

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

SMITH INTERFACE TECHNOLOGIES, LLC,
Patent Owner.

IPR2024-01085
Patent 10,649,580 B1

Before JEFFREY S. SMITH, BARBARA A. BENOIT, and
NATHAN A. ENGELS, *Administrative Patent Judges*.

BENOIT, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting institution of *inter partes* review of claims 1–4, 6–10, 17, 19, 22–26, 28–30, 32, 33, 36, 41, 48, 58–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83 (“the challenged claims”) of U.S. Patent No. 10,649,580 B1 (Ex. 1001, “the ’580 patent”). Smith Interface Technologies, LLC (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”).

Applying the standard set forth in 35 U.S.C. § 314, which requires demonstration of a reasonable likelihood that Petitioner would prevail with respect to at least one challenged claim, we institute an *inter partes* review.

A. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 105. Patent Owner identifies itself as the real party in interest. Paper 3 (Patent Owner’s Mandatory Notices), 1.

B. Related Matters

As required by 37 C.F.R. § 42.8(b)(2), each party identifies *Smith Interface Technologies, LLC v. Apple Inc.*, Case No. 3-23-cv-01187 (S. D. Cal.) and *Smith Interface Technologies, LLC v. Samsung Electronics Co., Ltd. et al.*, 2-22-cv-00290 (E. D. Tex.) (identified as terminated by Patent Owner). Pet. 105; Paper 3, 1.

C. The ’580 Patent

The ’580 patent is titled “Devices, Methods, and Graphical Use Interfaces for Manipulating User Interface Objects with Visual and/or Haptic Feedback.” Ex. 1001, code (54). The patent describes it generally relates “to touch screens.” *Id.* at 1:36–37. Figure 22, shown below, illustrates “a

3D layered interface . . . in which displayed objects may exist in one of a plurality of layers.” *Id.* at 67:33, 41–44.

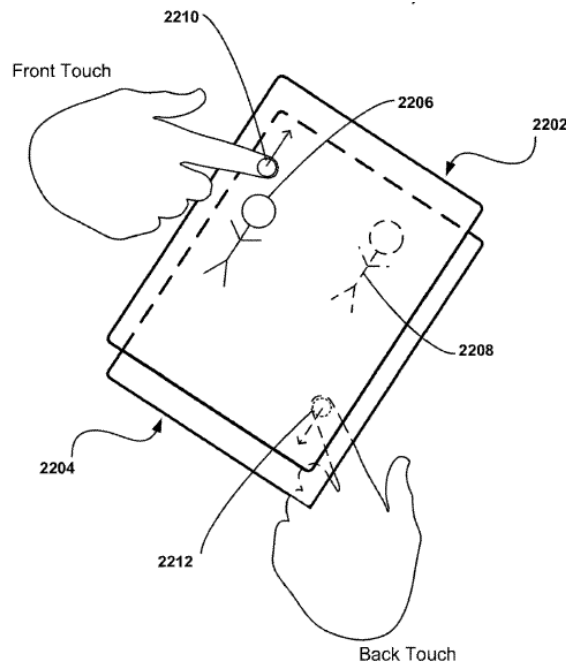


Figure 22 illustrates user interface 2200, including front layer 2202, back layer 2204, and objects 2206 and 2208. *Id.* at 67:45–50. Layers 2202 and 2204 “are depicted in a staggered arrangement” to illustrate depth. *Id.* at 67:46–47. “Object 2206 exists in the front layer, while object 2208 exists in the back layer.” *Id.* at 67:49–51.

The patent indicates that “virtual display layers may be given the appearance of depth through the use of 3D depth cues,” such as “an effect, manipulation, transformation, animation, or operation which gives a visual indication of simulated depth.” *Id.* at 68:25–30. Various techniques disclosed for a 3D depth cue include “a blur operation” with “layers located at successively greater depths may appear blurrier than those closer to the user”; “a shadow element” making elements “to appear to float above the next virtual display layer”; “a depth-based fog” making distant objects appear “foggier” than objects closer to the user; and “a depth-based apparent

rate of movement,” such that “the layers closer to the user may appear to move faster than those more distant.” *Id.* at 68:25–58.

D. Challenged Claims

Claims 1–4, 6–10, 17, 19, 22–26, 28–30, 32, 33, 36, 41, 48, 58–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83 of the ’580 patent are challenged, of which claims 1, 22, and 58 are independent. Illustrative claim 1 follows:

1. An apparatus, comprising:

- [1a] at least one non-transitory memory;
- [1b] a touch screen;
- [1c] a camera; and
- [1d] one or more processors in communication with the at least one non-transitory memory, the touch screen, and the camera, wherein the one or more processors execute instructions stored in the non-transitory memory to cause the apparatus to:
 - [1e] display, via the touch screen, a first virtual display layer including contents;
 - [1f] display, via the touch screen, at least one user interface element;
 - [1g] detect, via the touch screen, at least a portion of touch on the least¹ one user interface element;
 - [1h] when an aspect of the touch is detected to surpass a threshold, display, via the touch screen, a plurality of markings in a second virtual display layer that appears to have a lesser depth than the first virtual display layer,
 - [1i] where at least a portion of the second virtual display layer is at least partially translucent so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer;
 - [1j] detect, via the touch screen, a touch movement on at least one of the plurality of marking; and

¹ The antecedent basis in limitation [1g] seems to suggest that “at” is missing from limitation [1g].

- [1k] during detection of the touch movement on the at least one of the plurality of marking in the second virtual display layer that appears to have the lesser depth than the first virtual display layer, display, via the touch screen, a movement of the markings in the second virtual display layer as a function of the touch movement; and
- [1l(i)] perform a zoom operation on the at least portion of the contents of the first virtual display layer without performing the zoom operation on the plurality of markings in the second virtual display layer, [1l(ii)] where the zoom operation correlates with the movement of the markings in the second virtual display layer, and [1l(iii)] the at least portion of the second virtual display layer is at least partially translucent so that a result of the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.

Ex. 1001, 102:12–54.²

E. The Asserted References

In its asserted grounds, Petitioner relies on the following references:

Name	Patent Document	Exhibit
Ording	US 2008/0094356 A1	1006
Hayward	US 2012/0176401 A1	1016

Ramos, et al., “Zliding: Fluid Zooming and Sliding for High Precision Parameter Manipulation,” UIST ’05: Proceedings of the 18th Annual ACM Symposium on User Interface Software and Aechnology, Oct. 23, 2005, pp. 143–152 (Ex. 1004, “Ramos Paper”).

“Zooming & Sliding,” (available at [youtube.com/watch?v=EcE3XBytN-U](https://www.youtube.com/watch?v=EcE3XBytN-U)), December 28, 2007 (Ex. 1005, “Ramos Video”).

Pet. 2.

² Petitioner annotates claim 1 with identifiers [1a–1l]. See Pet. vi–vii. Identifiers [1l(i)–1l(iii)] are added here for further clarity.

Petitioner asserts the Ramos Paper and Ramos Video are prior art under pre-AIA³ 35 U.S.C. § 102(a) and (b), Ording is prior art under pre-AIA 35 U.S.C. § 102(a) and (e), and Hayward is prior art under pre-AIA 35 U.S.C. § 102(e). Pet. 2.

Petitioner provides evidence to support its contentions that the Ramos Paper is a printed publication and was publicly available prior to the earliest priority date claimed by the challenged patent. Pet. 2, 4–6 (citing Ex. 1003 ¶¶ 34–41; Ex. 1022; Ex. 1007). According to Petitioner, the Ramos Paper “was made accessible to members of the Association for Computing Machinery (ACM), and presented at its October 26, 2005 annual Symposium on User Interface Software and Technology (UIST).” Pet. 4. At this preliminary stage, Patent Owner does not challenge that the Ramos Paper is prior art to the challenged claims. *See generally* Prelim. Resp.

Petitioner also provides evidence to support its contentions that the Ramos Video is a printed publication published to the video sharing website YouTube and accessible to the public as of its publication date. Pet. 8–12 (citing Ex. 1003 ¶¶ 45–46; Ex. 1022; Ex. 1009). Petitioner contends that video publications are printed publications that may be the basis of a ground in a petition for *inter partes* review under 35 U.S.C. § 311(b). Pet. 8–9, 11–12; *see* 35 U.S.C. § 311(b) (“A petitioner in an *inter partes* review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.”); *see, e.g., Medtronic, Inc. v. Barry*, 891 F.3d 1368, 1374, 1379 (Fed. Cir. 2018) (determining

³ The Leahy–Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”).

whether the Board in an *inter partes* review erred in concluding that a video presentation and a related slide presentation to surgeons at various industry meetings and conferences were not printed publications because they were not accessible to the public). At this preliminary stage, Patent Owner does not challenge that the Ramos Video is prior art to the challenged claims. *See generally* Prelim. Resp.

F. The Asserted Grounds of Unpatentability

Petitioner challenges the patentability of the challenged claims on the following grounds:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–4, 6–10, 17, 19, 22–26, 28–30, 32, 33, 36, 41, 58–62, 64, 65, 67, 69, 70, 73, 77, 82, 83	103(a)	Ramos Paper, Ramos Video, Ording
48	103(a)	Ramos Paper, Ramos Video, Ording, Hayward

Pet. 2.

Petitioner also relies on declaration testimony of Andrew Cockburn, Ph.D. (Ex. 1003). Patent Owner relies on declaration testimony of Marc Davis, Ph.D. (Ex. 2001).

II. ANALYSIS

A. Principles of Law

Petitioner bears the burden to demonstrate unpatentability. “*Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). At this preliminary stage, we determine whether the information in the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. *See* 35 U.S.C. § 314(a).

A patent claim is unpatentable under 35 U.S.C. § 103 “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103 (2006) (*accord KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting 35 U.S.C. § 103)). The question of obviousness involves resolving the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective indicia of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We apply these principles to the challenges of the Petition.

B. Level of Ordinary Skill in the Art

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention (“POSITA”). In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation marks omitted).

Petitioner relies on declaration testimony from Dr. Cockburn, who asserts that a person of ordinary skill in the art “would have had at least a bachelor’s degree in computer science, computer engineering, electrical engineering, human-computer interaction, or a related field, and would have

had at least two years of relevant work experience in the design and development of graphical user interfaces (GUIs), human-computer interfaces, or equivalents thereof.” Pet. 6 n.2 (citing Ex. 1003 ¶ 26); Ex. 1003 ¶ 26. Dr. Cockburn also indicates that “[l]ess work experience may be compensated by a higher level of education and vice versa.” *Id.*

Patent Owner indicates it “does not necessarily agree with all aspects of Petitioner’s proposed level of ordinary skill, but does not believe that resolving that level is necessary to resolve the issues raised in this preliminary response.” Prelim. Resp. 4. Dr. Davis indicates that his opinions provided in his declaration in support of Patent Owner’s Preliminary Response are “provided from the perspective of the POSITA” proposed by Dr. Cockburn. Ex. 2001 ¶ 24 (citing Ex. 1003 ¶ 26).

We are persuaded, on the present record, that Petitioner’s proposal is consistent with the level reflected by the ’580 patent and the prior art of record. *See In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995); *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Accordingly, we adopt Petitioner’s definition of the level of ordinary skill for purposes of this Decision.

C. Claim Construction

In *inter partes* reviews, the Board construes a claim using the same claim construction standard employed in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2020). Accordingly, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would have been understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d

1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). Additionally, we construe claim terms only as relevant to the parties’ contentions and only to the extent necessary to resolve the issues in dispute. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner contends “no claim terms need be construed to resolve issues of controversy in the present Petition.” Pet. 2. Similarly, Patent Owner indicates that no formal constructions are necessary at this point in the proceeding. Prelim. Resp. 3.

We agree with the parties that no terms need to be construed expressly for this Decision. We discuss claim interpretation to the extent necessary in the context of analyzing the asserted grounds to determine whether to institute trial.

D. Obviousness of Claims 1–4, 6–10, 17, 19, 22–26, 28–30, 32, 33, 36, 41, 58–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83 over Ramos Paper, Ramos Video, and Ording

Petitioner asserts that claims 1–4, 6–10, 17, 19, 22–26, 28–30, 32, 33, 36, 41, 58–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83 would have been obvious under 35 U.S.C. § 103 based on the combined teachings of the Ramos Paper, the Ramos Video, and Ording. Pet. 4–94.

1. Summary of Prior Art Disclosures

a. The Ramos Paper (Ex. 1004)

The Ramos Paper describes an “interface widget” for zooming via pressure input and providing a high accuracy zoom and select task. Ex. 1004, 143.⁴ The Ramos Paper provides examples of user interface interactions for which such a widget would be useful. *Id.* Examples include “identifying and then picking a single pixel from a high resolution image, seeking a particular frame in a long video stream, or adjusting a continuous image color parameter.” *Id.*

The Ramos Paper uses the term “zlliding” for the notion of “zoom sliding” that uses both pressure and dragging movement of the input device to perform parameter manipulation. *Id.* For example, a user may use a pressure-sensitive stylus as an input device to interact with the “Zlider widget” described in the paper. *Id.* at 145. “Users use the pressure modality to fluidly and explicitly *zoom* or adjust the granularity of the parameter space, while *sliding* or dragging the input device to perform high precision parameter manipulation within that zoomed parameter space.” *Id.* at 143 (emphasis in original).

Figure 1, reproduced below with caption, shows the Zlider widget. *Id.*

⁴ Citations are to pages numbers in the original document at the left and right margins on the bottom of the pages.

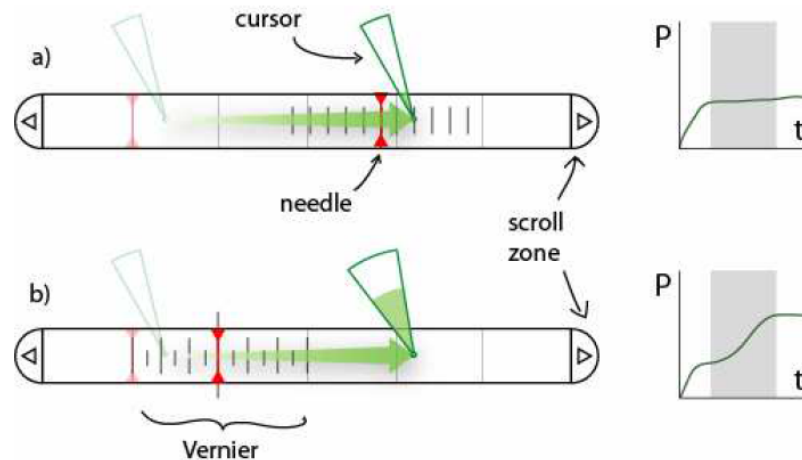


Figure 1: Zliding on the Zlider widget. a) A user manipulates a parameter at coarse granularity by sliding through the control while applying low pressure with the pressure transducer. b) The same x-y sliding action while pressing harder increases the granularity of the parameter space, allowing for more precise parameter manipulation when desired. The graphs on the right plot pressure over time, with the interval when the sliding occurs highlighted.

As shown in Figure 1, the Zlider widget includes a rectangular working area, Vernier, and pressure cursor. In use, the Zlider widget consists of a rectangular working area that the user “can scrub” to adjust a parameter from low to high values. *Id.* at 145. “To operate the Zlider the user taps and drags its pointer across the working area until the desired value is reached or effect is achieved.” *Id.* “At all times a red needle indicates the position of the value being adjusted relative to the possible minimum and maximum values at the extremes of the widget.” *Id.*

The Zlider widget shown in Figure 1 includes a wedge-shaped pressure cursor that “provides users with a real-time indicator of the pressure they are applying.” *Id.* “The wedge’s area fills as the pressure increases, until completely filled when the pressure reaches the maximum level the device can sense.” *Id.* The Zlider widget “uses the release of the stylus from the interaction surface as an indication of selection.” *Id.* at 146.

The Ramos Paper describes experimental evaluation of the Zlider widget. Ex. 1004, 143, 147–150. Figure 6, reproduced below, illustrates the experimental setup used.

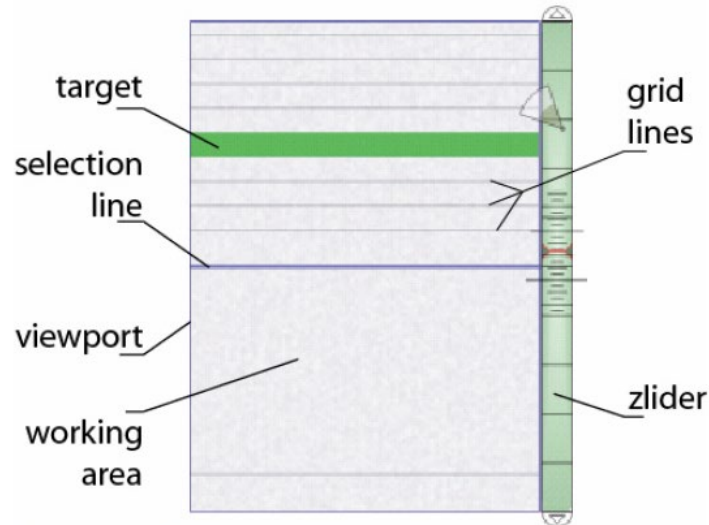


Figure 6: Elements in the experimental setup.

As shown, Ramos’ Figure 6 depicts user interface elements in an experimental setup of the Zlider widget used for a “serial target acquisition and selection task.” Ex. 1004, 148. As depicted in Figure 6, a Zlider widget having a rectangular working area, visible Vernier, and pressure cursor is adjacent to and to the right of a viewport displayed on an “interactive LCD graphics display tablet.” *Id.* A working area or workspace, thin selection line, and green target area are shown within the viewport. *Id.* In the experiment, a participant uses the Zlider widget to scroll through the workspace under the viewport to “locate and select a target in a workspace area” when “the target is inside the viewport, visible, and covering the selection line.” *Id.*

b. The Ramos Video (Ex. 1005)

The Ramos Video is an approximately four-minute video that illustrates the operation of the Zlider widget described in the Ramos Paper. *See* Pet. 13. The Ramos Video shows several examples of content being displayed on a touch screen with the Zlider widget (e.g., working area) displayed adjacent to the content. *See* Pet. 13. One example screen shot of the video included in the Petition is reproduced below. Pet. 14.



As depicted above, an example of video content showing a cartoon monkey in a tree dangling a stick above a turtle (labeled as “Contents” by Petitioner) is displayed on a touch screen. *See* Pet. 14. The Zlider widget (including the “Working area” labeled by Petitioner) is shown adjacent to

the bottom edge of the example content.⁵ The Vernier and wedge-shaped pressure cursor also are shown in the Zlider widget.

c. Ording (Ex. 1006)

Ording is a published patent application that relates “to portable devices that adaptively determine a cursor position from a finger contact with a touch screen display and then perform operations according to the cursor position.” Ex. 1006 ¶ 3; *see id.* at code (54) (title). Ording’s portable multifunction device has “a touch-sensitive display (also known as a ‘touch screen’) with a graphical user interface (GUI), one or more processors, memory and one or more modules, programs or sets of instructions stored in the memory for performing multiple functions,” including “digital videoing” and “digital video playing.” *Id.* ¶ 8. Figure 2, reproduced below, shows “a portable multifunction device having a touch screen.” *Id.* ¶ 16.

⁵ Although Petitioner describes the video as showing “the Zlider widget (e.g., working area) overlaying the content,” the two images being referenced in the Petition show the rectangular working area as being adjacent to the contents, not overlaying the contents. *See* Pet. 13–14.

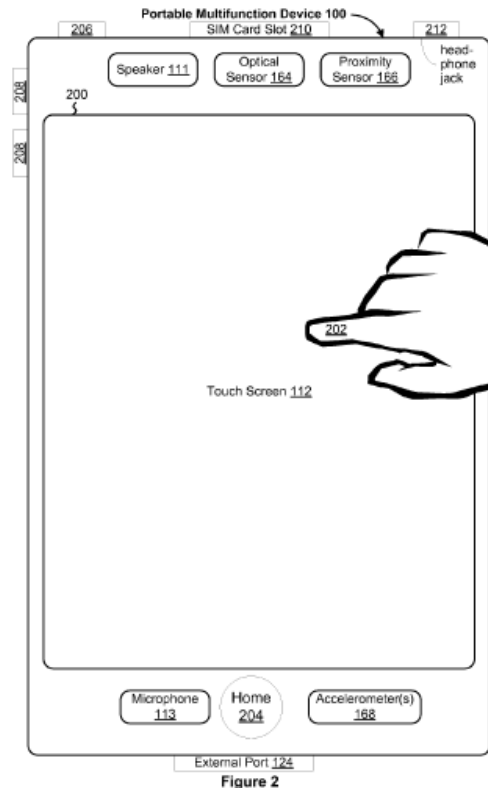


Figure 2 of Ording shows a portable multifunction device 100 having touch screen 112 that displays graphics within user interface 200. *Id.* ¶ 96. A user may select one or more graphics by touching the graphics with one or more fingers 202. *Id.* Device 100 also includes “home” or menu button 204, push button 206 for powering the device on or off, volume adjustment button 208, head set jack 212, and charging external port 124. *Id.* ¶¶ 97–98.

Ording indicates that the device may include “a physical or virtual click wheel” used as an input control device to “navigate among and interact with one or more graphical objects (henceforth referred to as icons) displayed in the touch screen.” *Id.* ¶ 45. “The click wheel may also be used to select one or more of the displayed icons.” *Id.* “For a virtual click wheel, the click wheel may be either an opaque or semi transparent object that appears and disappears on the touch screen display in response to user interaction with the device.” *Id.*

2. Petitioner's Combination of the References

Petitioner relies on a combination of the references that implements the Zlider widget as described in the Ramos Paper and the Ramos Video in Ording's portable multifunction device having a touch screen. Pet. 25–34 (describing Petitioner's combination); *see, e.g.*, Pet. 33 (discussing “[i]mplementing the Zlider described in the Ramos Paper and Ramos Video in a device, as taught by Ording”). Petitioner provides reasons one of ordinary skill would have combined the Ramos Paper, the Ramos Video, and Ording in the manner proposed by Petitioner. Pet. 25–34.

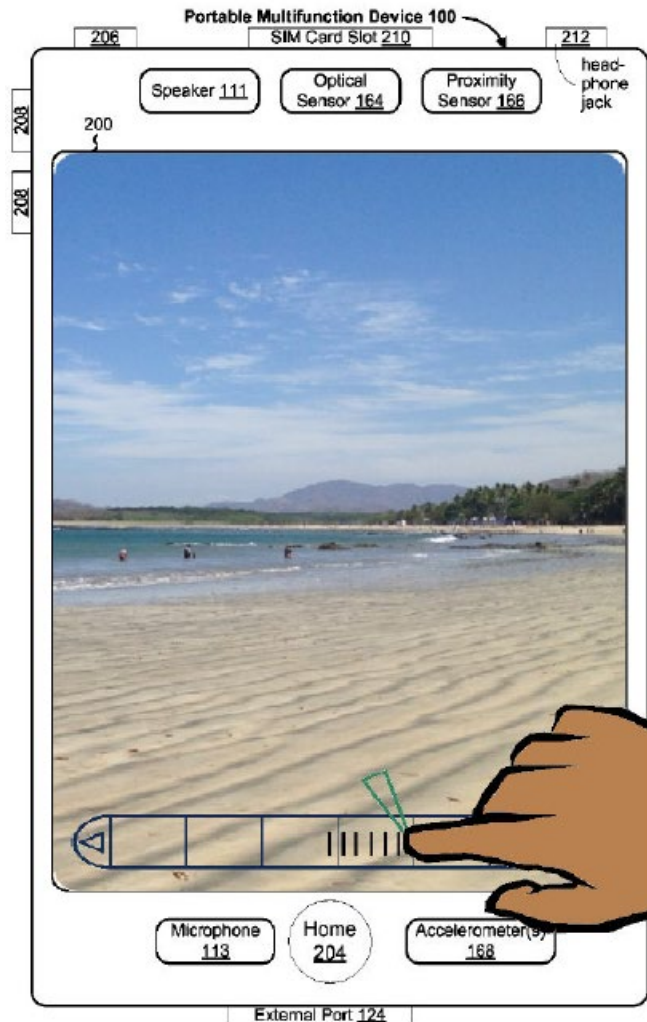
More specifically, Petitioner relies on the Ramos Video demonstration of using the Zlider widget to zoom and pan image content, such as images in a video stream. Pet. 26; *see* Pet. 25–26 (citing Ex. 1004, 143, Fig. 1; Ex. 1005, 3:16–3:19) (indicating the Ramos Video shows “changes in the appearance of the underlying image content and the Zlider itself”). Petitioner contends the Ramos Video shows examples of the Zlider widget being “displayed in a semi-transparent manner such that content behind the Zlider remains visible through at least a portion of the Zlider.” Pet. 26 (citing Ex. 1005, 0:13–26, 3:08–3:31). Petitioner relies on changes in the appearance of the Vernier, including its appearance when the user's stylus approaches the rectangular working areas of Zlider widget. Pet. 30 (citing Ex. 1005, 0:16–0:21, 3:16–3:19).

With declaration testimony of Dr. Cockburn for support, Petitioner contends that one of ordinary skill “would have naturally looked to” other publications from Dr. Ramos to more fully understand the implementation details of the Zlider widget described in the Ramos Paper. Pet. 25–26 (citing Ex. 1003 ¶¶ 56–58). One such publication, according to Petitioner, would have been the Ramos Video that “demonstrates the use of the Zlider widget,

showing how it can be used to zoom and pan underlying image content.” *Id.* at 25–26 (citing Ex. 1005).

Petitioner further contends that, because “the Ramos Paper and Ramos Video offer limited detail on how to implement a widget in a particular device (e.g., including hardware and software components), a POSITA would have naturally looked to prior art references, such as Ording, that also are directed to touch screen devices with user interfaces for user interaction and that have applications that necessitate precise parameter manipulation, as Ording provides.” *Id.* at 30–31 (citing Ex. 1003 ¶ 61). Petitioner relies on the hardware and software components included in Ording’s portable multifunction device having a touch screen. *Id.* at 31 (citing Ex. 1006 ¶¶ 30, 47).

Petitioner also relies on Ording’s description of using a semitransparent virtual click wheel as an input control device. Pet. 31 (citing Ex. 1006 ¶ 45); *see also* Pet. 25 (quoting Ex. 1006 ¶ 46) (“For a virtual click wheel, the click wheel may be either an opaque or semitransparent object that appears and disappears on the touch screen display in response to user interaction with the device.”). Petitioner presents an example of its prior art combination, as reproduced below. Pet. 59.



As depicted in the Petition, Ording’s Figure 2 (discussed above in Section II.D.1.c) has been annotated to show a photograph of a beach scene and an outline of a Zlider widget within Ording’s user interface 200. Pet. 59; Ex. 1006 ¶ 96, Fig. 2. Petitioner’s outline of a Zlider widget is shown as having the rectangular working area, a Vernier, and a pressure cursor. Pet. 59. As shown, Petitioner’s Zlider widget (including the rectangular working area) is “semitransparent” such that the beach sand in the bottom portion of the photograph is visible. Pet. 59.

Petitioner contends that one of ordinary skill “would have recognized the benefits of transparent or semitransparent UI [user interface] objects that

are minimally intrusive to the user” and so would have made the proposed combination. Pet. 33 (citing Ex. 1003 ¶ 66; Ex. 1006 ¶¶ 28, 45). For support, Petitioner relies on Dr. Cockburn’s declaration testimony, which is supported with evidence of other prior art references. Ex. 1003 ¶ 66 (citing Ex. 1025 ¶¶ 77, 94, 101; Ex. 1026 ¶¶ 153, 162). Petitioner and Dr. Cockburn also rely on the express disclosure that Ording’s device with a touch screen may support applications “with user interfaces that are intuitive and transparent.” Pet. 32 (quoting Ex. 1006 ¶ 28); Ex. 1003 ¶ 66 (quoting Ex. 1006 ¶ 28).

Patent Owner contends that “Petitioner’s alleged motivation for modifying Ramos’ Zlider to be transparent is superficial and conclusory.” Prelim. Resp. 24; *see generally* Prelim. Resp. 24–26. As noted above, Petitioner relies on evidence from Ording itself and Dr. Cockburn’s testimony that relies on evidence to support its conclusion. Thus, we do not agree with Patent Owner that Petitioner’s motivation is insufficient for institution.

Patent Owner also argues, relying on Dr. Davis’ declaration testimony, that the Vernier on a semitransparent Zlider widget would be “completely illegible” in some circumstances “rendering the very core of Ramos’ work unusable.” Prelim. Resp. 24–25 (citing Ex. 2001 ¶ 88); *see* Ex. 2001 ¶ 88 (not adding reasoning or evidence beyond that in the Patent Owner Preliminary Response). On this preliminary record, it would appear that when the Zlider widget and the portion of the image underlying the Zlider widget are the same color, the semitransparent Zlider widget may not work as well as when the Zlider widget and the underlying image are different colors. That does not outweigh, for purposes of determining whether to institute trial, the prior art evidence that Petitioner offers of the

benefits of transparent and semitransparent objects, including statements from Ording and other prior art references on which Dr. Cockburn’s declaration testimony relies. Ex. 1003 ¶ 66 (citing Ex. 1025 ¶¶ 77, 94, 101; Ex. 1026 ¶¶ 153, 162); *see Intel Corp. v. Qualcomm Inc.*, 21 F.4th 784, 799–800 (Fed. Cir. 2021) (determining that a showing of the obviousness in predictable use of prior art elements according to their established functions requires only a showing that the combination be a suitable option, rather than a showing that it is the best option).

Petitioner also contends, relying on declaration testimony from Dr. Cockburn, that one of ordinary skill would have had a reasonable expectation of success in combining the references in the manner proposed by Petitioner. Pet. 33–34. Petitioner contends that implementing the Zlider widget “described in the Ramos Paper and Ramos Video in a device, as taught by Ording, would have required only routine knowledge well within the skill of a POSITA” and would involve “combining prior art elements according to known methods to yield the predictable results” described by Petitioner’s proposed combination of the references. *Id.* (citing Ex. 1003 ¶ 67).

Petitioner’s support for reasons one of ordinary skill would have made Petitioner’s proposed combination is sufficient at this preliminary stage.

3. Independent Claim 1

a. Apparatus Elements (Limitations [1a–1d])

Claim 1 is directed to “[a]n apparatus” and recites “at least one non-transitory memory,” “a touch screen,” and “a camera.” For these limitations, Petitioner relies on Ording’s memory 102 in its device 100, touch sensitive

screen 112, and imaging or camera module 143 that captures still images or video. Pet. 35–37 (citing Ex. 1006 ¶¶ 30, 38, 47, Fig. 1B).

Claim 1 also recites “one or more processors in communication with the at least one non-transitory memory, the touch screen, and the camera, wherein the one or more processors execute instructions stored in the non-transitory memory to cause the apparatus to” perform the steps recited in limitations [1e–1l]. Petitioner relies on Ording’s “processors 120” and “controllers (controller 122, display controller 156, and other input controller(s) 160),” which “detect contact (and any movement or breaking of the contact) on the touch screen.” Pet. 37–38 (citing Ex. 1006 ¶¶ 33, 39; Ex. 1003 ¶ 73).

Petitioner’s showing for limitations [1a–1d] is sufficient for purposes of institution because Petitioner relies on express teachings of the cited passages discussed above with respect to Ording’s disclosure. At this preliminary stage, Patent Owner does not address Petitioner’s showing for these limitations. *See generally* Prelim. Resp.

b. Display Contents and User Interface Element (Limitations [1e–1f])

For displaying a first virtual display layer including contents displayed on the touch screen (limitation [1e]), Petitioner relies on the Ramos Video showing video contents in addition to the Zlider widget, such as the monkey cartoon figure discussed previously. Pet. 39–40; *see also* Pet. 40–41 (discussing contents displayed on Ording’s touch screen). Petitioner maps the video image content to the recited “contents” displayed in a first virtual display layer. *See, e.g.*, Pet. 40 (annotating picture of monkey as “Contents” and rectangular area of Zlider widget as “Working area”). Neither the Ramos Paper nor the Ramos Video expressly describes virtual display layers. *See generally* Ex. 1004; Ex. 1005. Petitioner argues

that one of ordinary skill “would have understood that the displayed contents . . . are displayed on a first virtual display layer because they all appear on the same single virtual surface.” Pet. 40 (citing Ex. 1003 ¶ 75).

For displaying at least one user interface element (limitation [1f]), Petitioner points to the “working area” of the Zlider widget. Pet. 40. Petitioner also proposes several other alternatives for the user interface element, including Ording’s “virtual click wheel,” “one or more GUIs” displayed by Ording, and the Zlider widget (not merely the working area of the Zlider widget). Pet. 42–43.

Petitioner’s showing for limitations [1e–1f] is sufficient for purposes of institution. At this preliminary stage, Patent Owner does not address Petitioner’s showing for these limitations. *See generally* Prelim. Resp.

*c. Display of Markings in a Second Virtual Display Layer
(Limitations [1g–1h])*

Claim 1 requires detecting “at least a portion of touch on” the user interface element (limitation [1g]) and “when an aspect of the touch is detected to surpass a threshold,” displaying markings in a particular manner (limitation [1h]). Petitioner maps the rectangular working area of the Zlider widget to the recited user interface element, as noted above, and maps the Vernier of the Zlider widget to the recited markings. *See, e.g.*, Pet. 42 (“The Ramos Video further discloses displaying at least one user interface element (working area) on the touch screen.”); Pet. 50 (“As shown in both the Ramos Paper and the Ramos Video, the Vernier comprises a plurality of markings.”). The plain language of the claim and Petitioner’s mapping together require detecting “at least a portion of touch” on the working area of the Zlider widget (limitation [1g]) and displaying the Vernier of the Zlider

widget “when an aspect of the touch is detected to surpass a threshold” (limitation [1h]).

For detecting “at least a portion of touch” on the working area of the Zlider widget (limitation [1g]), Petitioner relies on Ording’s disclosure of a stylus or finger contacting the touch screen; Ording’s disclosure of using a click wheel to interact with objects displayed on a touch screen; various disclosures in the Ramos Paper and Ramos Video of a user interacting with the Zlider widget using a stylus; and a hover threshold purportedly used by the Zlider widget to detect the stylus and causing the Vernier and pressure cursor to be displayed. Pet. 43–47 (citing Ex. 1005, 0:14, 3:10, 3:11; Ex. 1006 ¶¶ 43, 45, 141). On this basis Petitioner asserts that its combination would detect at least a portion of touch on the working area of the Zlider widget. Pet. 48.

Regarding displaying markings “when an aspect of the touch is detected to surpass a threshold” (limitation [1h]), Petitioner contends that its prior art combination

in response to determining that an aspect of the touch (e.g., a duration or distance of a touch on Ording’s touch screen) surpasses a threshold (e.g., a time or distance threshold, taught or suggested by Ording), the Vernier of the [Zlider] widget, as taught by Ramos Paper and Ramos Video, is displayed on the touch screen.

Pet. 50 (citing Ex. 1003 ¶ 86). For support, Petitioner relies on Ording’s disclosure that “inadvertent contact with a graphic may not select the graphic,” which would, according to Petitioner, at least suggest “an aspect of a touch surpassing a threshold” to determine whether contact should select a graphic. Pet. 49 (quoting Ex. 1006 ¶ 96); Ex. 1006 ¶ 96. Petitioner further refers to images from the Ramos Video that purportedly show the Zlider

widget “before” and “after” a touch is detected on the working area. Pet. 51–54 (citing Ex. 1005, 0:14, 3:10–3:11). Petitioner contends that these images show the Vernier and pressure cursor in the Zlider widget are displayed in response to a purported “hover threshold” being met to indicate “an aspect of the touch” on the working area has been detected. Pet. 50–54 (citing Ex. 1005, 0:14, 3:10–3:11).

Petitioner contends that one of ordinary skill “would have understood that a touch in the Ramos Paper and Ramos Video includes both contact with the touch screen and meeting a threshold proximity between the stylus and the touch screen.” Pet. 47 (citing Ex. 1001, 17:22–36; Ex. 1006 ¶ 141; Ex. 1017, Fig. 59E; Ex. 1003 ¶ 80). Petitioner also notes that Ording discloses various types of touches for providing input. Pet. 48 (citing Ex. 1006 ¶¶ 45, 96; Ex. 1003 ¶¶ 80, 82).

In contrast, Patent Owner asserts that “an aspect of the touch detected to surpass a threshold” requires physical contact with the touch screen and not merely proximity to the touch screen by hovering and so the Ramos Video does not meet the requirements of the claim. Prelim. Resp. 12–15.

Patent Owner and Petitioner both rely on the same passage in the challenged patent to support their respective and contrary positions. Pet. 47 (citing Ex. 1001, 17:22–36); Prelim. Resp. 13 (citing Ex. 1001, 17:25–29). The cited passage describes “touch states” as a way to represent contact pressure and enumerates four touch states—“no touch, light touch, medium touch, and heavy touch.” Ex. 1001, 17:22–28. The passage also indicates that “the lowest touch state may require some form of proximity.” Ex. 1001, 17:28–29.

Petitioner contends that “the lowest touch state may require some form of proximity” supports the position that the stylus hovering near the

working area is sufficient to disclose or suggest “an aspect of the touch.” Pet. 47 (citing Ex. 1001, 17:22–36) (indicating the challenged patent “explains that ‘contact pressure level may be represented by a touch state,’ which “refers to a predefined subset of the range of measurable contact pressures,” where the “lowest touch state may require some form of proximity”). Patent Owner argues that “the lowest touch state” in the passage that requires some form of proximity refers to “no touch” and, as such, proximity means no touch, not “an aspect of the touch.” Prelim. Resp. 13.

We understand Petitioner’s position to be that the passage indicates that proximity is involved in determining a touch state, which discloses or suggests that proximity is “an aspect of the touch.” Pet. 47. For this reason, we do not agree with Patent Owner that Petitioner’s position is “wholly unsupported.” Prelim. Resp. 13.

More importantly, Petitioner’s position also relies on Ordning’s express disclosure that a touch is a process that includes approaching the display without touching the display. Pet. 47–48 (quoting Ex. 1006 ¶ 141); *see* Ex. 1006 ¶ 141 (describing finger contact with a touch screen to be “a process involving multiple actions including the finger approaching the display, the finger being in contact with the display, and the finger leaving the display”). On this preliminary record, this provides support to Petitioner’s position that the hovering of the input device is an aspect of touch.

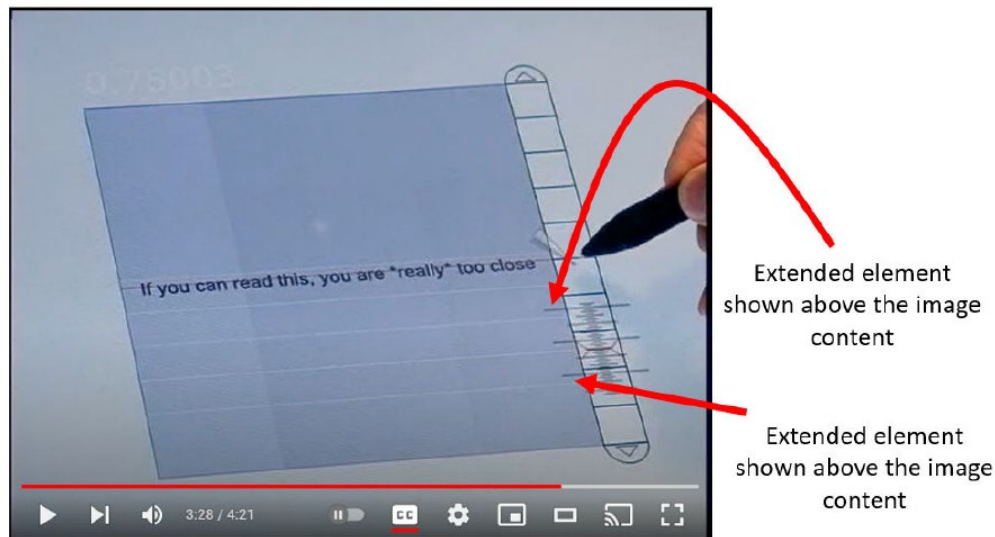
At this preliminary stage, we do not agree with Patent Owner that the challenged patent description of “a touch event” necessarily precludes a hovering stylus as disclosing or suggesting “an aspect of the touch.” Prelim. Resp. 14 (citing Ex. 1001, 52:48–50). Patent Owner is correct that “a touch event” is described as an “event in which an implement of interaction comes

into contact with an interaction surface.” Ex. 1001, 52:48–50. Claim 1, however, recites “at least a portion of a touch” (limitation [1g]) and “an aspect of the touch” (limitation [1h]) rather than a touch event. Nor do we agree, on this preliminary record, with Patent Owner that “touch on” in limitation [1g] precludes a hovering stylus as disclosing or suggesting “an aspect of the touch” surpassing a threshold that displays markings as required by limitation [1h]. As noted previously, Petitioner relies on Ording’s disclosure that contact with a touch screen is a process that includes approaching the display without touching the display. Ex. 1006 ¶ 141; Pet. 47–48 (quoting Ex. 1006 ¶ 141).

As noted previously, Petitioner relies on not only the interaction of the stylus and the Zlider widget shown in the Ramos Video but also on Ording’s disclosure of touch contact of a user’s finger or stylus with the device. *See, e.g.*, Pet. 49 (“As discussed above for [1.g], at least a portion of a touch includes contact on the touch screen (e.g., with a stylus or a finger), as Ording teaches, and meeting a threshold (e.g., a threshold proximity (hover threshold) between the stylus and the touch screen), as Ramos Paper and Ramos Video teach and/or suggest.”); Pet. 47–48 (citing Ex. 1006 ¶¶ 43, 45, 96, 141), 49 (citing Ex. 1006 ¶ 96). Based on this preliminary record, Ording expressly discloses finger contacts and at least suggests taking action after determining an aspect of touch surpasses a threshold.

For these reasons, we conclude Petitioner provides sufficient evidence for institution that hovering by the stylus over the working area of the Zlider widget and Ording’s finger contact causing taking action when a threshold is surpassed discloses or suggests displaying markings when an aspect of the touch on the working area is detected to surpass a threshold (limitation [1h]).

For displaying “a plurality of markings in a second virtual display layer that appears to have a lesser depth than the first virtual display layer” as required by limitation [1h], Petitioner contends that the Ramos Video shows “that the Vernier is displayed *over* the image, so a POSITA would have understood the Vernier is in a second virtual display layer that appears to have a lesser depth tha[n] the first virtual display layer in which the image content is located.” Pet. 54 (citing Ex. 1003 ¶ 89) (emphasis in original); *see also* Pet. 43–44 (citing Ex. 1005, 0:14); Pet. 50–54 (citing Ex. 1005, 0:14, 3:10–3:11; Ex. 1003 ¶ 88). Specifically, Petitioner points to “the appearance of extended elements of the Vernier” that sometimes appear outside the working area rectangle and over the image content, as shown below. Pet. 54 (Ex. 1005, 3:28).



APPLE-1005, 3:28 (annotated)

As depicted above, an example of video content from the Ramos Video shows image content having a line of text (“If you can read this, you are **really** too close”) and a Zlider widget adjacent to and to the right of the image content. *See* Pet. 55 (annotating excerpt from Ex. 1005, 3:28).

The Zlider widget shown includes a Vernier that includes some markings appearing over the image content, which Petitioner annotates as “[e]xtended element shown above the image content.” Pet. 55 (citing Ex. 1005, 3:28).

At this preliminary stage, Patent Owner does not contest that the Ramos Video shows the Vernier appearing as a result of the stylus hovering over the Zlider widget. *See, e.g.*, Prelim. Resp. 12–15.

Accordingly, for these reasons, we determine that Petitioner has sufficiently demonstrated for institution that Petitioner’s proposed combination of a semitransparent Zlider widget on the touch screen of Ording’s multifunction device would disclose or suggest displaying the Vernier and pressure cursor of the Zlider widget when an aspect of touch on the working area of the Zlider widget surpasses a threshold and displaying the Vernier in a second virtual display layer that appears to have lesser depth than the first virtual display layer including the contents (limitations [1g–1h]).

d. Translucency of the Second Virtual Display Layer (Limitation [1i])

Claim 1 recites “where at least a portion of the second virtual display layer is at least partially translucent so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer” (limitation [1i]). Regarding the required translucency, Petitioner asserts the pressure cursor of the Zlider widget is displayed in the second virtual display layer and “is semi-translucent, as evidenced by the grid lines visible through the pressure cursor” as shown in Figure 6 of the Ramos Paper discussed previously in Section II.D.1. Pet. 55–56.

Patent Owner contends that Petitioner’s mapping relies on a semitransparent element—the pressure cursor—that is not in the second

virtual display layer, “where at least a portion of the second virtual display layer is at least partially translucent.” Prelim. Resp. 17–23. Patent Owner presents evidence that the pressure cursor is shown above the working area of the Zlider widget as shown in Figure 6 of the Ramos Paper and in the Ramos Video. Prelim. Resp. 18–20 (citing Ex. 1004, Fig. 6; Ex. 1005, 0:14; Ex. 2001 ¶ 70; Pet. 56). Patent Owner also presents evidence that the pressure cursor is shown in the Ramos Video as being above the Vernier of the Zlider widget. Prelim. Resp. 20–21 (citing Ex. 1005, 3:19; Pet. 20). On this basis, Patent Owner, relying on Dr. Davis’ declaration testimony, concludes:

Thus, if the alleged markings are in the second virtual layer, then the pressure cursor is not in the second virtual display layer, and Petitioner’s mapping fails to show “at least a portion of the second virtual display layer is at least partially translucent.” EX2001, ¶76. If instead the pressure cursor is in the second virtual display layer, then the alleged markings are not, meaning Petitioner’s mapping fails to show “at least a portion of the second virtual display layer is at least partially translucent.” EX2001, ¶77.

Prelim. Resp. 22 (citing Ex. 2001 ¶¶ 76–77) (footnote omitted). Patent Owner’s contentions have merit.

As Patent Owner acknowledges, however, Petitioner also relies in its asserted prior art combination on Ording’s disclosure of semitransparent objects, including a representation of the proposed combination shown in the Petition. Prelim. Resp. 23–24; *see* Pet. 31–33, 57–59. Patent Owner also contends that Petitioner fails to argue that the Vernier as shown is in the second virtual display layer, which leaves “Patent Owner and the Board to guess at the extent to which the combination may impact the remainder of Petitioner’s mappings.” Prelim. Resp. 24.

We disagree. Petitioner, in discussing “the Vernier comprises a plurality of markings,” expressly argues:

In the combination, the plurality of markings are displayed on a second virtual layer that appears to have a lesser depth than the first virtual layer in response to the touch, as taught by the Ramos Paper and Ramos Video, and ***at least a portion of the second virtual [display] layer is at least partially translucent, as taught or suggested by Ramos Paper, Ramos Video, and Ording.***

Pet. 50–51 (citing Ex. 1003 ¶¶ 86–87; Ex. 1004, 145, Fig. 1; Ex. 1005) (emphasis added). Additionally, as described above, Petitioner includes a depiction of its combination that plainly shows the Zlider widget with Vernier markings through which a portion of a beach is visible. Pet. 59.

Accordingly, we find sufficient for institution Petitioner’s showing for limitation [1i].

e. Movement of Markings (Limitations [1j–1k])

Claim 1 recites “detect, via the touch screen, a touch movement on at least one of the plurality of marking” (limitation [1j]); and “during detection of the touch movement on the at least one of the plurality of marking in the second virtual display layer that appears to have the lesser depth than the first virtual display layer, display, via the touch screen, a movement of the markings in the second virtual display layer as a function of the touch movement” (limitation [1k]).

Regarding this movement on the markings, Petitioner indicates the Ramos Video “shows examples of a touch movement occurring” on the Vernier, which “causes the markings to move, relative to one another.” Pet. 60, 62; *see* Pet. 60–68 (citing Ex. 1005, 3:07–3:32, 0:14–0:27, Ex. 1003 ¶ 96). As such, Petitioner contends that, “as the Ramos Paper and Ramos Video teach or suggest, the movement of the markings in the Vernier is a

function of the touch movement (e.g., the amount of pressure applied to the touch screen or the amount of sliding on the touch screen).” Pet. 69 (citing Ex. 1003 ¶ 100).

Petitioner’s showing for limitations [1j–1k] is sufficient for purposes of institution. At this preliminary stage, Patent Owner does not address Petitioner’s showing for these limitations. *See generally* Prelim. Resp.

f. Zoom Operation (Limitations [1l(i)–1l(iii)])

Regarding the zoom operation limitations [1l(i)–1l(ii)], Petitioner contends that the Ramos Video shows pressing down on the Vernier markings causes the zoom level in the displayed content to change and make the content appear larger. Pet. 68 (citing Ex. 1005, 3:24; Ex. 1003 ¶ 101). Petitioner contends that one of ordinary skill would understand that “the zoom operation applied to the content is not performed on the Vernier.” Pet. 69 (citing Ex. 1003 ¶¶ 103–104). Petitioner relies on an express disclosure in the Ramos Paper that “the Vernier in our Zlider adapts its grid spacing depending on the widget’s current scale factor.” Pet. 69 (citing Ex. 1004, 145). As such, according to Petitioner, “[w]hile the scale factor of the Vernier *does* influence the magnification level (a zoom operation) applied to the content, the reverse is not true (i.e., the zoom operation applied to the content is not applied to the Vernier).” Pet. 69 (citing Ex. 1003 ¶ 104) (emphasis in original).

Limitation [1l(iii)] recites “the at least portion of the second virtual display layer is at least partially translucent so that a result of the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” Notably, this limitation uses antecedent basis to indicate that the partially translucent portion of the second virtual display layer recited in

limitation [11(iii)] is the same partially translucent portion of the second virtual display layer recited in limitation [1i] “where at least a portion of the second virtual display layer is at least partially translucent so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” As such, the plain language requires that a result of the zoom operation on the contents of the first virtual display layer is visible through the partially translucent portion of the second virtual display layer.

After discussing the zooming function in the Ramos Paper and the Ramos Video, Petitioner presents two images from Ramos Video. *See, e.g.*, Pet. 68–70 (discussing zooming); Pet. 71–72 (presenting two images from the Ramos Video). Petitioner describes the first image from the Ramos Video as “showing the contents before the user increases pressure on the touchscreen.” Pet. 71 (citing Ex. 1005, 3:16). Petitioner describes the second image from the Ramos Video as “showing the enlarged size of the content (image) after the user increases pressure on the touchscreen, as indicated by the pressure cursor, and the plurality of the markings of the Vernier moving closer together.” Pet. 72 (citing Ex. 1005, 3:19).

At this preliminary stage, Patent Owner contends that the Petition fails to address with particularity limitation [11]. Prelim. Resp. 9–11; *see* Pet. vi–vii (claim 1 listing). As Patent Owner correctly notes, the Petition, uses identifiers for claim 1 as headings in its analysis but does not include a heading for limitation [11]. Prelim. Resp. 9–10; Pet. 68–72. Patent Owner recognizes, as do we, that Petitioner discusses limitations [11(i)–11(ii)] in its Petition. Prelim. Resp. 10–11; Pet. 68–72. Patent Owner contends, more specifically, that the Petition does not address “the at least portion of the second virtual display layer is at least partially translucent so that a result of

the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer” (limitation [11(iii)]).

We disagree. As noted above, after discussing the zooming function in the Ramos Paper and the Ramos Video, Petitioner describes the second image from the Ramos Video as “showing the enlarged size of the content (image) after the user increases pressure on the touchscreen, as indicated by the pressure cursor, and the plurality of markings of the Vernier moving closer together” in contrast with an image a few seconds before the enlargement. Pet. 71–72 (reproducing images from Ex. 1005, 3:16 and 3:19). As such, Petitioner discusses the results of the zoom operation performed on a portion of the contents.

We also note that the translucency of the second virtual display layer through which the results of the zoom operation are visible (limitation [11(iii)]) uses antecedent basis to refer to the translucency of the second virtual display layer through which the contents are visible (limitation [1i]). As noted above, Petitioner presents sufficient evidence for institution that its combination of the Zlider widget and the Ordning device meets the translucency of the second virtual display layer recited in limitation [1i]. *See, e.g.*, Pet. 55–59.

Accordingly, in the particular circumstances of this case, we determine that Petitioner has addressed limitations [11(i)–(iii)] with sufficient particularity for institution.

g. Claim 1 Conclusion

In sum, for the reasons discussed above, Petitioner’s showing for claim 1 is sufficient for institution. Accordingly, having reviewed the Petition, Preliminary Response, and evidence cited therein, we determine

that Petitioner has established a reasonable likelihood that it would prevail in showing the combination of the Ramos Paper, the Ramos Video, and Ording renders obvious claim 1.

This showing is sufficient to institute an *inter partes* review on all challenged claims on all asserted grounds. 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”); *see SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

4. Independent Claims 22 and 58

Claim 22 is directed to a method comprising a device with elements substantially similar to those recited for the apparatus of claim 1 discussed above. *See* Ex. 1001, 107:16–20. Claim 22 also recites steps substantially similar to the steps performed by the apparatus of claim 1. *See* Ex. 1001, 107:21–52. Petitioner relies on many of the same arguments discussed above with respect to claim 1. Pet. 87–88 (claim 22); Pet. 91–92 (claim 58). Patent Owner argues the independent claims together. Prelim. Resp. 9–26.

Accordingly, for the same reasons discussed above, we determine that Petitioner’s showing for claims 22 and 58 is sufficient for institution.

5. Dependent Claims

Petitioner presents analysis regarding dependent claims 2–4, 6–10, 17, 19, 23–26, 28–30, 32, 33, 36, 41, 59–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83. *See* Pet. 72–87 (claims 2–4, 6–10, 17, and 19), 89–91 (claims 23–26, 28–30, 32, 33, 36, and 41), 92–94 (claims 59–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83). Patent Owner does not separately present arguments regarding Petitioner’s showing with respect to the dependent claims. *See* Prelim.

Resp. As noted above, Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenge of the independent claims, which is sufficient for institution.

E. Obviousness of Claim 48 over Ramos Paper, Ramos Video, Ording, and Hayward

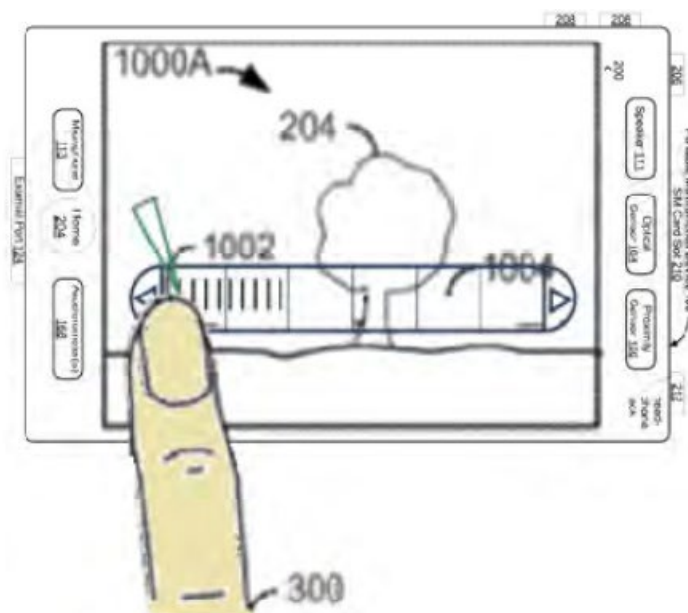
Claim 48 depends directly from claim 23 and indirectly from independent claim 22. Ex. 1001, 109:29–27. Claim 48 additionally recites “wherein a lighting operation is performed on the at least portion of the contents of the first virtual display layer, where the lighting operation is performed based on a movement of one or more of a plurality of different markings in the second virtual display layer, and the at least portion of the second virtual display layer is at least partially translucent so that a result of the lighting operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.” *Id.*

Petitioner asserts that claim 48 is unpatentable as obvious over the combination of the Ramos Paper, the Ramos Video, Ording, and Hayward. Pet. 94–102. Hayward is a published patent application that describes mapping user interactions, e.g., gestures, to the input parameters of various image processing routines, in portable electronic devices that display filtered images on a touch screen display. Ex. 1016 ¶¶ 2, 36. Hayward indicates “there is a need for techniques to implement a programmatic interface to map particular user interactions, e.g., gestures, to the input parameters of various image processing routines, e.g., image filters, in a way that provides a seamless, dynamic, and intuitive experience for both the user and the client application software developer.” *Id.* ¶ 7. In one example, Hayward

describes “a logical slider” that allows image contrast to be adjusted by the user’s finger moving across the touch screen. *Id.* ¶ 67.

For claim 48 Petitioner relies on its combination discussed above that implements the Zlider widget as described in the Ramos Paper and the Ramos Video in Ording’s portable multifunction device having a touch screen Pet. 96. Petitioner contends that one of ordinary skill would have improved the device of that combination by using the Zlider widget “to modify parameters, such as the contrast in an image,” and would have used Hayward’s slider “for adjusting the level of contrast in a scene” to do so. Pet. 96–97 (citing Ex. 1003 ¶ 166; Ex. 1004, 144; Ex. 1016 ¶ 67, Figs. 10A–10C; Ex. 1006 ¶¶ 27, 47). Specifically, Petitioner contends the asserted combination would include “a separate widget (as taught by Ramos Paper and Ramos Video) for use in adjusting exposure levels (as taught by Hayward) when using a camera application[]/camera module, as described in Ording.” Pet. 97 (citing Ex. 1003 ¶ 167).

Petitioner provides examples of its prior art combination, including one reproduced below. Pet. 98 (citing Ex. 1003 ¶ 168).



As depicted in the Petition, Ording's Figure 2 (discussed above in Section II.D.1.c) has been annotated to show, within Ording's user interface 200, both (i) Hayward's gesture input by user 300 to adjust image contrast of scene 1000A including tree 204 and (ii) an outline of a Zlider widget. Pet. 98; Ex. 1016 ¶ 67; Ex. 1006 ¶ 96, Fig. 2. Petitioner's outline of a Zlider widget is shown as having the rectangular working area, a Vernier, and a pressure cursor. Pet. 98. As shown, Petitioner's Zlider widget (including the rectangular working area) is "semitransparent" such that the scene is visible. Pet. 98.

Petitioner contends that using the Zlider widget for adjusting exposure levels in Ording's device "would result in a device that allows for precise adjustment of a value controlling a visual feature—that is, contrast levels when acquiring digital images—for which Ramos teaches its Zlider can be applied." Pet. 97 (citing Ex. 1004, 144; Ex. 1003 ¶ 167) (internal quotations omitted). Petitioner also asserts that "[d]eploying a slider within a device (based on Ramos and Ording) for contrast adjustment (as Hayward teaches) would have required only routine programming knowledge well within the skill of a POSITA." Pet. 99 (citing Ex. 1003 ¶ 169). Petitioner further contends that "the change would have amounted to nothing more than the use of a known technique to improve similar devices—in each instance having a touch screen display—in a similar way, and combining prior art elements according to known methods to yield the predictable results described" in the Petition. Pet. 99 (citing Ex. 1003 ¶ 169).

Petitioner asserts that, in its combination of the references, the Vernier of the Zlider widget would have been used to adjust contrast of the scene. Pet. 100. As such, according to Petitioner, adjusting the contrast discloses or suggests the recited lighting operation performed on at least a portion of the

contents and using the Vernier to do so discloses or suggests the lighting operation is performed based on movement of the markings, as required by claim 48. Pet. 100. Petitioner further asserts that, because the Zlider widget is at least partially transparent, the contents would have been visible through at least a portion of the second virtual display layer. Pet. 101–102.

At this preliminary stage, Patent Owner does not present specific arguments regarding this asserted ground.

For the reasons discussed above with respect to claim 1, we preliminarily determine Petitioner’s showing regarding its asserted combination of the Ramos Paper, the Ramos Video, and Ording, which is also relied on here, to be sufficient for institution. We also determine that Petitioner’s further showing relying on Hayward in the combination here for the lighting operation required by claim 48 to be sufficient for institution. As such, Petitioner’s showing for claim 48 is sufficient for institution.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail in showing at least one of claims 1–4, 6–10, 17, 19, 22–26, 28–30, 32, 33, 36, 41, 48, 58–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83 of the ’580 patent is unpatentable. We institute an *inter partes* review of all challenged claims on all asserted grounds. 37 C.F.R. § 42.108(a); *see SAS Inst. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted as to claims 1–4, 6–10, 17, 19, 22–26, 28–30, 32, 33, 36, 41, 48, 58–62, 64, 65, 67, 69, 70, 73, 77, 82, and 83 of the '580 patent on all the grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

IPR2024-01085
Patent 10,649,580 B1

FOR PETITIONER:

W. Karl Renner
Jennifer Huang
FISH & RICHARDSON P.C.
axf-ptab@fr.com
jhuang@fr.com

PATENT OWNER:

Eagle Robinson
Daniel Leventhal
Chad Wallis
NORTON ROSE FULBRIGHT US LLP
eagle.robinson@nortonrosefulbright.com
daniel.leventhal@nortonrosefulbright.com
chad.wallis@nortonrosefulbright.com