “application software” or the “application

events,” let alone what is done with them or where it is done.<sup>18</sup> Accordingly, the Petition fails to establish that the host computer runs application software to control the LCD projector.

Accordingly, Claim 7 is patentable over the combination of Ground 1, as are Claims 8-12, which each depend from Claim 7.

**B. Ground 1: The Petition Fails to Establish That Claims 2-6 and 8-12 Are Obvious Over Kjeldsen and Pinhanez-III**

Claims 2-6 and 8-12 require a sequence of *input signals* received by the *guide system controller* controlling the *directional light device* to project the *visual indicator*. Claim 8, which is exemplary, recites “wherein said guide system controller is configured to receive one or more input signals causing said directional light device to project said visual indicator for the particular guided operation.” ’036 Patent, 24:32-35.

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<sup>18</sup> Kjeldsen does not disclose that the application software runs on the host computer, which is the premise of the Petition’s argument. The Petitioner’s expert’s assertion that the application software must run on the host computer because it is the only hardware available to run an application (Singhose Decl., ¶141) is incorrect because it ignores the separate computer vision system.

The Petition does not demonstrate that the Kjeldsen/Pinhanez-III references expressly disclose the claimed “input signals” that control the directional light device as specified. The Petition also does not make any argument that the claimed input signals are inherent in Kjeldsen/Pinhanez-III. Further, the Petition also does not make any argument that it would be obvious to modify the references to incorporate the claimed input signals into the Kjeldsen/Pinhanez-III combination. See Pet., 24-27, 34-35.

Ultimately, the Petitioner and its expert engage in a “hand waving exercise” to argue that Kjeldsen/Pinhanez-III teaches the claimed input signals. The Petition makes two arguments. See Pet., 35 (referring to analysis for Claim 2 at 25-26). The first is that the raw “video stream” data from the ED system camera corresponds to the claimed input signals. Pet., 25-26. The second is that “application events” generated by the ED vision system are the claimed input signals. Pet., 25-26.

For its first argument, the Petition asserts that the ED system camera provides raw video stream data, and “[t]he result is a ‘video stream’ that is a *sequence of one or more input signals*.” Pet., 25. The statement is conclusory, unexplained, and contradicted by the references.

The raw video stream from Kjeldson’s ED camera cannot be the claimed *input signals* received by the *guide system controller* (allegedly the host computer) because Kjeldsen discloses that the video stream data is **received by the vision**

**system**, which is distinct from and not part of the host computer. Kjeldsen, 0003 (“A vision system examines the video stream [from the camera] for user actions and generates events ...”). The computer vision system and the host computer are different components of the ED-projector system. Kjeldsen, 0001.

In fact, the Petition admits the video stream data is received by Kjeldsen’s vision system, not the host computer. Pet., 25 (“The ‘video stream’ is sent to the ED-projector ‘vision system’ ...”). The Petition’s expert’s assertion that “Kjeldsen discloses that the ‘host computer ... receives, from the Everywhere Displays camera ... a ‘video stream’” (Singhose Decl., ¶142) is thus flatly contradicted by the Petition and by Kjeldsen, which unequivocally disclose that the video stream data is received by the **vision system**, not the host computer. Kjeldsen, 0003. The expert’s assertion should be given no weight because he provides no reasoning and does not explain how any underlying evidence supports his assertion. See Singhose Decl., ¶142. *TQ Delta*, 942 F.3d at 962; *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (PTAB Aug. 24, 2022) (precedential) at 15; 2022 WL 3648989 at \*5-6.

The video stream data of Kjeldsen cannot be the *input signals* that control the *directional light device* according to Claim 8 for another reason: The video stream is raw data that is processed to detect events in response to visual indicators; it is not an input signal that controls the LCD projector/mirror (*directional light device*) to direct visual indicators as required by Claim 8. Nowhere does Kjeldsen teach or

suggest that the raw video stream data is controlling the LCD projector/mirror, as required by the Petitioner's read of Claim 8 onto the references.

The Petitioner's second argument is just as futile. Here, the Petitioner asserts that "application events" generated by the vision system meet Claim 8. The Petitioner's explanation is difficult to follow: "[T]he ED-projector 'vision system' ... 'examines the video stream for user actions and generates events for the application software'" and "[t]he events generated by the vision system are a second *sequence of one or more input signals*, sent to a *guide system controller* including the application software." Pet., 25 (citing Kjeldsen at 0003). The Petitioner's argument is conclusory and unexplained.

Kjeldsen discloses that the video stream data is processed by the vision system to generate "application events" provided to "application software." Kjeldsen, 0003 ("A vision system examines the video stream for user actions and generates events for the application software."). But Kjeldsen does not disclose that the application software runs on the host computer (alleged *guide system controller*) and thus does not disclose that the host computer is "receiving" the application events, as required by the Petitioner's read of Claim 8 onto the references.

Further, nowhere does Kjeldsen disclose or suggest that the "application events" are **signals**, let alone they are signals received by the host computer. Kjeldsen only describes them as software events generated by the vision system.

Kjeldsen, 0003. In sum, Kjeldsen does not remotely teach or suggest that Kjeldsen’s “application events” are signals received by the host computer (alleged *guide system controller*) to control the LCD projector/mirror (alleged *directional light device*).

The Petitioner’s expert’s opinion is totally conclusory. He merely notes that Kjeldsen discloses the vision system generates events and summarily concludes: “Thus, Kjeldsen discloses ... a *sequence of one or more input signals*”—without any reasoning or explanation. See Singhose Decl., ¶143. This conclusory opinion is entitled to no weight. *TQ Delta, LLC v. CISCO Systems, Inc.*, 942 F.3d 1352, 1358 (Fed. Cir. 2019); *In re Stapan Company*, 868 F.3d 1342, 1346 (Fed. Cir. 2017).

Accordingly, Claim 8 is patentable over Kjeldsen and Pinhanez-III. Claims 2-6 and 9-12 (which have similar language) are patentable under the same reasoning.

**C. Ground 2: Claim 7 Is Nonobvious Over Kjeldsen, Pinhanez-III, and Pinhanez-I**

**Limitation 7.4 (Monitor Located Remotely from the Guide System Controller and Directional Light Device)**

Ground 2 adds Pinhanez-I only to provide “additional details” on the “internal workings” of the ED-projector hardware, and not for any argument related to limitation 7.4. Pet., 37. Accordingly, the combination of Kjeldsen, Pinhanez-III, and Pinhanez-I fails to meet limitation 7.4 for the same reasons as in Ground 1. See Section XI.A.1.

**Limitation 7.2 (Guide System Controller)**

For Ground 2, the Petition adds Pinhanez-I and argues that it discloses the claimed *guide system computer* missing from Ground 1. Pet., 37-40. The Petition argues that the claimed *guide system controller* corresponds to selected portions of computer(s) indicated in the Petitioner's annotated Figure 2 of Pinhanez-I. Pet., 39.

As discussed above in Section XI.A.2, the “guide system controller ... control[s] said directional light device to project a visual indicator.” In other words, it controls the directional light device as to where to direct light onto a physical object.

The Petitioner makes two arguments for why limitation 7.2 is met. The Petitioner's first argument is that the selected portions of the host computer are the claimed *guide system controller* because the “graphics board controls the projector to create undistorted images on.” [sic]. Pet., 39. This is the same “display output” argument that fails as explained in Section XI.A.2. The Petitioner's second argument is that the selected portions of the host computer are the claimed *guide system controller* because “Pinhanez-I further explains how input events from the computer vision system result in new images being projected.” Pet., 40, (citing Pinhanez-I at 5-6 (§§ 3.2-3.3)). In fact, those sections of Pinhanez-I merely describe in further detail how the “vision system” works; they say nothing about what the “events” generated by the vision system constitute or how they are used. This is the same

“application software” argument that fails as explained in Section XI.A.2.

Accordingly, Claim 7 is patentable over the combination of Ground 2, as are Claims 8-12, which each depend from Claim 7.

**D. Ground 2: Claims 2-6 and 8-12 Are Nonobvious Over Kjeldsen, Pinhanez-III, and Pinhanez-I**

For the claimed *input signals* received by the *guide system controller* controlling the *directional light device* set forth in Claims 2-6 and 8-12, the Petition relies on the same arguments from Ground 1. Pet., 39 (“*input signals* (i.e., the camera video stream or application events”). See Singhose Decl., ¶214 (“claims 2-12 are obvious for the same reasons as in Challenge 1”). The Patent Owner refers the Board to the arguments presented in connection with Ground 1 as to why Claims 2-6 and 8-12 are patentable over the references. See Section XI.B.

Accordingly, Claims 2-6 and 8-12 are patentable over the cited references from Ground 2.

**E. Ground 3: Claims 3, 6, 9, and 12 Are Nonobvious Over Kjeldsen, Pinhanez-III, and Pinhanez-II**

The Petition adds Pinhanez-II only to address the “separate computer system or controller” set forth in dependent Claims 3, 6, 9, and 12. Pet., 40-41. Accordingly, these claims are patentable for at least the reasons set forth for Claims 2-6 and 8-12 in Ground 1 (Section XI.B) and Ground 2 (Section XI.D).

**F. Ground 4: Claim 7 Is Nonobvious Over Machino-I and Machino-II<sup>19</sup>**

- 1. Machino-I and Machino-II do not meet limitation 7.3 for a “camera ... configured to capture an image of at least the individual, the physical object and said visual indicator”**

The language of limitation 7.3 requires that the camera captures a single image of the individual being guided, the physical object, and the visual indicator being projected, while the individual is being guided. '036 Patent, Cl. 7.

The Petition provides an annotated version of Figure 12 of Machino-II:

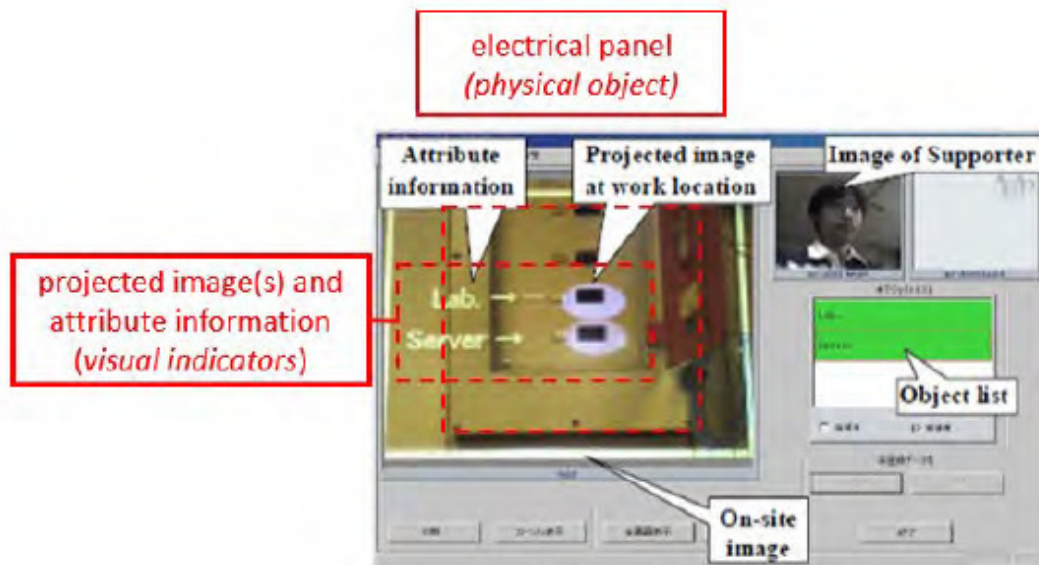


Fig. 12 Screen shot (supporter's location).

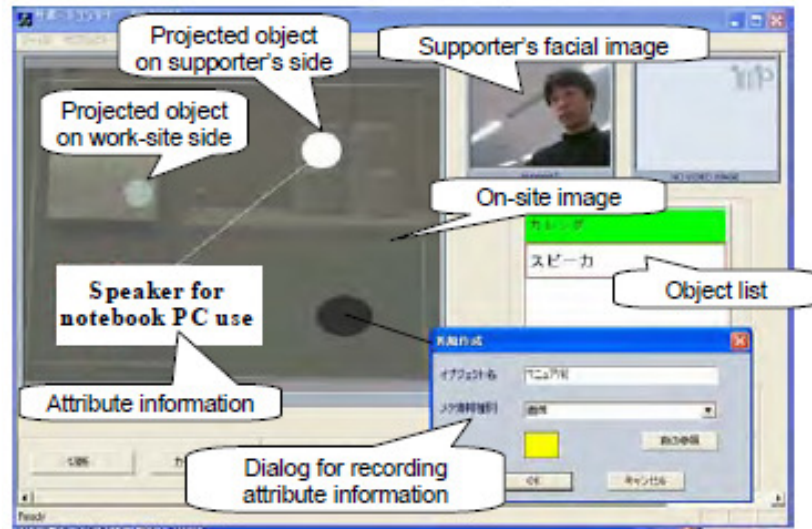
Pet., 55 (Machino-II, Fig. 12 (annotated by Petitioner)).

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<sup>19</sup> The Petition fails to establish independent Claim 1 is unpatentable over Machino under the same reasoning set forth herein for independent Claim 7.

Figure 12 does not depict an image captured by a camera having all three of the individual being guided, the physical object, and a visual indicator. The “on-site image” does not include the individual being guided (i.e., the on-site worker).

The Petition (at 56) also references Figure 4 of Machino-I,

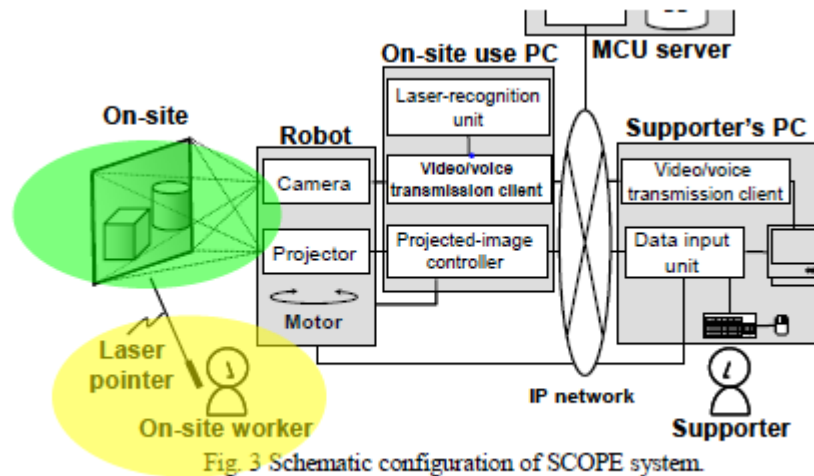


Machino-I, Fig. 4. Like Figure 12, Figure 4 does not disclose or suggest an image displaying the individual being guided in addition to the physical object and visual indicator, as required by limitation 7.3.

Accordingly, the Petition’s assertion (at 56) that Figure 4 and Figure 12 of Machino-I “show the SCOPE ‘Shared View’ camera capturing images of each of the three elements of ... the individual being guided, the physical object, and the projected visual indicator” is without merit. Unsurprisingly, there is no citation to the expert declaration for this assertion because it simply is not correct.

The Petition’s fallback argument is that it would be “obvious to capture all three elements [i.e., the *individual*, the *physical object*, and the *visual indicator*] in a single image.” Pet., 56.

The Petition’s first argument for the obviousness of limitation 7.3 is that “an on-site worker [would] reach[] into the shared field-of-view” and thus “[i]t is obvious from this image that the SCOPE camera would capture an image of the individual’s arm, as well as objects and projected visual indicators.” Pet., 56-57. The Petitioner is making an inherency argument, that is, the SCOPE system necessarily captures a single camera image having all three elements. The Petitioner has not made that showing. The SCOPE system includes a laser pointer for the user to point at the projected image. Machino-I, 0003 (“Accordingly, a laser pointer is set up as an input interface.”). This is illustrated in Figure 3 of Machino-I:



Machino-I, 0003, Fig. 3 (annotated in yellow and green). As illustrated in Figure 3, the projected image captured by the camera (green) would not include any part of

the on-site worker (yellow) using the laser pointer. Accordingly, limitation 7.3 is not inherent in the SCOPE system of Machino. *Par Pharm. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1194-1996 (Fed. Cir. 2014) (inherency cannot supply a missing limitation in an obviousness analysis if the limitation at issue is not necessarily present in the reference). Further, Machino’s disclosure of the use of a laser pointer in this manner teaches away from the claimed camera capturing an image according to limitation 7.3. *In re Haruna*, 249 F.3d 1327, 1335 (Fed. Cir. 2001).

The Petition’s second argument for the obviousness of limitation 7.3 is that modifying the Machino SCOPE system to have the camera capture an image having all three elements would have “advantages ... [that] are also obvious from the purpose of the Machino references, which was to permit a remote supporter in aiding a local user.” Pet., 57. This conclusory statement does not explain why a POSITA would have an apparent reason to modify the Machino SCOPE system in the manner proposed. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 401 (2007). The Petition’s argument that the proposed **modification is obvious** because **unstated advantages are obvious** (“advantages ... [that] are also obvious”) is circular and conclusory. The Petitioner does not articulate any rationale for why a POSITA would modify or combine the Machino references as proposed. See Pet., 57-58.

Accordingly, Claim 7 is patentable over Machino-I and Machino-II.

2. **Machino-I and Machino-II do not meet limitation 7.2 for a “guide system controller ... to control said directional light device to project a visual indicator” coupled with limitation 7.4 for “said monitor being remote from ... said guide system controller”**

Starting with limitation 7.4, the Petition asserts that the claimed *monitor* is the monitor of the remote-site PC in Machino. Pet., 70. However, the monitor of the remote-site PC is not a *monitor being remote from ... said guide system controller* for the reasons explained below.

Figure 3 of Machino-I illustrates the SCOPE system, including the on-site PC for the on-site worker and the remote-site PC for the remote supporter worker:

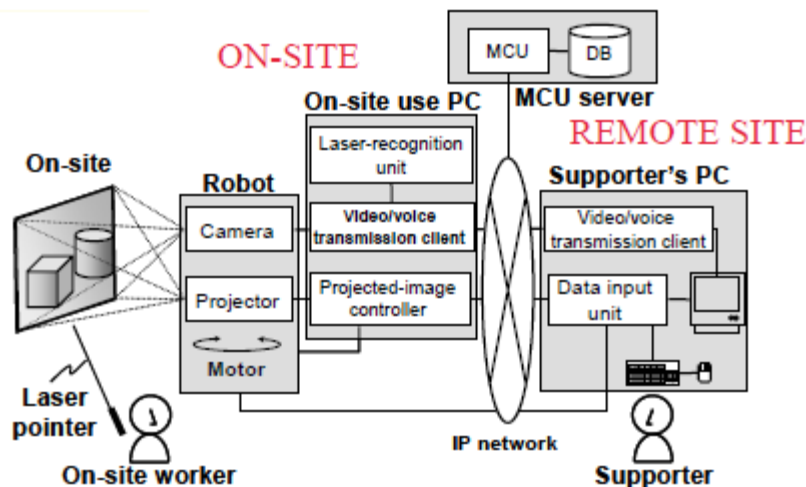


Fig. 3 Schematic configuration of SCOPE system.

Machino-I, 0003 (Fig. 3, annotated in red).

The Petition argues that the claimed *guide system controller* of limitation 7.2 is the on-site PC. Pet. 59, 69. However, Machino consistently describes the **remote-site** PC—not the on-site PC—as controlling the projector (alleged *directional light*

*device*). This is consistent with the paradigm of Machino that the remote-site worker is guiding the on-site worker by controlling the projector/camera apparatus. See Machino-I, 0007; Machino-II, 0002. The Machino references consistently refer to the remote-site PC, not the on-site PC, as controlling the on-site projector. See Machino-I, 0004; Machino-II, 0003.

For example, Figure 1 of Machino-II depicts a remote-site worker operating the remote-site PC to manipulate the presentation of graphics by the projector (alleged *directional light device*) at the on-site location:



Fig. 1 Future scene of remote support using mobile SCOPE

Machino-II, 0001, Fig. 1.

Figure 3 of Machino-II (referenced by the Petitioner) also depicts the remote-site PC manipulating the presentation of graphics by the projector at the on-site location:



**G. Ground 4: Claims 2-6 and 8-12 Are Nonobvious Over Machino-I and Machino-II**

The Petition’s argument regarding the claimed *input signals* that are *received by the guide system controller to cause[] the directional light device to project said visual indicator* is conclusory. The Petition does not demonstrate that the PC (alleged *guide system controller*) receives any input signals that control the projector in directing the light.

As with Ground 1, the Petition does not allege that the claimed input signals are inherent in Machino-I/Machino-II (they are not), or that it would have been obvious to incorporate the claimed input signals into the Machino-I/Machino-II combination (it would not have been). See Pet., 58-61.

The Petition’s citation (at 59) from Machino that “the camera and projector on the on-site worker’s side can be manipulated from the supporter’s side” does not come close to establishing that there is an on-site PC (alleged *guide system controller*) that receives *input signals* causing it to control the projector. The same is true for the remote-site “finger pointing” function referenced in the Petition. Pet., 60-61. The Petitioner’s expert’s assertion that the remote-site PC can manipulate what the on-site projector presents does not remotely establish that there is an on-site PC (alleged *guide system controller*) that receives *input signals* that control the projector. Singhose Decl., ¶¶267-270.

Accordingly, Claims 2-6 and 8-12 are patentable over Machino-I and Machino-II.

## **XII. CONCLUSION**

For the reasons set forth above, the Petition fails to demonstrate a reasonable likelihood that any of challenged Claims 1-12 of the '036 Patent are unpatentable.

Dated: December 26, 2023

Respectfully submitted,

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**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME LIMITS**

This Patent Owner Preliminary Response consists of 13,635 words, excluding table of contents, table of authorities, certificate of service, this certificate, or table of exhibits. The Response complies with the type-volume limitation of 14,000 words as set forth in 37 C.F.R. § 42.24. In preparing this certificate, counsel has relied on the word count of the word-processing system used to prepare the paper (Microsoft Word).

Dated: December 26, 2023

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**CERTIFICATE OF SERVICE**

I hereby certify that on December 26, 2023, I caused a true and correct copy of the foregoing Patent Owner Preliminary Response to be served on the following counsel for Petitioner by electronic mail to the following email addresses:

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