UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO. LTD., SAMSUNG ELECTRONICS AMERICA, INC. AND APPLE, INC.,

Petitioners

v.

NEONODE SMARTPHONE LLC,

Patent Owner

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Case IPR2021-00145

U.S. Patent No. 8,812,993

PATENT OWNER'S RESPONSE

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NEO Exhibit Number	Description
2001	Declaration of Craig Rosenberg, Ph.D. in Support of Patent Owner's Preliminary Response
2002	Craig Rosenberg, Ph.D., *Curriculum Vitae*
2003	MicroTouch Mac-'n-Touch Technical Data Sheet
2004	US Patent No. 5,406,307 (Hirayama, et al.)
2005	Transcript of 30(b)(6) Videotaped Deposition of Neonode, Inc. by Joseph Shain and Thomas Eriksson (March 19, 2012) in the matter of *Motorola Mobility, Inc. v. Apple Inc.*, CA No. 1:10cv023580, United States District Court for the Southern District of Florida.
2006	Transcript of Telephonic conference Before the Honorable Alan D. Albright (October 23, 2020), in the matter of *Neonode Smartphone, LLC v. Apple, Inc.*, Docket No. WA 20-CA-505, *Neonode Smartphone, LLC v. Apple, Inc.*, Docket No. WA 20-CA-507, United States District Court for the Western District of Texas, Waco Division
2007	Plaintiff Neonode Smartphone LLC's Motion for Issuance of Letter of Request to Examine Persons, Inspect Documents, Inspect Property Pursuant to the Hague Convention on the Taking of Evidence Abroad in Civil or Commercial Matters, and Exhibit A thereto.
2008	Apple Inc.'s Unopposed Motion for Issuance of Letter of Request to Examine Persons and Inspect Documents Pursuant to Hague Convention, and Exhibit A thereto.
2009	Order Granting Plaintiff Neonode Smartphone LLC's Motion for Issuance of Letter of Request to Examine Persons, Inspect Documents, Inspect Property Pursuant to the Hague Convention on the Taking of Evidence Abroad in Civil or Commercial Matters

NEO Exhibit Number	Description
2010	Declaration of Jakob Falkman in Support of Patent Owner's Preliminary Response
2011	Declaration of Philip Graves in Support of Patent Owner's Preliminary Response
2012	Neonode N1 Quick Start Guide, V 0.5
2013	Declaration of Craig Rosenberg, Ph.D. in Support of Patent Owner's Response to Petition
2014	Neonode Confidential Business Plan, May 2003
2015	Declaration of Per Bystedt in Support of Patent Owner's Response to Petition
2016	Declaration of Marcus Bäcklund in Support of Patent Owner's Response to Petition
2017	US Patent No. 7,880,732
2018	Transcript of Deposition of Benjamin B. Bederson, Ph.D. dated August 18, 2021
2019	Declaration of Joseph Shain in Support of Patent Owner's Response to Petition
2020	Neonode Development of Neonode N1 Terminal Accomplished and Remaining Development Phases
2021	"Neonode is Alive Again" certified translation from Swedish to English (https://www.mobil.se/business/neonode-lever-igen last accessed September 17, 2021)
2022	Declaration of Ulf Mårtensson in Support of Patent Owner's Response to Petition

NEO Exhibit Number	Description
2023	Neonode History
2024	Neonode Confidential Investment Memorandum, January 2004
2025	Research & Development and License Agreement between Neonode and Samsung Electronics Co., Ltd., effective July 13, 2005
2026	Excel Spreadsheet documenting Neonode sales
2027	"Pen Computing Magazine: The NeoNode N1" (https://pencomputing.com/WinCE/neonode-n1-review.html last accessed September 21, 2021)

I. INTRODUCTION

Petitioners assert that claims 1-8 of U.S. Patent No. 8,812,993 ("the '993 Patent") are unpatentable on two principal grounds. They bear the burden of proving their case. They fail to do so.

Ground 1: Hisatomi/Ren. Petitioners pitch two principal theories. The first is that claim 1 is obvious over the combination of Hisatomi and Ren, with Ren supplying the missing element of "tap-activatable icons." This ground fails for three reasons. First, Hisatomi is not prior art. Magnus Goertz, the inventor of the '993 Patent's gesture-based interface, conceived of and was diligently working to reduce the invention to practice well in advance of Hisatomi's February 20, 2002 priority date. This is reflected in the fact that Goertz and his business partner Thomas Eriksson demonstrated a prototype of a mobile phone with the gesture-based interface already programmed into the phone at the March 2002 CeBIT trade show in Germany just three weeks after Hisatomi was published. It beggars belief that he conceived of and programmed the interface into the prototype in the span of three weeks; in fact, the evidence will show that Goertz conceived of the invention in 2000 and diligently worked to reduce it to practice thereafter. Without Hisatomi, Petitioners' Ground 1 collapses.

Second, Hisatomi does not disclose a tap-present state with tap-activatable icons. Instead, Hisatomi discloses touch-activatable icons. Petitioners attempt to

bridge this gap by pointing to the "Direct Off" (tap) strategy referenced in the Ren research paper, but Ren's experimental results teach a POSA that "Direct On" (touch) was the superior activation technique for a display like Hisatomi's, with both superior speed and accuracy than Direct Off for icons in the relevant size range. Moreover, Petitioners' combination would have addressed no deficiency in Hisatomi, and would have provided no benefit to the Hisatomi device. Simply put, a POSA would have seen no reason to denigrate Hisatomi's touch functionality in favor of tap functionality that Ren itself found was inferior.

Third, Hisatomi does not disclose icons for a plurality of system functions; rather, Hisatomi discloses icons for application functions. Petitioners proffer no other reference for this element, so Ground 1 fails.

Ground 2: Hansen/Gillespie. Petitioners' second theory is that claim 1 is obvious over the combination of Hansen and Gillespie, with Gillespie supplying the missing element of an "otherwise-activatable graphic." This argument, too, fails for multiple reasons.

First, Hansen does not disclose an "electronic device" including both a processor and a touch-sensitive display as recited in the preamble. The specification makes it clear that the "electronic device" is a mobile handheld computer, and Hansen discloses no such thing; even if the Board rejects Patent Owner's construction of "electronic device," the claim language itself commands a

conclusion that the system of Hansen does not disclose the electronic device of claim 1.

Second, Hansen does not disclose icons for a plurality of system functions. Hansen discloses icons for applications; there is no suggestion in Hansen that its icons are for system functions.

Third, Hansen does not disclose a tap-absent state, but rather a typical Windows environment in which tap-activatable icons are plainly present.

Finally, Petitioners admit that Hansen lacks an "otherwise-activatable graphic," and point to Gillespie for that element. However, a POSA would have had no motivation to incorporate Gillespie's "affordances" into Hansen, because adding a graphic to Hansen would have provided no benefit – users of Hansen's elaborate system in 2002 would have been experienced users who had educated themselves regarding the gestures necessary to control the system prior to buying it, and would have had no need for Petitioners' color-coded graphic. In addition, Hansen expressly stated a purpose of providing an uncluttered workspace, which would have been undermined by adding a useless graphic that takes up an entire edge of the display.

Dependent Claims. With respect to claims 2-3 and 7-8, Petitioners fail because they fail to invalidate claim 1. In addition, Hisatomi's GUI function

buttons and Hansen's icons are within a window frame, whereas claim 3 requires that they not be.

With respect to claims 4-6, Petitioners' attack fails across the board because a POSA would not have been motivated to modify either Hisatomi or Hansen to add the Help, clock and alarm icons that Petitioners propose. Petitioners proffer conclusory truisms – yes, a POSA would have known how to program a clock function – but proffer nothing to bolster their case that a POSA would have incorporated an icon for these functions into the specific devices of Hisatomi and Hansen. In fact, a POSA would have done no such thing: Hisatomi already included a Help function that was well-adapted to the Hisatomi display, and Hansen's windows-based display would have included a Help function in a drop-down menu. And, a POSA would not have been motivated to add either a clock or alarm icon to either Hisatomi's or Hansen's display because a persistent time display was well-established and would accomplish the same purpose more efficiently than a buried icon would have done. Moreover, Allard-656 is not analogous art – it concerns a mechanical engineering solution and addresses an entirely different set of problems than those addressed by the '993 Patent.

Secondary Considerations. Finally, there is substantial objective evidence of non-obviousness. Neonode made and sold approximately 60,000 mobile phones incorporating the '993 Patent's swiping gesture interface, and received a great deal

of industry praise for the "unique," "brilliant" swiping interface – indeed, one article lauded the interface under a section heading entitled "swipe, swipe, swipe." Although Neonode at first met with significant skepticism from mobile handset makers such as Nokia and Ericsson, Samsung was so impressed with the swiping gesture interface that the company licensed the application from which the '993 Patent issued for a substantial up-front payment and running royalty. This secondary evidence, from objective industry sources as well as from one of the Petitioners, highlights the novelty of the invention claimed in the '993 Patent.

The Board should determine that all claims are patentable.

II. CLAIM CONSTRUCTION

A. "An Electronic Device"

Neonode requests that the Board construe the phrase "an electronic device," found in the preamble of claim 1, as "**a mobile handheld computer**."

As an initial matter, the preamble of claim 1 is limiting because it provides antecedent basis for "the device" in the preamble and the "user interface" and "the display screen" limitations of the claim. *Pacing Techs., LLC v. Garmin Int'l., Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015). "An electronic device" and "the electronic device," as well as "computer readable medium," "a touch-sensitive display screen," and "a user interface," are all recited before the transitional phrase "comprising" in the preamble of claim 1. Accordingly, the preamble is limiting.

In its Institution Decision, the Board rejected Neonode's argument that Hansen does not disclose the recited device on the ground that "claim 1 does not explicitly require that the recited 'electronic device' have a processor and touch-sensitive display screen within a single housing. Though they may be separate components attached together with connectors, the parts of Hansen's computer system function in a unified and interdependent way for implementing Hansen's user interface." Paper 24, pp. 41-42. The Board appears to have implicitly construed "device" to be coterminous with "system." Yet that is contrary to the specification and to the plain meaning of the term. As set forth in Section IV.A.1.a below, Neonode believes that the plain meaning of "device" is sufficient to distinguish Hansen, but if a construction is necessary it should accord with the specification. The Board's does not.

The specification compels construction of the phrase to mean a mobile handheld computer. The Technical Field of "[t]he present invention relates to a user interface for a mobile handheld computer unit" and to "an enclosure for a handheld computer unit…." EX1001, 1:14-15, 22-23. The specification identifies "mobile handheld computers" as the relevant background art, and specifies that PDAs, mobile phones, and laptop computers are all examples of "mobile handheld computers." EX1001, 1:33-43. The description identifies the need to avoid having

to make PDAs and mobile phones larger to provide a user-friendly interface "that is suitable for small handheld computer units." *Id*., 1:44-53.

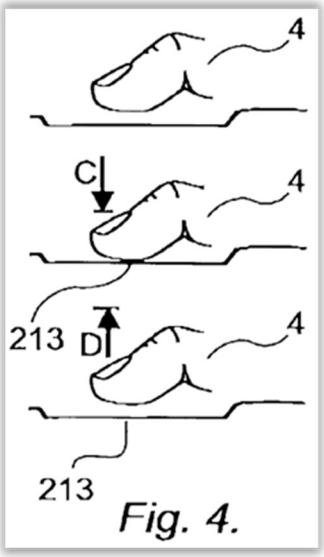
The specification identifies the Technical Problems solved as adapting a user interface "to handle a large amount of information and different kinds of traditional computer-related applications on a small handheld computer unit," and providing "a simple way to make the most commonly used functions for navigation and management available in the environment of a small handheld computer unit." EX1001, 1:55-2:4. And the Solution takes as its "star[t]ing point" "a user interface for a mobile handheld computer unit, which computer unit comprises a touch sensitive area…." *Id*., 2:8-11. The illustrations of the user interface for the invention are of "a user interface for a mobile handheld computer unit." EX1001, 3:57-58. And the device is consistently described and illustrated, as in Figure 13, as a "mobile handheld computer unit." EX1001, FIG. 13; see also EX1001, 6:11-13.

When the specification speaks with such force regarding what the invention is, the claims should be construed coterminously. *E.g., Honeywell Int'l., Inc. v. ITT Indus., Inc*., 452 F.3d 1312, 1318-19 (Fed. Cir. 2006). Here, a POSA would have understood the phrase, as used and described in the '993 Patent, to mean "a mobile handheld computer." EX2013, ¶¶37-43.

B. "Tap-Activatable"

Neonode requests that the Board construe the term "tap-activatable," found in limitation 1.b of claim 1, as "**activatable upon completion of a gesture that involves the input device touching a screen followed directly and immediately by lifting off the screen**."

The '993 Patent's specification defines "tapping" as a gesture with at least two components: "FIG. 4 shows that selection of a preferred service or setting is done by tapping C, D on a corresponding icon 213." EX1001, 4:41-42. Figure 4, which illustrates "tapping," is reproduced below:



EX1001, FIG 4. "Tapping" as described in the specification is a gesture consisting of a downward touch on the coordinates of the icon (C in Figure 4), followed directly and immediately by an upward lift off of the icon (D in Figure 4). *Id.*

A POSA would have understood that a "tap" as used in a gesture-based user interface design for the touch-sensitive screen of a hand-operated computer unit, means a gesture in which the input device (1) touches the screen, and then (2) lifts directly and immediately off the screen. EX2013, ¶¶44-48. And a POSA would have understood that a "tap" gesture as used in a gesture-based user interface for touch sensitive screens activates a function or service upon the input device lifting off of the screen. *Id*. This property would have distinguished tap, in the mind of the POSA, from other known user interface gestures such as touch activation, in which processing is activated upon detecting the coordinates of the initial touch. *Id.* Accordingly, the Board should construe "tap-activatable" as set forth above.

C. "System Function"

Neonode requests that the Board construe the term "system function," as used in limitation 1.b of claim 1, as "**services or settings of the operating system**."

The '993 Patent specification discloses three icons in the menu area of the display, one of which is a general application-dependent function (item 21). The specification describes at least <u>two</u> embodiments of the user interface as it pertains to activating item 21. In the first embodiment, when an application is currently active, "if the first function is activated, the display area is adapted to display icons representing services or settings, <u>depending on the current active application</u>."

EX1001, 2:25-29; 4:20-35 (emphasis added). The specification gives as an example of such an application one that "handles a picture," i.e., a camera application, identifying services or settings such as "save to disk," "send as SMS" and resolution and color. *Id.*, 4:31-35. Consistent with this, claims 4-6 recite that the pre-designated system functions comprise a help function, a clock function and an alarm function. *Id*., 7:6-13.

In the second embodiment, "[t]he icons are adapted to represent services or settings of the operations system of said computer unit, such as background picture, clock, users, help, etc. if no application is currently active on the computer unit." *Id.*, 2:31-34; 4:36-40 (emphasis added). Claim 1, which recites "tap-activatable icons for a respective plurality of pre-designated system functions, *Id.*, 6:54-58, claims the second embodiment, not the first.

In its Institution Decision, the Board stated that "Neonode appears to concede that "services such as 'save to disk'" constitute system functions." Paper 24, p. 32. But Neonode made no such concession; in its PPOR, Neonode explained that the '993's specification disclosed two embodiments and noted that Hisatomi does not disclose icons related to system functions as recited in the claimed embodiment. Paper 23, pp. 33-34.

The Board also preliminarily found that "the '993 patent appears to disclose at least one embodiment in which tap-activatable icons in the tap-present state

represent general applications that can be run on the device," implicitly reasoning from this that any application may be a "system function." Paper 24, p. 44.

The Board's reliance on this language in the '993 Patent's specification to elucidate "system function" is misplaced, for three reasons. First, the content cited by the Board, EX1001, 5:3-6 and Fig. 6, describes applications, not system functions. As shown above, the claimed "system functions" are described at col. 4:36-40 with respect to the "general application-dependent function," item 21. The text to which the Board points concerns an entirely different embodiment resulting from activation of a task and file manager function by executing a touch and glide gesture on the icon for the task and file manager, item 23. *Id.*, 5:3-6, Fig. 1 [item 23]; Fig. 6. As the specification explains, Figure 6 depicts a list "with a library of applications and files" that results from activating the task and file manager icon, *id*.; there is nothing tying this to the "services or settings of the operations system" that are displayed upon activation of the "general application dependent function" by touch and gliding away from the associated icon, item 21. *Id.*, 4:36-40; Fig. 1 [item 21]. This language concerns another embodiment not claimed in the '993 Patent, and the Board may not rely on it to conflate applications with system functions.

Second, claim 1 requires "icons for . . . predesignated system functions . . . ." *Id.*, 6:55-56. The Board identified the images "adjacent to the text of each list

entry" as the "tap-activatable icons for a plurality of pre-designated system functions." However, those images do not represent any of the nine listed applications individually, i.e., the icons are not "for" the listed applications, because the images adjacent to the text are all identical for each application and for the task manager function itself:

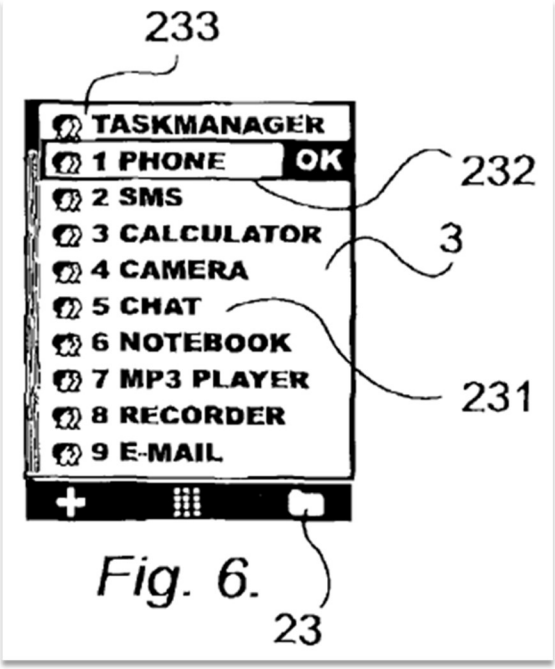


Fig. 6.

Id., 5:3-5.

Third, none of these icons are tap-activatable. The specification explains that the application or file is selected by "moving" the input device over the name of the application or file so that it is highlighted (Figure 7, E), and then tapping on the highlighted name or the "OK" button that appears next to the highlighted name (*see,* FIG. 6, item 232). *Id.*, 5:3-21; FIG. 7.

Accordingly, the '993 Patent's specification does not conflate applications and system functions; the content cited by the Board speaks only to applications. In light of this description in the specification, and of the plain meaning of the term to one of skill in the art, a POSA would have understood the term to mean "services or settings of the operating system." EX2013, ¶¶49-53.

III. GROUNDS 1A-1D: PETITIONERS FAIL TO SHOW THAT CLAIMS 1- 8 ARE OBVIOUS OVER HISATOMI AND REN, AND ASSORTED OTHER REFERENCES

A. Ground 1A: Petitioners Fail to Prove that Claims 1-3, 7 and 8 are Obvious Over the Combination of Hisatomi and Ren

1. Hisatomi is Not Prior Art

The '993 Patent is a continuation of an application filed December 10, 2002. The Hisatomi patent, which is Petitioners' primary reference for their Ground 1, was published February 20, 2002. EX1005, at 2. So Hisatomi was published 9 ½ months prior to the claimed priority date.

However, there is more to the story. The inventor, Magnus Goertz, conceived of the gesture-based user interface, including the use of swiping gestures to navigate to the Start Menu (as claimed in claim 1) and between applications, long before Hisatomi's publication date. Goertz, along with his business partner Thomas Eriksson, established Neonode AB in Sweden in around October 2000 to commercialize Goertz's vision of a handheld mobile device with a touch-sensitive display that a user could hold in one hand and navigate using swiping gestures

executed by the user's thumb. EX2014, p. 11; EX2015, ¶5, EX2016, ¶4. Initially, Goertz and Eriksson attempted to implement this vision using commercially available touchscreen technology, and produced a first prototype that was exhibited in March 2001 at the CeBIT electronics trade show in Germany. *Id*. However, they determined that the existing resistive and capacitive touch technologies were not capable of accepting touch input with sufficient sensitivity to enable implementation of Goertz's gesture-based interface. *Id*. So, Goertz conceived and developed an optical sensing technology (which later became known as zForce) in order to enable further development of the gesture-based interface, and by October 2001 had produced a second prototype incorporating the optical sensing technology. *Id*. Neonode filed an application to patent the optical sensing technology in Sweden on November 2, 2001. EX2017. Notably, the specification stated that the unit could be "actuated by a surface section of the thumb of the user," that the invention enabled "movement of the thumb along the upper surface 3a of the display unit," and the "the thumb 90 may be moved in a direction from left to right, so as to activate the "finish/close" function." EX2017, 14:45-47, 15:6-12.

By March 2002 Neonode had developed a third prototype of what later became the Neonode N1 mobile phone, and presented this third prototype at the 2002 CeBIT trade show, held in mid-March. EX2014, p. 11; EX2015, ¶3. This

prototype phone included programming for unlocking the phone by swiping along the bottom of the display from one side to the other. EX2005, at 14:6-15:9. Eriksson demonstrated the N1 prototype at CeBIT in March 2002, including the swiping gesture to unlock the phone. *Id.*, at 12:22-13:1, 14:12-19. So the invention of the '993 Patent was reduced to practice by no later than mid-March 2002, and was preceded by diligent efforts to accomplish that objective.

In addition, internal Neonode documents from 2003-04 confirm this timeline. For example, an internal Neonode hardware and software planning document indicates that Goertz and Eriksson had begun working on the "Operating system Shell" – including the "main user interface for N1" and "User Input through zForce (Patented user input system)" – by December 1, 2001, and had begun working on "User interface components" by February 10, 2002. EX2020. Goertz must have conceived of the gesture-based interface prior to both of these mileposts, which both predate Hisatomi's publication.

Articles in the trade press confirm this timeline. For example, Linus Brohult, a reporter with the Swedish magazine Mobil, wrote an article in 2009 recounting his impression of the N1 prototype at the March 2002 CeBIT trade show:

> In March 2002, I stumbled across Magnus Goertz at the German electronics trade show Cebit. He had a small Neonode stand in a corner of an exhibition hall and showed off his unusual touchscreen Windows mobile phone. Along with several other journalists, I started flocking around the small booth, where Magnus Goertz was showing off a prototype of a super-slim touchscreen mobile phone based on Microsoft's Windows CE system.

EX2021. The article reflects Eriksson explaining that he and Goertz had had to develop a touchscreen-controlled system (i.e., zForce) because they could not convince Microsoft "of the advantage of finger-controlled touch screen mobile phones." *Id.*

"[P]riority of invention goes to the first party to reduce an invention to practice unless the other party can show that it was the first to conceive the invention and that it exercised reasonable diligence in later reducing that invention to practice." *E.I. du Pont De Nemours & Company v. Unifrax I LLC*, 921 F.3d 1060, 1075 (Fed. Cir. 2019). The evidence shows that Goertz conceived of the idea of a mobile phone programmed to use swiping gestures for navigation in 2000, worked with Eriksson to commercialize the invention in 2001 but realized that capacitive and resistive touchscreen technologies were insufficiently sensitive to enable the gesture-based interface and so invented the zForce optical touch sensing technology in 2001, filing a Swedish patent on the zForce invention in November 2001. He and Eriksson continued working to develop the user interface technology by no later than December 2001, with the result that they had a working prototype with the swiping gestures programmed into the phone by mid-

March 2002, when they demonstrated the phone at the CeBIT trade show in Germany. Accordingly, it is clear that Goertz had already conceived of the gesture-based interface, including the invention of claim 1, by no later than the filing of the Swedish patent on zForce, i.e., November 2, 2001. The evidence above provides sufficient corroboration of Goertz's earlier conception and diligence. *See Unifrax*, 921 F.3d at 1077. That being the case, Hisatomi is not prior art with respect to claim 1.

2. Claim 1 is Not Obvious Over Hisatomi/Ren

a. Petitioners' Purported Hisatomi/Ren Combination Does Not Disclose a Tap-Present State (Limitation 1[b])

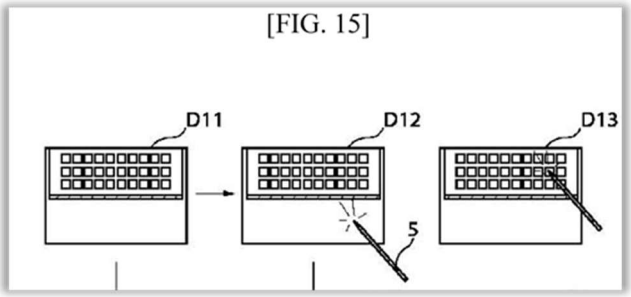
(1) Hisatomi Does Not disclose Tap-Activatable Icons or a Tap-Present State

Petitioners argue that Hisatomi discloses a "tap-present state including a plurality of tap-activatable icons" when a pull-out menu with GUI function buttons is displayed. In its Institution Decision, the Board found "that Hisatomi does not explicitly disclose a tapping gesture, which includes both a touch and a release for selecting icons in a pull-out menu." Paper 24, p. 29. This finding was correct.

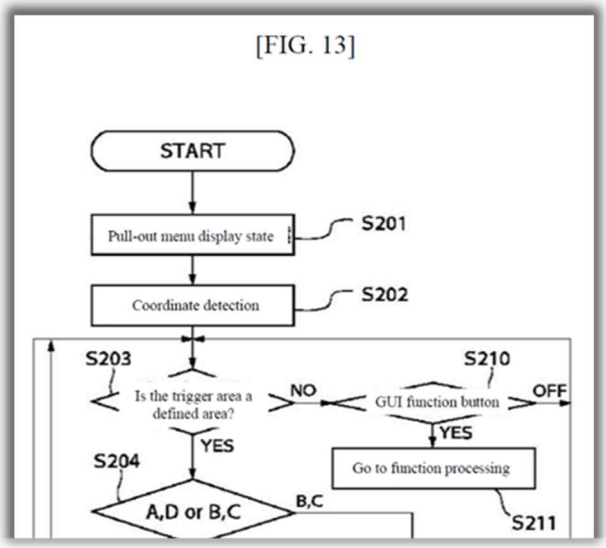
A POSA at the time of the invention would have distinguished between the tap-activation claimed in the '993 Patent and the touch-activation disclosed in Hisatomi. EX2013, ¶64. Although in performing both gestures the user touches and lifts off, or releases, the input device from the screen, processing of the desired

function is triggered by the coordinates of the initial touch in touch-activation—the eventual lifting off or release is immaterial to the processing. *Id.,* ¶¶65-71. In contrast to touch-activation, processing of the desired function is triggered by the release portion of the gesture in tap-activation. *Id.*

The GUI function buttons of Hisatomi's pull-out menus are touch-activated. Hisatomi describes the processing of a GUI function button with reference to Figure 15, reproduced in pertinent part below:



EX1004, FIG 15. The steps for initiating processing of a GUI function button are illustrated in Figure 13, reproduced in pertinent part below:



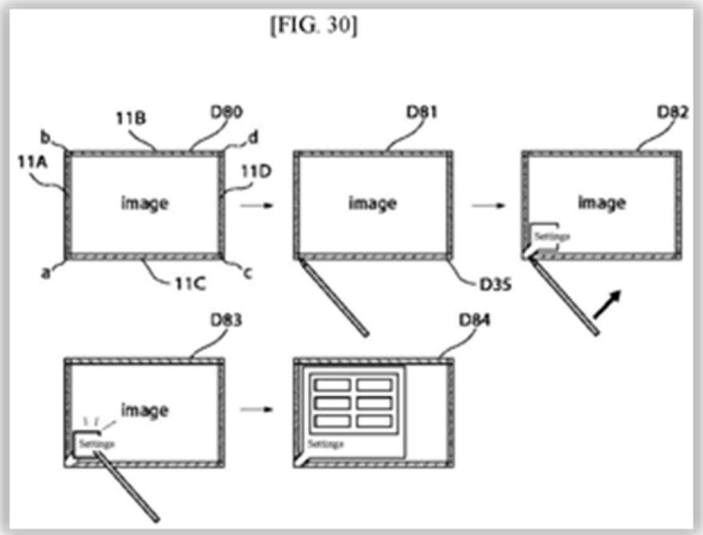
EX1004, FIG 13. With reference to Figure 13, Hisatomi explains that "in step S202, the position coordinate on the touch panel sensor 11 touched by the input device 05 will be detected." EX1005, ¶0054 (emphasis added). In step S203, the processing determines whether the coordinate value detected in step S202 is in a pull-out menu display trigger area, and if not, "it is determined whether or not the specific function button (GUI function button) in the pull-out menu was selected by the input device 05 (S210); if it is selected, the selected function will be processed (S211)." *Id.*, ¶0055; EX2013, ¶74. In other words, the processing associated with a GUI function button is activated (step S211) when the coordinates of the input device's touch correspond to those of the GUI function button. *Id*.

Hisatomi addresses how lifting the input device off the screen affects processing of a gesture, underscoring that activation is triggered by touch, not tap. Hisatomi defines "OFF" to mean "that the touch panel sensor 11 will no longer be in contact with the input device 05 and the coordinate will no longer be detected." EX1005, ¶0039. But an "OFF" event in Hisatomi causes the processing to stop, EX2013, ¶¶63, 66, as confirmed by several examples in Hisatomi. EX2013, ¶¶67-70; EX1005, ¶¶0041, 0043, 0047-48, 0052, 0055, Figs. 10-13.

Petitioners do not cite any disclosure of tap-activation in Hisatomi. They cite Bederson ¶130, stating that "each icon is capable of selection (activation) by a user touching or tapping the icon with the pen device." Pet., p. 34. There, Bederson states that "touching an icon on the screen with the pen (i.e., performing a tap) will select an icon and its related function." EX1002, ¶130. This conflates touch-activation with tap-activation. Moreover, Bederson's citation to Hisatomi clearly discloses touch, not tap. He cites Hisatomi's disclosure that "[t]he touch panel sensor 11 on the image display screen 09 is touched by the pen-type input device 05, the coordinate is designated by this touch, and various functions can be selected." *Id*., quoting EX1004, ¶0015. This quote describes touch-activation because the *coordinates of the touch* select the GUI function button to be activated, not lifting off of those coordinates. EX2013, ¶72.

Bederson also cites Hisatomi's Image D13 in Figure 15 as illustrating "a user *touch on an icon* within a pull-out menu" (EX1002, ¶130), seemingly acknowledging activation by touch. And he cites to "FIGS. 49, 50, 131," but Figures 49 and 50 are essentially the same as Figures 13 and 15 with respect to touch activation of a GUI function button, and Hisatomi has no Figure 131. EX1002 ¶130; EX1005, Figs. 13, 15, 49, 50. Bederson also cites paragraph 0189, but there Hisatomi refers to executing processing corresponding to a GUI function button selected by the input device 05, and makes clear that an "OFF" event will return the processing to the coordinate detection step. EX1005, ¶0189, FIG 49.

The Petition also cites Figure 30 Image D84 as depicting a tap-present state. Pet., p. 35. Figure 30 is reproduced below:



EX1005, Fig. 30. But the illustrations clearly illustrate a drag-activation gesture, not tap-activation, as the accompanying text confirms. EX1005, ¶0126. And

Petitioners cite EX1005 ¶0030, but this text clearly describes touch, not tap, activation.

Accordingly, Hisatomi does not disclose a "tap-present state" or "tap-activatable icons" for functions that are "activated in response to a tap ….."

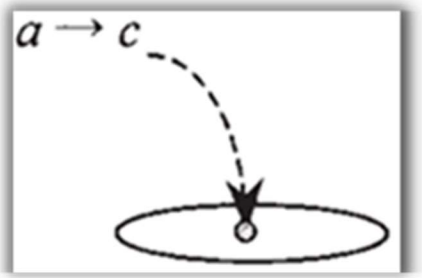
(2) A POSA Would Not have been Motivated to Incorporate the a→c→a Variant of Ren's Direct Off Strategy into Hisatomi

Petitioners' back-up argument is that "POSA knowledge" or Ren supplies the missing element of tap activatable icons. In order to meet their burden, they must explain why and how a POSA would have been motivated to incorporate that element of Ren into the Hisatomi device. *Personal Web Techs., LLC v. Apple, Inc*., 848 F.3d 987, 993-94 (Fed. Cir. 2017); *St. Jude Med., LLC v. Snyders Heart Valve LLC,* 977 F.3d 1232, 1242 (Fed. Cir. 2020). They fail to do so.

(a) Ren Teaches that the Direct On Strategy was Desirable, and the Direct Off Strategy was Undesirable for the Hisatomi Display

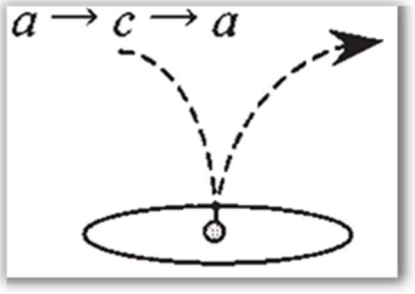
Ren is a research paper. EX1006, p. 384. It discloses the results of two experiments comparing "pen-based selection strategies and their characteristics." Id. The researchers tested six "activation strategies," two of which were "Direct On" and "Direct Off." *Id*., pp. 389-391.

The Direct On strategy is a touch-activation strategy. "The target is selected only momentarily at the time the pen makes contact with the screen in the target area." EX1006, p. 389. A relevant portion of Ren's Figure 3 is illustrative:



EX1006, FIG 3; EX2013, ¶84.

The Direct Off strategy is defined by the fact that the pen is lifted off the display from within the target. EX1006, p. 390; EX2013, ¶85. It includes two variants – a movement that touches the display outside the target, slides into the target and lifts off (the a→b→c→a variant), and a movement that touches the display inside the target and lifts off (the a→c→a variant). EX1006, p. 390. Ren's a→c→a variant is also illustrated in Figure 3:



EX1006, FIG 3; EX2013, ¶85.

The only teaching of Ren that Petitioners cite for motivation to combine Hisatomi and Ren is that Ren allegedly "teaches the desirability of using the tap or Direct Off technique, for example, in dense displays where targets are close together." Pet., p. 38; EX1002, ¶136. But this misrepresents Ren's teaching. While Ren does state that both Direct On (touch) and Direct Off (tap, in one variant) can be used, this states no more than was already known – both were technically viable for dense displays. However, between the two, Ren was clear as to which was preferred: Direct On (touch). EX2013, ¶¶87-89.

The actual teaching of Ren was that for displays like Hisatomi's, the Direct On (touch) technique was better across both speed and accuracy than the a→c→a Direct Off strategy. First, Ren confirmed experimentally that activation happens faster with Direct On. EX2013, ¶89. Ren's Figure 5 shows that the selection time was faster with Direct On (1027.5ms) compared to Direct Off (1543.9ms) in Experiment 1, and this difference was significant. EX1001, ¶72; EX1006, FIG 5. And in Ren's Experiment 2, where a wider range of icon sizes was used, Figure 11 shows that the difference in selection times was even greater. EX1001, ¶72; EX1006, FIG 11. Both experiments in Ren concluded that in terms of activation time, Direct On was preferable to Direct Off. EX1001, ¶72.

Petitioners will likely respond that Ren's Figure 6 states that the Direct Off strategy had a lower mean error rate than did the Direct On strategy. However, this

was nothing but an artifact of the design of the Ren experiment. Ren's Direct On strategy had only one route that yielded a successful selection – a direct touch from off of the display onto the target. Conversely, Ren's Direct Off strategy had two routes that yielded a successful selection – a direct on-off movement (the a→c→a variant) and also a movement beginning anywhere outside the target and sliding into the target before lifting off (the a→b→c→a variant). EX1006, p. 390 [Fig. 3 & Table I]. This artificially inflated the error rate for the Direct On strategy in relation to Direct Off. EX2013, ¶¶90-92.

Moreover, Ren disparages the significance of differences in error rates for targets of a size for which a POSA would have been programming. EX2013, ¶93. Ren discloses that it varied the target sizes, and that while there were significant differences in error rate for smaller targets (sizes of 1 to 2 mm), "there was no significant difference in error rate for the target size 9 pixels [about 3 mm], ..." EX1006, p. 399. For comparison, an icon on the Home Screen of an iPhone is about 11 mm in horizontal diameter. EX2013, ¶93. Given the size of the Hisatomi display, the icons in the pull out menus would have been understood to be at least 3mm in diameter, and very likely much larger. *Id*. Indeed, in reporting the results of a second experiment focused on determining the effects of varying target sizes on a more granular level, Ren revealed that the error rate differential between the Direct On and Direct Off strategies largely disappeared for targets of 2.5mm

diameter, and that Direct On had a lower error rate for targets of 3mm diameter, EX1006, p. 408 [Fig. 10], indicating a trend favoring Direct On by even greater margins for larger icons. EX2013, ¶¶94-95. A POSA would have read this teaching of Ren to disclose a sound basis for using the Direct On (touch) strategy, as it was superior to the a→c→a variant of Direct Off in both speed and accuracy. EX2013, ¶96.

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *Polaris Indus., Inc. v. Arctic Cat, Inc*., 882 F.3d 1056, 1069 (Fed. Cir. 2018) (internal quotes omitted). Moreover, "even if a reference is not found to teach away, its statements regarding preferences are relevant to a finding regarding whether a skilled artisan would be motivated to combine that reference with another reference." *Id*.

Ren's teachings are fatal to Petitioners' attempt to combine these references – the fact that a method can be used is not sufficient to prove that it would have been used. *Adidas AG v. Nike, Inc*., 963 F.3d 1355, 1359 (Fed. Cir. 2020); *Personal Web*, 848 F.3d at 993-94. A POSA would have understood that, to the extent that it is even relevant given its methodological flaws, Ren taught that the Direct On strategy was superior to the a→c→a variant of Direct Off for displays

such as Hisatomi's, and taught away from using Direct Off for such displays. EX2013, ¶96.

(b) The Hisatomi/Ren Combination Would have Addressed No Deficiency, and would have Provided No Benefit to Hisatomi

Another reason that a POSA would not have modified Hisatomi in the manner Petitioners propose is that there was simply no practical reason to do so. The prior art should be considered for all of its teachings, and "[t]he benefits, *both lost and gained*, should be weighed against one another." *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331-32 (Fed. Cir. 2019) (emphasis in original). Here, the benefits lost to Hisatomi via Petitioners' combination greatly outweigh any hypothetical advantage.

First, incorporating the a→c→a variant of Direct Off into Hisatomi would have addressed no deficiency present in Hisatomi. The principal reason a programmer would have coded an action to be executed upon lift-off from the display (Direct Off) as opposed to upon touch (Direct On) would be to differentiate from certain functions executed based on a sustained contact with the display, such as a drag and drop operation. For example, in Microsoft Windows in 2002 a "mouse down" (touch) operation on a desktop icon would enable a user to drag the icon to another location on the display but would not activate the function represented by the icon; that would only happen if the user conducted a quick

"mouse down" - "mouse up" (tap) operation. EX2013, ¶97. In Hisatomi, however, there is no disclosure that the icons in the pull out menus are movable via a drag and drop operation, nor do the images in Hisatomi suggest that they would have been. *Id*. Accordingly, there would have been no benefit to substituting tap (the a→c→a variant of Direct Off) for touch (Direct On) in Hisatomi. *Id.*

Second, exchanging Hisatomi's Direct On for a Direct Off activation interface would have provided no benefit to Hisatomi in terms of speed of execution, reduced error rates, ease of use, or any other relevant metric. EX1006, p. 395 [Fig. 5], 408 [Fig. 10]; EX2013, ¶98. In fact, as shown above, a POSA would have understood that doing so would have denigrated the Hisatomi interface with respect to all of those metrics. EX2013, ¶¶87-96.

Accordingly, a POSA would have seen no motivation to incorporate the inferior Direct Off technique into Hisatomi's interface. *Apple Inc. v. Voip-Pal.com, Inc*., 976 F.3d 1316, 1325 (Fed. Cir. 2020); *Arctic Cat Inc. v. Polaris Indus., Inc*., 795 Fed. Appx. 827, 832-34 (Fed. Cir. 2019).

(c) *Ren's* a→c→a Direct Off Variant Would Not have been Obvious to Try with Hisatomi

Petitioners' remaining arguments all state some variation of the assertion that it would have been "obvious to try" to incorporate Ren's Direct Off strategy into Hisatomi's interface. None of these satisfy their burden.

First, regardless of how many selection techniques were known or disclosed by Ren or how "ubiquitous" tap selection was, a POSA would not have been motivated to try to implement the Direct Off strategy on Hisatomi's device because Ren taught that it was inferior to Hisatomi's touch activation methodology and it would have resulted in an inferior device. It is not sufficient simply to show that the Direct Off strategy was known; Petitioners must show a motivation to make their proposed combination. *Rolls-Royce, PLC v. United Techs. Corp*., 603 F.3d 1325, 1339 (Fed. Cir. 2010). Here, Petitioners propose no design need or market pressure, or any other motivation, that would have suggested that a POSA should hobble the Hisatomi device with an inferior interface. EX2013, ¶¶99-104. Accordingly, there was no motivation to combine. *Id*.

Second, Petitioners' "predictable results" assertion fails because Ren taught that the use of Direct Off with a display such as Hisatomi's would predictably lead to an inferior interface in terms of speed and error rate. EX2013, ¶¶88-96.

Finally, Petitioners' conclusory assertions of "common knowledge" and the like amount to little more than suggesting that Hisatomi and Ren *could* have been combined. More is required. *Adidas AG*, 963 F.3d at 1359; *Personal Web*, 848 F.3d at 993-94. Petitioners fail to provide it, so their combination fails.

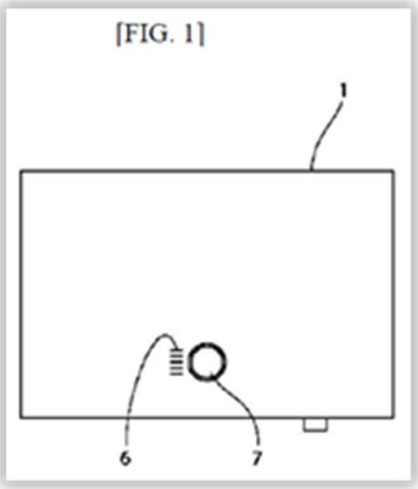
Petitioners proffer no reasoned explanation as to why a POSA would have been motivated to incorporate a specific element from one reference (the a→c→a

variant of Ren's Direct Off strategy) into the disclosure of another reference (Hisatomi) to implement tap activation. Simply asserting the ubiquity of their preferred selection technique does not satisfy their burden. *E.g., Apple*, 976 F.3d at 1324-25.

b. Hisatomi does Not Disclose Icons for a Plurality of System Functions (Limitation 1[b])

For claim 1, Petitioners refer obliquely to Hisatomi's "function lists," but neither they nor Bederson assert that the associated icons constitute icons for system functions. With reference to claim 6, Petitioners argue that Hisatomi discloses "system functions" in Hisatomi's paragraphs 0013-14 and Figure 1. Pet., pp. 60-61, EX1002, ¶178. They are plainly wrong.

Hisatomi paragraphs 0013-0014 describe hardware—that the disclosed device is equipped with a camera 07, microphone 06, and shutter switch 08. EX1005, ¶0013-14; EX2013, ¶106. The shutter switch is a two-position mechanical switch. *Id.* And Figure 1 illustrates the side of the device that contains the camera and microphone hardware, reproduced below:



EX1005, FIG 1. There is no disclosure here of icons for system functions.

Bederson also refers to Hisatomi's "function lists" as including system functions, referring to such things as character input, color palette selection, search, save, etc. EX1002, ¶178. There are two problems with Bederson's reliance on Hisatomi's function lists. First, the cited "functions" are not system functions; rather, they are exactly the types of functions that the '993 Patent specification described as encompassed by the unclaimed embodiment that is activated when a user activates the graphic while a currently active application is running. EX1001, 4:31-35 ("If for instance the active application handles a picture, then the icons that are shown when the first function is activated can be services such as "save to disk", "send as SMS", or "delete" and they can be settings such as "resolution", "colour", or "brightness".). These are application functions, not system functions. EX2013, ¶107.

Second, even if at least some of the cited functions were system functions, Hisatomi's pull out menus do not contain icons for system functions. Claim 1 focuses on what is presented to the user – the icons and what they represent – not on the underlying functionality, as befits a patent directed to a novel user interface. EX2013, ¶108. As the specification teaches, an icon presented within an application is not an icon for a system function, regardless of whether the function that it represents will ultimately involve a call to an operating system function. *Id*. For example, a "save" icon presented in the Word application is not an icon for a system function; rather, it is an icon for an application function (the "save" function enabled in Word), even though the application programming may make a call to the operating system in connection with a save command. *Id*. This is consistent with the '993 Patent's teaching that a "save" or "delete" command entered in an active application is an aspect of the unclaimed embodiment involving icons for application functions. *Id.*; EX1001, 4:31-35.

Hisatomi discloses a device for taking, storing and processing images. EX1002, ¶178. And a POSA would understand that the GUI pull out menus enabled on the Hisatomi device present icons for an application – a digital camera application. EX2013, ¶109. This is clear from Figure 9, which depicts the high-level process flow of the device. The first step taken by the device upon Power ON (S11) is "Regeneration," which involves regenerating previously taken images

so they "become a display state possible to be viewed like an album." EX1005, ¶0034; EX2013, ¶109. From here, the user may, e.g., take a photo by pressing the shutter switch, or pull out a menu. EX1005, ¶0035-36. At this point, it is clear that the device's camera application is already active – it is presenting an album of photos on the display screen. EX2013, ¶109. Accordingly, the icons presented by Hisatomi's pull out menus are not icons for system functions; rather, they are icons for services or settings of the device's camera application. EX2013, ¶109.

Accordingly, Hisatomi does not disclose "icons for … system functions."

3. Claims 2, 7-8 are Not Obvious Over Hisatomi/Ren

Claims 2 and 7-8 depend from claim 1. Petitioners fail to carry their burden with respect to these claims for the reasons set forth above with respect to claim 1.

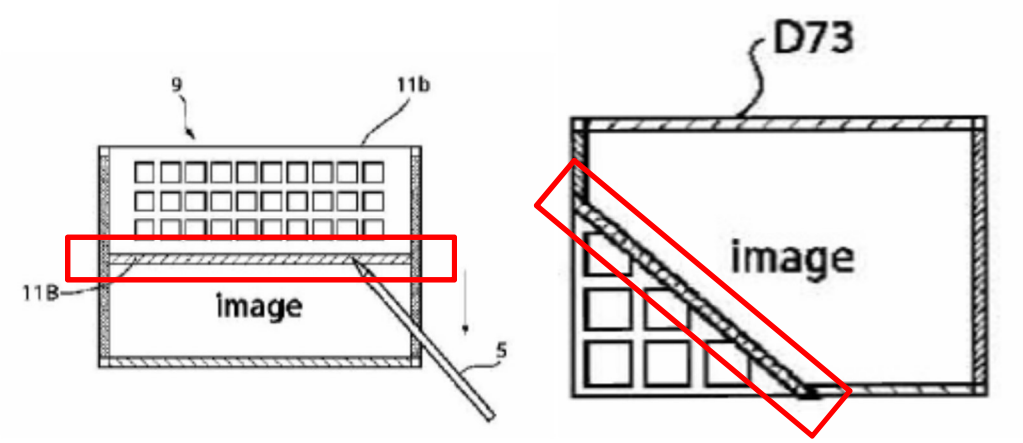
4. Claim 3 is Not Obvious Over Hisatomi/Ren

Claim 3 recites that "the tap-present state does not display the tap-activatable icons within a window frame." Petitioners' attack on claim 3 fails for the reasons set forth above with respect to claim 1. In addition, Petitioners fail to satisfy their burden for Claim 3 specifically. They rely on Hisatomi for disclosure of tap-activatable icons that are not displayed in a window frame. But all of Hisatomi's (touch)-activatable icons are depicted within a window frame.

Petitioners point to Figures 7 and 28 (image D73), asserting that the icons are not contained within a window frame because "the icons cannot be moved and

remain anchored to an area." Pet., p. 51. Whether the icons can be moved is, however, beside the point; what is relevant is that there is a border (frame) between the windowed content and the remainder of the GUI, and the window displays output from and allows input to one or more processes that may be separate from those executing on the GUI outside the window. EX2013, ¶113. In addition, the fact that a border between regions of the GUI is movable, while not required, is strongly indicative that a bounded region constitutes a separate window from the rest of the GUI. *Id*. Petitioners also think it important that Hisatomi's "function list" may be expanded to cover the entire screen, but this again is irrelevant, as the area enclosing the pull-out menus may be contracted at will by the user, just as a window containing a Word document may be expanded to cover an entire display or contracted at will. *Id*.

Petitioners' selected images show that Hisatomi's pull-out menu icons are enclosed within a movable border functionally separating the enclosed icons from the remainder of the GUI:



Pet., p. 51. The movable border defines the working area within which Hisatomi's icons may be activated; inputs at a location on the display that is within the area defined by the movable border will execute different functions than they would at the same location if the border were scrolled closed and no longer encompassed that location. As it is scrolled across the screen, the space available for Hisatomi's "image" is reduced; as it is scrolled back to the display edge, the space available for Hisatomi's image increases. Accordingly, Hisatomi's movable "trigger areas" constitute a window frame, and the icons in Hisatomi's pull-out menus are enclosed within a window frame. EX2013, ¶114.

B. Ground 1B: Petitioners Fail to Prove that Claim 4 is Obvious Over the Combination of Hisatomi/Ren and Allard-656

Claim 4 recites "[t]he computer readable medium of claim 1, wherein the plurality of pre-designated system functions comprises a help function." Petitioners rely on the combination of Hisatomi and Allard-656 to allegedly render claim 4 obvious. This combination fails, for two independent reasons.

1. Allard-656 is Not Analogous Art

First, Allard-656 is not analogous art. "A reference qualifies as prior art for an obviousness determination under § 103 only when it is analogous to the claimed invention." *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011). "Prior art is analogous where either (1) 'the art is from the same field of endeavor, regardless of the problem addressed' or (2) even if the reference is not within the same field of endeavor, 'the reference still is reasonably pertinent to the particular problem with which the inventor is involved.'" *Polygroup Ltd. MCO v. Willis Elec. Co*., 759 Fed. Appx. 934, 941-42 (Fed. Cir. 2019) (quoting *In re Ethicon, Inc*., 844 F.3d 1344, 1349 (Fed. Cir. 2017)). Petitioners bear the burden of showing that Allard-656 is analogous art. *See Dynamic Drinkware, LLC v. National Graphics, Inc*., 800 F.3d 1375, 1378-79 (Fed. Cir. 2015).

a. Allard-656 is Not in the Same Field of Endeavor as the '993 Patent

The field of endeavor of the '993 Patent is that of user interfaces for handheld mobile computer units. This is evident from the patent itself. The title of the patent is: "USER INTERFACE FOR MOBILE HANDHELD COMPUTER UNIT." EX1001. The Abstract begins: "The present invention relates to a user interface for a mobile handheld computer unit, ..." EX1001, Abstract. The figures illustrating the invention all depict a display of a handheld computer unit,

or the front of the handheld computer unit, or a user's thumb or finger interacting with the display. EX1001, Figs. 1-14. The specification explains that "[t]he present invention relates to a user interface for a mobile handheld computer unit, describes "[m]obile handheld computers" in the description of background art and identifies the "[t]echnical problems" as including that of providing "a simple way to make the most commonly used functions for navigation and management available in the environment of a small handheld computer unit." EX1001, 1:14-18, 1:33-36, 1:55-2:4. The "Solution" is addressed "with the staring [sic] point from a user interface for a mobile handheld computer unit," EX1001, 2:8-10, and the "Advantages" are described as "primarily associated with a user interface or a computer readable medium according to the present invention reside in the ability to establish a user friendly interface for small handheld computers, ..." EX1001, 3:19-24. The description of the preferred embodiments is directed to "a user interface for a mobile handheld computer unit." EX1001, 3:57-58. Claim 1 recites that the invention claimed is "[a] non-transitory computer readable medium storing instructions, which, when executed by a processor of an electronic device having a touch-sensitive display screen, cause the processor to enable a user interface of the device, ..." EX1001, 6:50-53. There is no question but that the field of endeavor of the '993 Patent is that of user interfaces for handheld mobile computer units.

The field of endeavor of Allard-656 is that of mechanical engineering solutions. EX2013, ¶123. Allard-656 is directed toward adjusting the contrast control of an LCD display using external mechanical buttons *when the user interface is opaque or transparent. Id.* It is not concerned with the user interface displayed on the LCD, because the starting point of Allard-656 is that the user interface is not visible to the user without adjusting the LCD's contrast. *Id.* This is the antithesis of the '993 Patent, which is drawn to features of the user interface, and touch screen gestures that the user may execute to operate functions displayed on the user interface. *Id.*

b. **Allard-656 is Not Reasonably Pertinent to the Problem Addressed by the '993 Patent**

"A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." *In re Clay*, 966 F.2d 656, 659 (Fed. Cir. 1992); *Smith & Nephew, Inc. v. Hologic, Inc*., 721 Fed. Appx. 943, 949 (Fed. Cir. 2018). The problem addressed by *Allard-656* bears no logical relation to the problem addressed by the '993 Patent.

The problem the '993 Patent sought to solve was providing an easily navigable user interface for a small handheld computer unit. EX2013, ¶124. In the

description of the background art, the specification notes that the "need to manage more information has led the development towards new solutions regarding user interfaces and navigation." EX1001, 1:44-46. As a result, "[t]he PDA's and mobile phones are getting larger and larger in order to provide a user-friendly interface." *Id.,* 1:46-47. However, "[s]ince the users have gotten used to small handheld units, it is hard to move towards larger units." *Id.,* 1:38-39. This has "led to foldable keyboards, different kinds of joy sticks and different kinds of touch sensitive displays and pads intended to help in providing a user interface that is suitable for small handheld computer units." *Id.,* 1:48-53. The specification describes the problem solved by the invention, to provide a user interface that is "user-friendly," or "simple to use," etc. EX1001, 1:59-65. The solution is a touch sensitive screen with a user interface displaying representations of functions and icons that are activatable by user gestures. EX2013, ¶124.

The problem Allard-656 sought to solve was entirely different: that of how to adjust an LCD display's contrast level when the user interface is either opaque or transparent and therefore not usable by the user. EX2013, ¶125-127. This problem bears no relationship to the problem addressed by the '993 Patent, which is how to improve user interaction with a displayed user interface using graphical features and gestures *without* using external devices. EX2013, ¶128.

2. A POSA Would Not have been Motivated to Combine Hisatomi and Allard-656

Second, even were Allard-656 cognizable for Petitioners' combination, a POSA would not have been motivated to combine it with Hisatomi.

For a motivation to combine Hisatomi with Allard-656, Petitioners argue that "[a] POSA would have been motivated to do so at least because utilizing a help icon was a well-known practice with benefits that would have been immediately apparent to a POSA." Pet., p. 56. But Hisatomi already addresses the desirability of a help function and discloses a solution. Hisatomi notes the need for a help function, Ex. 1005, ¶222, and teaches as a solution that when the pointing device is placed on an icon that corresponds to a function, "a part of the pull-out menu will be cut out and then displayed as the 'partial cut-out help in the pull-out menu,' so as to make it easy to check the contents of the pull-out menu." Id., ¶223. Hisatomi then discloses how to implement this help function in Figs. 55, 57 and paragraphs 224-240.

So Hisatomi already disclosed a help function, which did not include a dedicated help icon, to avoid the "annoyance" of having to pull each particular menu out as a precondition to check its contents. EX1006, ¶222. And, although claim 4 does not expressly recite an icon, that is what is required, because the help function of claim 4 is a constituent of the system functions of claim 1, which are

activated in response to a tap on the corresponding icon. EX1001, 6:55-58, 7:6-8. A POSA would have seen no deficiency in Hisatomi to be remedied by the addition of a "Help" icon, and adding such an icon to each pull-out menu as Petitioners suggest would have done nothing but layer another step onto the process for executing the help function. EX2013, ¶¶131-133. Hisatomi's method was better adapted to Hisatomi's interface, and so a POSA would not have been motivated to change the device in the manner Petitioners propose. *Id*.

Petitioners conclude with make-weight points that both Hisatomi and Allard-656 are "directed to pen input on a touch user interface of a handheld device," that they "address the same issues" and "solve the same problem," that need for a help function was "obvious," and to implement it would have been with the ordinary skill in the art. Pet., p. 57. To the extent that this is not simply false, EX2013, ¶134, it is not sufficient to show a motivation to combine references. *Microsoft Corp. v. Enfish, LLC*, 662 Fed.Appx. 981, 990 (Fed. Cir. 2016); *Securus Techs., Inc. v. Global Tel*Link Corp.,* 701 Fed.Appx. 971, 977 (Fed. Cir. 2016). As shown above, Allard-656 is not analogous prior art, and these conclusory arguments do not satisfy petitioners' burden. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 428 (2007).

C. Ground 1C: Petitioners Fail to Prove that Claim 5 is Obvious Over the Combination of Hisatomi/Ren and Tanaka

Claim 5 recites "[t]he computer readable medium of claim 1, wherein the plurality of pre-designated system functions comprises a clock function." They rely on the combination of Hisatomi and a "Clock" icon from Tanaka for this disclosure.

Petitioners fail to identify a POSA motivation to modify Hisatomi to add Tanaka's icon. Petitioners argue that a POSA would have been motivated to include a clock function "because the ability to identify the current time as well as the passage of time without viewing a separate device was desirable across the variety of devices in which Hisatomi teaches its device could be implemented." Pet., p. 59. But while this argument may speak to a motivation to add a clock function, it provides no motivation to add a clock icon within a menu of system functions, as opposed to a persistent clock display on the screen. And as with claim 4, a clock icon is what is required. In fact, requiring a user to activate an icon in order to see the time would have been an inferior solution to simply including a persistent clock display, which is why that was the typical solution in 2002 (and today) for notebook-sized devices such as Hisatomi. EX2013, ¶136.

While Petitioners argue that Hisatomi discloses off-screen function lists, and "describes the desire to not obscure the image on the editing screen, as would have

been required to always display a clock" (Pet., p. 58), a persistent clock display does not "require" obscuring the displayed image. Petitioners note that Hisatomi discloses that its user interface may be applied to "a still camera, a video camera, a notebook computer, a head mounted display, a car navigation system, or the like." Ex. 1005, ¶243. But all of these devices, which also display images, typically implement a clock function with a small persistent clock display. EX2013, ¶137. Even Bederson admits that his clock function could be "persistent at the edge of the screen or in the form of an icon." *Id.;* EX1002, ¶173.

Even had Petitioners shown a POSA motivation to modify Hisatomi to add some sort of a clock, they have not shown a motivation to do so in the form of a clock icon as opposed to the more typical persistent time display found "across the variety of devices in which Hisatomi teaches its device could be implemented." Petitioners fail to proffer any reason for a POSA to modify Hisatomi to add Tanaka's icon, in light of the evidence of compelling reasons for a POSA to prefer a persistent clock display. They therefore fail to carry their burden of proving motivation to add a clock icon to Hisatomi.

D. Ground 1D: Petitioners Fail to Prove that Claim 6 is Obvious Over the Combination of Hisatomi/Ren and Kodama

Claim 6 recites "[t]he computer readable medium of claim 1, wherein the plurality of pre-designated system functions comprises an alarm function."

Petitioners rely on the combination of Hisatomi and Ren with Kodama, but fail to prove a motivation to combine Hisatomi with Tanaka to add an alarm function, much less an alarm icon (required for the same reasons as for claim 4).[1]

Petitioners' arguments for motivation to incorporate Kodama's alarm function into Hisatomi/Ren amount to nothing but an argument that it would have been obvious to try. They argue that Hisatomi and Kodama "are both directed to user interfaces for pen-based handheld devices" (Pet., p. 62), but this proves nothing; Hisatomi was directed to a device for taking, processing and saving images (such as photographs), and a POSA would have seen no reason to add an alarm function to such a device. EX2013, ¶142. They contend that it "would have been obvious" to include an alarm function as one of Hisatomi's icons, but the sole

[1] Petitioners also reference a Palm owner's manual as showing that alarm functions were common in the art. However, the Palm reference does not disclose an alarm icon; rather, it discloses an alarm function accessible through the clock icon. The content highlighted at paragraph 180 of Bederson's declaration is not an alarm icon, but rather merely text with an "OFF" button accessible within the alarm dialog box. EX1027, p. 130. Accordingly, the Palm reference does nothing for Petitioners' showing.

reason they proffer is that it would have been desirable to have an alarm that a user could set to manage the amount of time spent on editing functions. But this is pure hindsight bias, driven by our modern experience with smartphones. EX2013, ¶145. In 2002, prior to the advent of smartphones that incorporated "lifestyle" functionalities such as photo editing into a mobile communication device, neither a POSA nor the average consumer would have considered it beneficial to package an alarm with an image editing device; the lack of an alarm on such a device would not have been considered a "deficiency" to be remedied. *Id*. The same is true of the additional implementations listed at Hisatomi's paragraph 243, and Petitioners make no effort to prove the contrary. Accordingly, here again Petitioners fail to prove motivation to combine.

IV. PETITIONERS HAVE NOT SHOWN THAT CLAIMS 1- 8 ARE RENDERED OBVIOUS BY THE PRIOR ART ASSERTED IN GROUNDS 2A-D

A. Ground 2A: Petitioners Fail to Prove that Claims 1-3, 7 and 8 are Obvious Over the Combination of Hansen and Gillespie

1. Claim 1 is Not Obvious Over Hansen/Gillespie

a. Hansen Does Not Disclose an "Electronic Device" As Recited in the Preamble (Limitation 1[pre])

Claim 1 of the '993 Patent recites "a non-transitory computer readable medium storing instructions, which, when executed by a processor of an electronic device having a touch-sensitive display screen, cause the processor to enable a user

interface of the device." EX1001, 6:50-53. So, at least two things are required by the preamble: a computer-readable medium storing instructions, and an electronic device with a touch-sensitive display screen and a processor that executes those instructions. Hansen lacks at least the second.

Hansen does not disclose the preamble to claim 1, which is limiting (as set forth in Section II.A above), for at least two independently sufficient reasons. First, Hansen does not disclose a mobile handheld computer, much less one that includes a touch-sensitive display. Accordingly, if the Board adopts Patent Owner's proposed construction of "electronic device," Petitioners' Ground 2A fails.

Second, even if the Board declines to adopt Patent Owner's construction, Petitioners still fail because Hansen does not disclose a "plain meaning" device having the required structure. In its Institution Decision, the Board preliminarily found it sufficient that the "separate components" of Hansen's system "function in a unified and interdependent way for implementing Hansen's interface." Paper 24 at 41-42. Neonode respectfully responds that this is beside the point; what is required is "an electronic device" having the recited structure, EX1001, 6:51-53. not a system of separate components.

While the indefinite article "an" *may* carry the meaning of "one or more" in open-ended claims, it does not do so here: where the patentee evinces a clear intent

to limit "a" or "an" to "one" of something, the claim requires only one of that thing. *Convolve, Inc. v. Compaq Comput. Corp.*, 812 F.3d 1313, 1321 (Fed. Cir. 2016) is instructive. There, the Federal Circuit considered a claim that recited a "[u]ser interface for…working with a processor…comprising:" a means for controlling seek time on a data storage device, and a "means for causing the processor to output commands to the data storage device." *Convolve*, 812 F.3d at 1321. The court found that the "the language and structure of claim 1 demonstrate a clear intent to tie the processor that 'output[s] commands to the data storage device' to the 'user interface.'" *Id.* It emphasized that the claim recited "a processor" in the preamble before recitation of "comprising," and the claim body used the definite article "the" to refer to the "processor:"

> This reference to "the processor," referring back to the "a processor" recited in preamble, supports a conclusion that the recited user interface is "operatively working with" the same processor to perform all of the recited steps. In other words, the claim language requires a processor associated with the user interface to issue the shaped commands of the claims.

Id. The court concluded that the claims "require the user interface to work with a single processor in performing all of the claim steps." *Id.*

Similarly, in *Varma v. Int'l. Bus. Machines Corp.*, 816 F.3d 1352 (Fed. Cir. 2016), the patent was directed to methods and systems for performing statistical analyses of investment data. The claims at issue recited "a statistical analysis

request corresponding to two or more selected investments." *Varma,* 816 F.3d at 1362. In an IPR, the Board ruled that the claim encompassed a request that calls for a statistical analysis of a single investment, in other words, two or more statistical analysis requests each corresponding to a single investment would meet the limitation. *Id.*

The Federal Circuit reversed, holding that the claim required a single request that corresponded to at least two investments. *Id.* The Federal Circuit rejected the Board's rationale based on the preamble's open-ended transitional phrase "comprising":

> Comprising means that the claim can be met by a system that contains features over and above those specifically required by the claim element, but only if the system still satisfies the specific claim-element requirements; the claim does not cover systems whose unclaimed features make the claim elements no longer satisfied.

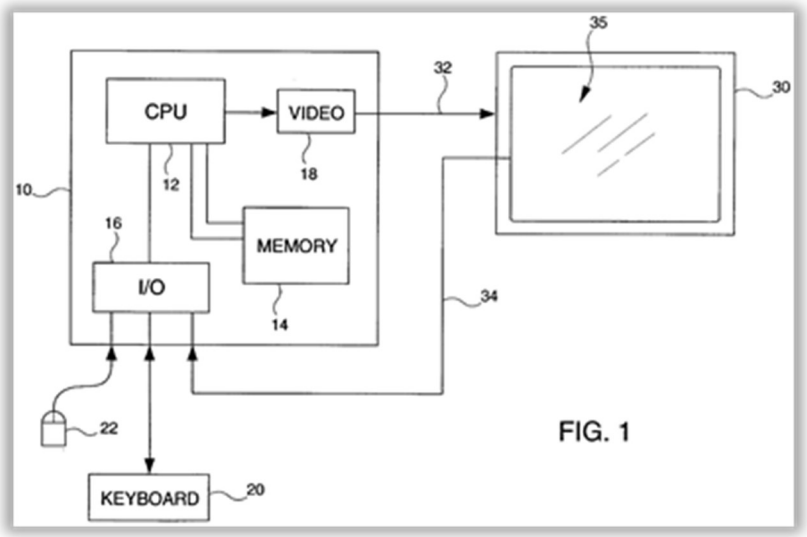
Varma, 816 F.3d at 1362. Thus, the claim phrase at issue could embrace a system that receives more than one request, provided that "a request" corresponds to two or more selected investments. *Id.* The Federal Circuit also rejected the Board's rationale based on the indefinite article "a" before "statistical analysis request":

> And here the question is not whether there can be more than one request in a claim-covered system: there can. Rather, the question is whether "a" can serve to negate what is required by the language following "a": a "request" (a singular term) that "correspond[s]" to "two or more selected investments." It cannot.

Id., at 1362-63.

Here, Claim 1 expressly requires "an electronic device" that has both a processor and touch-sensitive screen. The preamble recites that the claim is a computer readable medium claim, *not a system claim*. EX1001, 6:50-54. It requires a processor that executes instructions stored on that computer readable medium, and recites that the processor is "a processor of *an* electronic device having a touch-sensitive display screen." *Id.* And the stored instructions cause the processor to enable "a user interface of *the* device." *Id.* Three electronic devices, one having a processor, one having a display and the other having a touch sensitive screen, do not meet this limitation. And, as shown above, the specification, which only discloses a single device having all of the recited structure, fortifies this interpretation. As the Court observed in *Varma*, "[f]or a dog owner to have 'a dog that rolls over and fetches sticks,' it does not suffice that he have two dogs, each able to perform just one of the tasks." *Varma*, 816 F.3d at 1363. Yet that is what Petitioners and the Board have done here, disaggregating the required structure and reading it across multiple devices. That is reversible error.

Hansen does not disclose an electronic device having both a processor and a touch-sensitive display screen. Rather, Hansen discloses a conventional desktop computer *system*, illustrated in Figure 1, reproduced below:



EX1029, FIG 1. In Figure 1, Element 10 is a computer board "which includes a Central Processing Unit (CPU) 12, a memory unit 14, an input/output port 16 and a video controller 18." EX1029, 3:51-54. Element 30 is a video monitor, coupled by a lead to the video controller 18. *Id.*, 4:10-11. And "the video monitor 30 is equipped with a touch-sensitive screen 35, which overlays the video monitor." *Id.*, 4:8-10. Hansen states that an example of the touch-sensitive screen 35 is the "Mac-n-Touch" made by the Micro-Touch company (EX1029, 4:20-23), shown below:

MicroTouch®

Mac 'n Touch™

Technical Data Sheet

MicroTouch Technology

The Mac 'n Touch Screen is based on MicroTouch's patented analog capacitive sensing technology. Each Screen is made of a single glass sheet with a resistive coating bonded to its surface. The glass surface is virtually impervious to scratches from sharp objects such as pencils and pens, and retains its clarity over time. Any point on the Screen will accurately read at least two million touches.

The Screen's controller measures the position of a capacitive coupling when a finger or conductive stylus touches the surface. The Screen offers a resolution of 1024 x 1024 touch points which results in highly precise readings anywhere on the sensor. In addition, the Screen's controller averages the entire area of touch contact, allowing even a finger to easily address an individual pixel.

EX2003 (Copyright 1988).

In Hansen, the CPU, video monitor, and touch-sensitive screen are three distinct electronic devices. The "electronic device" with the processor disclosed in Hansen, the CPU, does not have a touch-sensitive display screen. EX1001, ¶91. And there is no "electronic device" with a "touch-sensitive display screen" – rather, there is a display screen (the monitor, item 30) that accepts output from the computer, and a separate touch-sensitive input device (item 35) that provides input to the computer, neither of which has a processor that reads instructions from the memory. *Id*.

So, even absent Patent Owner's proposed construction, Hansen fails to satisfy the preamble. Indeed, even Petitioners do not contend that Hansen discloses a device with the required structure – they assert that Hansen discloses a

computer system that includes various components that collectively satisfy the preamble, which is insufficient on its face. For the reasons set forth above, Petitioners' showing fails.

b. Hansen does Not Disclose Icons for a Plurality of System Functions (Limitation 1[b])

Petitioners assert that the icons A-H illustrated in Hansen Figure 3B are a "plurality of pre-designated system functions." Pet., pp. 65-66; EX1002, ¶187. This is incorrect; in fact, Hansen discloses icons for applications, not system functions. EX2013, ¶¶152.

A POSA would have understood that the "plurality of computer programs" selected by the user and executed in Hansen are applications. EX2013, ¶154. This follows from two simple facts: (i) Hansen states that the working window opened by touching an icon is for an "application program," EX1029, 6:30-33, and (ii) there is no reference anywhere in Hansen to an icon for activating anything that a POSA would associate with a system function, and (iii) a POSA would have read Hansen as referring to applications, not system functions, because the "working window" of Hansen is for an application. *Id*. Although Petitioners assert that a computer program is a type of system function, this is incorrect in the context of Hansen, which specifically refers to the programs as "application

program[s]." EX2013, ¶155. A POSA would not have understood Hansen's computer program to be a type of "system function." *Id*.

Hansen does not disclose icons for a plurality of pre-designated system functions. EX2013, ¶156. Petitioners therefore fail to carry their burden with respect to limitation 1[b].

c. Hansen Does Not Disclose a Tap-Absent State (Limitation 1[c])

Claim 1 recites "a tap-absent state, wherein tap-activatable icons are absent." EX1001, 6:58-59. However, Hansen clearly discloses a desktop system implemented on a standard windows-based platform. EX2013, ¶158. Indeed, Hansen repeatedly refers to typical prior art windows that are open on the display of his system, both before a "working window" is opened and after it is closed. EX1029, 5:9-17, 6:34-37, Figs. 3A, 3B. As a POSA would know, such windows typically include a title bar containing at least tap-activatable icons to minimize, maximize and close the window. EX2013, ¶158. The applicant distinguished the then-pending claims over Hansen on exactly this basis, and Petitioners proffer no reason now to reconsider the examiner's decision on this point. EX1003, at 156-57. While Petitioners assert that Hansen discloses a tap-absent state, they rely on Figure 3A, which expressly discloses windows (W1 and W2) on the Hansen

display, thereby proving the opposite. Bederson has nothing more. EX1002, ¶188. Accordingly, Petitioners fail to prove that Hansen discloses a tap-absent state.

d. A POSA Would Not have been Motivated to Incorporate an "Otherwise Activatable Graphic" Into Hansen's Display (Limitation 1[c])

Claim 1 recites "an otherwise activatable graphic" that "is present in a strip along at least one edge of the display screen." Hansen teaches a two-centimeter-wide region along one edge of the display that recognizes a "first predetermined input stroke," i.e., a swiping gesture. Petitioners acknowledge that Hansen does not disclose the recited graphic, but argue that a POSA would have been motivated to modify Hansen to define Hansen's "predetermined area" with dashed lines, a contrasting color, and an inserted double-arrow graphic:

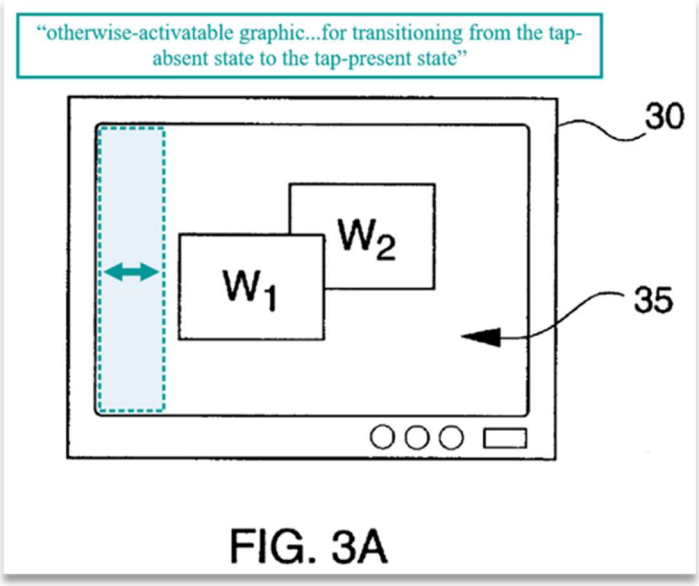


FIG. 3A

EX1002 ¶193. Petitioners' hindsight-generated creation fails to carry their burden, for multiple reasons.

(1) Hansen Teaches Away from Petitioners' Proposed Modification, and Petitioners' Modification would have Resulted in an Inferior System

In 2002, it was considered desirable in the field of user interface design to minimize the clutter presented on the display. This manifested in the desktop monitor world as an imperative to, e.g., present alternatives to on-screen icons and move icons out of the display workspace. Hansen's teachings are consistent with this, such as where Hansen notes that "it is desirable to have an operating system where the user can easily eliminate extra windows that appear on a computer so that the screen does not become cluttered," EX1029, 2:11-14, and touts that an advantage of the disclosed system is that "the method of the present invention does not clutter the screen by producing numerous haphazardly placed windows on the screen," thereby enabling the user to "more easily concentrate on the application program that is being run." EX1029, 6:28-34.

Petitioners' proposed modification is exactly contrary to the teaching and cited advantages of Hansen; it clutters the screen with a useless (see below) graphic and reduces the space in which the user may concentrate on the running application. Hansen also stresses the advantage of providing a working window

that overlaps most of the monitor, and of being able to *remove* the working window from the display so that the display is not cluttered. EX1029, 6:30-37. This teaches away from maintaining a shaded strip along an edge of the screen, which would reduce the size of the working window and add to useless screen clutter. At the very least, even if Hansen's denigration of screen clutter does not rise to the level of teaching away, it informs the analysis of whether a POSA would have considered it detrimental to add Petitioners' graphic; clearly, a POSA would have seen it as such. EX2013, ¶¶159-164,

(2) Petitioners' Proposed Modification to Hansen would have Provided No Benefit

Petitioners never explain why the user needs dashed lines forming a strip in the left margin to identify the two-centimeter-wide "predetermined area." In fact, a POSA as of 2002 would have understood that a user would find such a graphic to be distracting and unnecessary, for at least two reasons. EX2013, ¶¶160-161. First, desktop touchscreens were very unusual in 2002 (and are still not commonly used today). EX2013, ¶162. A user of a system such as Hansen's in 2002 would likely have been an experienced, early-adopting computer user who was willing to pay a premium for more advanced equipment and had performed substantial research regarding the novel desktop touchscreen display of the Hansen system, including how to operate it using gestures on the touchscreen. *Id*. Accordingly, a

POSA would have seen no benefit to adding an "affordance" to Hansen's display. *Id*., EX2013, ¶¶162-164

Second, to the extent that a POSA considered it important to accommodate a hypothetical novice user, it could more easily and cheaply have been done via an owner's manual, and in any event would have been unnecessary following the first few uses of the system. EX2013, ¶163. This would have been considered preferable to further cluttering Hansen's screens with graphics, since a POSA would have known that instructional materials would be distributed with the system. *Id*. Indeed, even Petitioners' "affordance" would have had to be explained to a novice user in, e.g., an owner's manual (*Id*); that being the case, why would any user need a persistent on-screen graphic to provide the same information that the user would have to obtain in any event from an owner's manual or some other source? Petitioners have no answer.

So, a POSA would have seen no benefit to adding Petitioners' "affordance," and would have cluttered Hansen's screen by doing so. EX2013, ¶164. This further undermines any motivation to combine. *Apple*, 976 F.3d at 1325; *Arctic Cat*, 795 Fed. Appx. at 832-34.

2. **Claims 2, 7-8 are Not Obvious Over Hansen/Gillespie**

Claims 2 and 7-8 depend from Claim 1. Petitioners fail to carry their burden with respect to these claims for the reasons set forth above with respect to claim 1.

3. Claim 3 is Not Obvious Over Hansen/Gillespie

Petitioners argue that the icon block 50 in Hansen's Figure 3B satisfies claim 3. But Hansen makes it clear that the icons are presented within a window frame. Figure 3B:

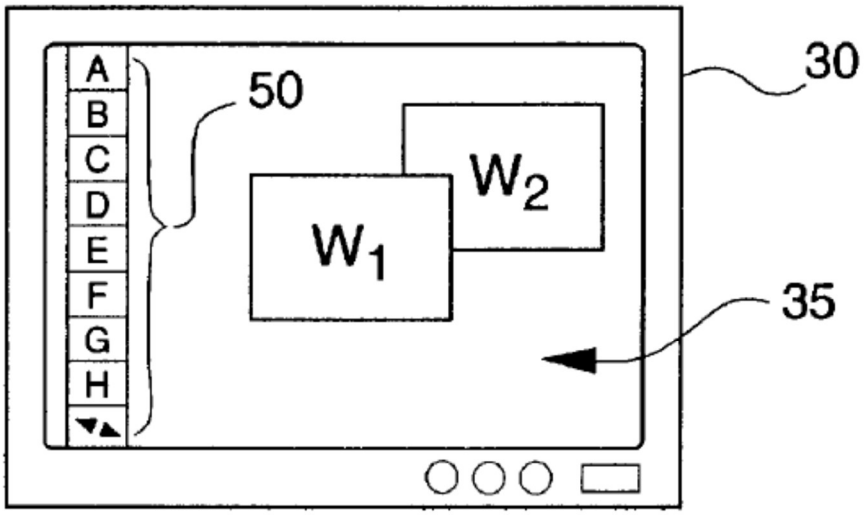


FIG. 3B

In describing Figure 3B, Hansen states that the icons are displayed if the user executes a "first predetermined user input stroke, i.e., a swipe from the left edge of the screen. EX1029, 5:14-17. Hansen then states that the "working window" also "appears on the screen 35 as a result of the user performing the first predetermined input stroke." EX1029, 5:17-20, 6:10-15. So, it is clear that Figure 3B, which shows the display after the user has input the first predetermined user input stroke, includes the working window. A POSA would understand that the

working window encloses the icons A-H, because the icons are disposed adjacent the left side of the monitor (where Hansen describes the working window being disposed) in a block that occupies only a portion of the display and because the opposing arrowheads at the bottom of the icon block indicate that a user can scroll the icon block up or down, showing that the icon block is in its own workspace independent of what is shown on the rest of the display and can be separately manipulated similarly to clicking on a "minimize" or "enlarge" icon on a standard desktop window. EX2013, ¶170.

So, Hansen's icons are displayed within a window frame. Petitioners fail to prove that claim 3 is obvious.

B. Ground 2B: Petitioners Fail to Prove that Claim 4 is Obvious Over the Combination of Hansen/Gillespie and Allard-656

For claim 4, Petitioners rely on the combination of Hansen with a help function disclosed in Allard-656. This combination fails for two reasons.

1. Allard-656 is not Analogous Art.

First, for the reasons stated in subsection III.B.1, above, Allard-656 is not analogous art, and therefore may not be asserted as a ground to render Claim 4 obvious.

2. A POSA Would Not have been Motivated to Combine Hansen and Allard-656

Second, Petitioners cite the usual litany of conclusory motivations to support their combination of Allard-656 and Hansen. They assert the help icon "was a well-known practice" with "immediately apparent" benefits (EX1002, ¶211); and that the "need for user assistance" was "obvious," "well-known," and prevalent in user interfaces (*Id.*, ¶213). These conclusory statements are not sufficient, *KSR,* 550 U.S. at 428, particularly as applied to Hansen, a desktop implementation in which a help function would have been presented via a drop-down text ribbon at the top of the display, as was common at the time and still today. EX2013, ¶174. And Bederson's assertion that Hansen and Allard-656 "are both directed to pen input on a touch user interface of a handheld device" and that Allard-656 "address[es] the same issues discussed in Hansen and solve the same problem" *id.*, ¶212, is simply false; as shown above, Allard-656 is not directed to input on a touch surface (but rather to configuring a touch surface using mechanical buttons) and does not address the same issues as Hansen. *Enfish,* 662 Fed.Appx. at 990; *Securus,* 701 Fed.Appx. at 976. Petitioners fail to carry their burden regarding claim 4.

C. Ground 2C: Petitioners Fail to Prove that Claim 5 is Obvious Over the Combination of Hansen/Gillespie and Tanaka

For claim 5, Petitioners propose to modify Hansen and Gillespie to add a clock icon, pointing to the "World Clock" icon of Tanaka. Bederson states that it would have been desirable for Hansen's icons to include an icon for a clock function because "nearly every user interface" includes a clock function "in some form, whether persistent at the edge of the screen or in the form of an icon" EX1002, ¶215. However, the fact that it was well known to include a clock function as a persistent numerical display at the edge of the display – which was in 2002, and is today, the dominant presentation of a clock function on a desktop implementation such as Hansen's – indicates that a POSA would have seen no deficiency in Hansen that would have been remedied by adding a clock icon to icon list 50. Indeed, adding a redundant clock icon to Hansen's display would have cut against Hansen's push to render an uncluttered workspace, and would have been inferior to a persistent display edge presentation as a solution to the "problem" Bederson identifies. Petitioners fail to carry their burden with respect to claim 5. *Securus*, 701 Fed.Appx. at 976.

D. Ground 2D: Petitioners Fail to Prove that Claim 6 is Obvious Over the Combination of Hansen/Gillespie and Tanaka

Petitioners allege that Hansen and Gillespie, combined with Tanaka, renders claim 6 obvious. Here again, they fail to carry their burden.

Petitioners' arguments for motivation to incorporate Kodama's alarm function into Hansen/Gillespie fail for the reasons set forth in Section III.D above, i.e., they are conclusory, they fail to identify any actual reason that a POSA would want to add an alarm icon to Hansen, and they are driven principally by impermissible hindsight bias. Moreover, there would have been no reason to add an alarm icon to Hansen's display for the additional reasons that Hansen sought to de-clutter the desktop rather than add to it, and that an alarm function could easily have been incorporated via a drop-down menu without adding to desktop clutter. Accordingly, Petitioners fail to carry their burden with respect to claim 6.

V. SECONDARY EVIDENCE OF NON-OBVIOUSNESS CONFIRMS THE PATENTABILITY OF THE CHALLENGED CLAIMS

Secondary evidence of non-obviousness, when present, must be considered in determining obviousness. *Ruiz v. A.B. Chance Co.,* 234 F.3d 654, 667 (Fed. Cir. 2000).

A. The Neonode N1 and N2 Gesture-Based Interface Demonstrated the Commercial Success of the Challenged Claims

"Demonstrating that an invention has commercial value, that it is commercially successful, weighs in favor of its non-obviousness." *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1337 (Fed. Cir. 2016). If "the asserted objective evidence is tied to a specific product and that product 'embodies the claimed features, and is co-extensive with them,'" then the objective evidence is entitled to

a rebuttable presumption of nexus. *Henny Penny*, 938 F.3d at 1332, *Polaris*, 882 F.3d at 1072.

Neonode began commercial sales of the N1 mobile handset in early 2004 and released the N2 in 2007. Ex2022, ¶6. The N1 and N2 user interfaces embody the elements of the '993 Patent's claims. EX2019, ¶¶5-11.

After the Neonode N1 was demonstrated at CeBIT in Germany in March 2002, Neonode received over 20,000 pre-orders for the phone, and subsequently received over 100,000 Internet pre-orders. EX2016, ¶9. The Internet pre-orders required the customer to pay a substantial down payment to secure the customer's place on the handset's waiting list. *Id*. Between early 2004 and 2008, Neonode sold approximately 40,000 N1 and N2 mobile handsets. EX2022, ¶6, Ex. F (EX2026 at 6); EX2015, ¶11. In addition, Neonode was contacted by more than 100 companies that expressed interest in purchasing the N1. EX2016, ¶10; EX2015, ¶11; EX2026 at 6. In the commercial phase of the N1's release, Neonode received orders from Telcel in Mexico about purchasing 15,000 units, Proximus in Belgium about purchasing 3,000 units, TIM in Italy about purchasing 20-30,000 units, an Egyptian operator about purchasing 500 units per month as test units, and an English distributor about purchasing 100,000 N1 units. EX2024, at 2-4; EX2016, ¶10.

B. There was Significant Industry Praise of the Neonode N1 and N2 Gesture-Based Interface

"[I]ndustry praise … provides probative and cogent evidence that one of ordinary skill in the art would not have reasonably expected [the claimed invention]." *Institut Pasteur & Universite Pierre Et Marie Curie v. Focarino*, 738 F.3d 1337, 1347 (Fed. Cir. 2013).

Following Neonode's demonstration of its N1 mobile handset in the March 2002 at the CeBIT trade show in Germany, the Neonode and the N1 became famous in Stockholm and internationally. EX2015, ¶3. Numerous articles about the N1 phone, its novel almost button-less design, and particularly its gesture-based touch screen user interface, on the Internet, in Swedish and international magazines, and in the business press such as *Dagens Industri* (The Swedish equivalent to *The Wall Street* Journal) and in the biggest Swedish newspapers. *Id.* In the Stockholm tech and startup business community at that time, Neonode's N1 was the talk of the town. *Id.* Furthermore, both Sir Christopher Gent, the CEO of Vodaphone, and senior executives from Samsung Mobile, came to Stockholm to meet with Neonode. *Id.*, ¶8. The excitement surrounding the phone was focused on its novel gesture-based user interface. EX2016, ¶11; EX2015, ¶3.

Following the commercial release of the N1, the phone's unique gesture-based interface garnered additional praise. For example, *Pen Computing Magazine* asked:

> What's so special about the NeoNode then? That would be its interface which is like no other.

EX2027. The author referenced the phone's zForce optical sensing technology. However, zForce was seen as a means to enable the phone's gesture-based interface, and it was that feature of the phone that gave "the NeoNode its totally unique personality and mode of operation":

Swipe, swipe, swipe

You see, instead of the usual menus and pulldowns, most operations are performed by sweeps of your finger - usually your thumb - across the surface of the NeoNode's display. For example, to answer the phone you sweep left to right. To terminate a call and hang up, you swipe right to left. To bring up programs or selections, you swipe up along the left side. To access options within an application you swipe up along the right side. To move between screens, or modes of operation, within an application, you swipe left or right along the top edge. If this sounds like the dreaded "gestures" that never really caught on in pen computing, it's not. The swipes are much simpler, there are only a few, and they are consistently used throughout all applications. The idea here is to let you hold a phone in the palm of your hand and operate it entirely with your thumb. No need to push buttons, view tiny menus, pull out a tiny stylus, or use scrollwheels, rockers or other such vexing miniature controls.

Id. The phone's "unique" swiping interface was, the author concluded, "simple and brilliant." *Id*.

C. The Neonode N1 and N2 Gesture-Based Interface Received Initial Skepticism from Neonode's Competitors

"Expressions of disbelief by experts constitute strong evidence of nonobviousness." *Envtl. Designs, Inc. v. Union Oil Co.*, 713 F.2d 693, 697-98 (Fed. Cir. 1983) (citing *United States v. Adams*, 383 U.S. 39, 52 (1966).

Neonode encountered initial skepticism about the gesture-based user interface of the N1 and N2 mobile handsets from handset manufacturers. CEO Marcus Bäcklund met with representatives of Nokia and Ericsson, and although they were impressed with the swiping-gesture user interface, they were skeptical that consumers would want a keyboard-less mobile handset. EX2016, ¶12. They said that the touch screen might get greasy from users' fingers performing gestures, thereby obscuring the user interface. *Id.* And they said they thought that users were used to buttons to navigate mobile phones and would be hesitant to accept one without them. *Id.*

D. Samsung Licensed the Application to which the '993 Patent Claims Priority, Demonstrating Industry Respect

Industry respect for an invention is objective evidence of nonobviousness, and competitor licenses of the invention demonstrate industry respect. *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d. 1339, 1359-60 (Fed. Cir. 1999).

Senior executives from Samsung Mobile, came to Stockholm to meet with Neonode. EX2015, ¶8. The excitement surrounding the phone was focused on its novel gesture-based user interface. EX2016, ¶11; EX2015, ¶3. Senior management of Samsung's mobile telecom division were extremely impressed by the Neonode N1, and in early 2005 began discussions with about licensing the N1's gesture-based user interface and touch screen technology. EX2015, ¶9. Ki-

Tai Lee (K. T. Lee), head of Samsung's mobile telecom division, told Neonode that he believed Neonode's intuitive user interface was "the future of mobile phones." *Id.* Neonode had many hours of meetings with Samsung, including a meeting in London, attended by Marcus Bäcklund, Thomas Ericsson, and Per Bystedt. *Id.* Mr. Lee told Samsung's negotiators—in Neonode's presence—that "we need this," referring to the Neonode's N1 gesture-based user interface and the license for the user interface. *Id.* Samsung signed the license agreement in July 2005, licensing the application to which the '993 Patent claims priority, and providing for a [redacted][2] EX2025; EX2022 Ex. F.

VI. CONCLUSION

For the foregoing reasons, the Board should deny the Petition and confirm the patentability of all challenged claims.

[2] The license agreement terminated in around late 2008 as a result of the bankruptcy of the Neonode Swedish company due to the financial crisis. EX2016, ¶15.

Dated: September 22, 2021

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CERTIFICATION OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), it is certified that this Patent Owner's Response contains 13,920 words, excluding those portions identified in 37 C.F.R. § 42.24(a)(1), as measured by the word-processing system used to prepare this Response.

Dated: September 22, 2021

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CERTIFICATE OF SERVICE

It is certified that on September 22, 2021, the foregoing document has been served on Petitioners as provided in 37 C.F.R. § 42.6(e) via electronic mail at IPR50095-0015P1@fr.com.

Dated: September 22, 2021

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