

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner

v.

SMITH INTERFACE TECHNOLOGIES, LLC

Patent Owner

IPR2024-01089
Patent No. 10,671,212

PATENT OWNER PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

Exhibit	Shorthand	Description
2001	Surati	Declaration of Dr. Rajeev Surati, Ph.D.
2002	CV	CV of Dr. Rajeev Surati, Ph.D.
2003	Stay Order	October 2, 2024 Order Granting in Part Apple's Motion to Stay in <i>Smith Interface Technologies, LLC v. Apple Inc.</i> , 3-23-cv-01187, S.D. Cal. (DKT. No. 127).
2004	JCC	Excerpt of Joint Claim Construction Chart Exhibit A.

I. INTRODUCTION

Institution should be denied because the Petition fails to establish a reasonable likelihood of prevailing on any challenged claim. Each of the Petition's grounds are founded upon a "Hotelling-Martyn-Cho" "Combination" that, first, reach separate embodiments of Hotelling without acknowledgment or justification and, then, adds functionality from Martyn without credible justification. Thus, the combination fails for two independent reasons. Further, even accepting the proposed "Combination," that disclosure still does include providing haptic feedback "when" / "based on" a time duration as required by the Challenged Claims.¹

First, the Petition's mapping mixes and matches Hotelling's disclosure of: (a) a "***main menu*** GUI" in conjunction with Figure 18, and (b) "a touch vocabulary **associated with a music player.**" Compare EX1004, [0085], FIG. 18 with *id.*, [0051].² Nothing in Hotelling links these two disparate disclosures. Hotelling discloses "a music player GUI" in conjunction with Figure 11, ***not*** in conjunction with the "main menu GUI" of Figure 18. *Id.*, [0022], [0029]. The Petition fails to acknowledge citing to two different embodiments and offers no motivation or

¹ Each of claims 1-2, 9-11, 13-15, 16, 56-64, 84 ("Challenged Claims") depends from one of independent claims 1, 16, or 84.

² All emphasis added unless otherwise indicated.

explanation for “combining multiple embodiments.” *See In re Stepan Co.*, 868 F.3d 1342, 1346 n.1 (Fed. Cir. 2017).

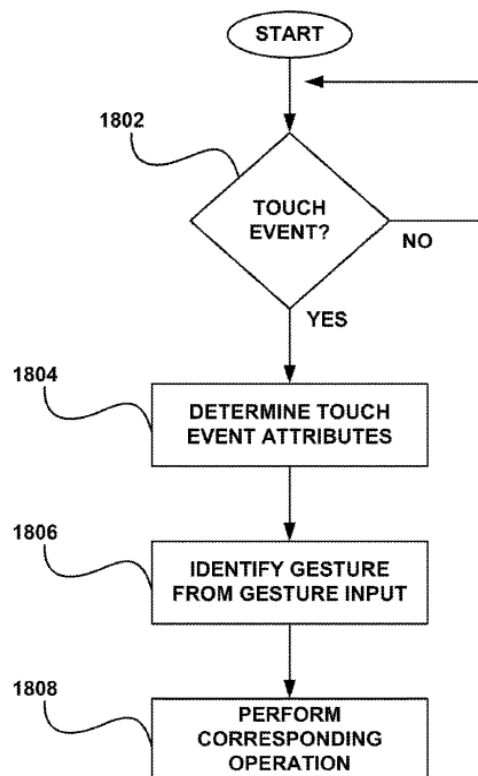
Second, the Petition proposes adding Martyn’s “App Snapshot” to Hotelling’s “main menu GUI.” But, again, the Petition justifies this mapping by incorrectly assuming that Figure 27A, the “touch vocabulary associated with a music player,” is part of the “main menu GUI” embodiment. And, again, the Petition offers no motivation or explanation for combining embodiments. Further, the Petition offers no reason to add an “App Snapshot” to Hotelling’s “main menu GUI” beyond generic buzzwords—“ubiquitous,” “would predictably improve”—and pointing to benefits that are inapplicable to that actual “main menu GUI” Hotelling discloses.

Finally, each challenged independent claim recites not just “output[ting] feedback that is perceptible by touch,” but doing so “[*when*] / [*based on*] a second *duration* of the touch.” Limitations [1.c], [16.h], and [84.d]. “Duration” refers to a period of time. Hotelling discusses haptic feedback when a touch exceeds a *pressure* (not a *duration*) threshold and upon release of a touch (regardless of *duration*). EX1004, [0161]. Recognizing that this disclosure does not match the claims, Petitioner attempts to read into Hotelling, first as a purported “express suggestion” and then “[a]lternatively” as “obvious[ness],” providing haptic feedback upon recognition of a “long touch.” But Hotelling does not suggest that functionality.

Accordingly, institution should be denied.

II. OVERVIEW OF THE '212 PATENT

The '212 Patent relates to a “gesture-equipped touch screen system,” where “a signal is received in association with a touch interface” and “a user experience may be altered, utilizing the signal.” EX1001, Title, 15:9-10, 15:57-58. The patent discloses various gestures, patterns, or multi-touch inputs that can be used to improve the functionality of user interfaces for touch screen devices. *See e.g.*, EX1001, 1:42-2:5, 2:6-31, 2:32-59, 2:60-3:15. Figure 18 depicts a high-level flowchart of the operation of one embodiment of the patent:



EX1001, FIG. 18. Possible “gesture inputs” used to control the choice of operation can include “touch event attributes (both initial and over time), system and/or

application flags, switches, buttons, states, sensor data,” or other relevant control inputs available to the user. *Id.*, 57:19-22.

A. Independent Claims 1, 16, and 84

Independent claims 1, 16, and 84 are each directed to a multifunction response of “a mobile device including a touch screen” to “a touch.” “[When] / [based on]” “a first duration of a touch” “[is] / [being] detected as ceasing,” “perform[ing] an operation.” Limitations [1.b], [16.g], [84.c]. “[When] / [based on]” “a second duration of the touch, that is different than the first duration of the touch” “[is] / [being] detected” “after the first duration is detected without the ceasing”: (a) “output[ting] feedback that is perceptible by touch” and (b) “display[ing] at least one menu including a plurality of particular actions.” is displayed. Limitations [1.c], [1.d], [16.h], [16.i], [84.d], [84.e].

Independent claims 1, 16, and 84 further recite recognizing and acting upon additional touches in connection with “the at least one menu.” First, “[when] / [based on] a selection touch applied to the touch screen [is] / [being] detected in connection with at least one of the particular actions of the at least one menu,” “perform[ing] the at least one particular action.” Limitations [1.e], [16.j], [84.f]. Second, “[when] / [based on] a slide or swipe gesture applied to the touch screen [is] / [being] detected,” “chang[ing] at least one aspect of the display of the at least one menu.” Limitations [1.f], [16.k], [84.g].

III. LEVEL OF ORDINARY SKILL

Patent Owner does not necessarily agree with all aspects of Petitioner's proposed level of ordinary skill, but does not believe that resolving that level is necessary to resolve the issues raised in this preliminary response.

IV. CLAIM CONSTRUCTION

In the Litigation,³ Apple contends that the following two claim terms in the Challenged Claims are indefinite: “perform an operation” and “adjacent.” EX2004, 9/38, 31/38. Contrary to its Litigation position, Petitioner does not assert that either of these terms is indefinite in its Petition and, indeed, had no problem understanding the terms to map them (albeit in a flawed mapping). Pet., 23-25, 64-65.

Patent Owner disputes that either of the two terms Petitioner identified in the Litigation are indefinite. The words of each are common, understandable words, and the arrangement of those words and the surrounding claim language make the plain and ordinary meaning of each term apparent, as demonstrated by the Petition

³ *Smith Interface Technologies, LLC v. Apple Inc.*, 3-23-cv-01187, S.D. Cal. (the “Litigation”). On October 2, 2024, the Court granted in part Petitioner's request to stay the Litigation, staying the Litigation “pending the issuance of the last of the PTAB's institution decisions on Apple's pending IPR petitions,” with any “further stay” to be addressed after those decisions. EX2003.

itself. The plain and ordinary meaning of each term is readily understandable, and Patent Owner believes no formal constructions are necessary.

V. OVERVIEW OF THE PRIOR ART

A. Hotelling

Hotelling discloses a “multi-functional hand-held device capable of configuring user inputs based on how the device is to be used.” EX1004, Abstract, [0009]. The goal of the multi-functional hand-held device of Hotelling is to “integrate[] at least two [traditional] devices” (such as a PDA, cell phone, camera, music player, etc.) into a single device. EX1004, [0048], EX2001, ¶43 (“In 2006 . . . there was a growing interest in these sorts of multi-functional devices that would allow a user to merge each of their five or ten mobile devices into a single device that could easily be carried in their pocket.”).

Hotelling recognized that, as “traditionally separate hand-held electronic devices have begun to be combined . . . [i]t is a challenge to design a merged device with limited input devices without adversely affecting the dedicated inputs for each device.” EX1004, [0006]-[0007]. Specifically, “there is not enough space on the [merged] device to house all the necessary buttons and switches” to accommodate the “particular set of input mechanisms for providing inputs” used by each separate legacy device. *Id.* In addition, “it is preferable, not to overload the hand-held

devices with a large number of input mechanisms as this tends to confuse the user.” *Id.*

To overcome this problem, Hotelling describes “virtually incorporating the physical inputs for each functionality into the GUI,” which “adapt[s] to whatever device is selected.” EX1004, [0069]. Then, the device has “a GUI for each functionality.” *Id.* By replacing physical buttons with virtual buttons on a touch screen, Hotelling’s design has the added benefit that the “display size can be substantially increased.” EX1004, [0009], *see also* EX2001, ¶45 (“it is significant that Hotelling’s virtual button design allowed for larger screens . . . substantially expand[ing] the design space available to user interface developers”).

Hotelling also discloses the use of a “haptics mechanism” to “enhance the feel of actuating a GUI element” or to provide “alert[s]” to the user. EX1004, [0161]-[0163]. Hotelling teaches that “[t]his particular feature enhances the users experience and makes the virtual UI feel more like a physical UI.” EX1004, [0161], EX2001, ¶46. “For example, in response to touching a virtual button of the GUI, the haptics may provide force feedback in the form of vibration and the speaker may provide audio feedback in the form of a click.” EX1004, [0163]. This feedback tells the user that “they actually implemented an input” by “simulat[ing] the audio and tactile feel of a button or switch.” *Id.* Alternatively, the feedback “may be used to

simulate a button click” through a “click” and “clock” output “when a hard touch is made.” *Id.*

The Petition focuses specifically on two distinct GUI’s of Hotelling—one shown in Figure 18 and another in Figure 11, which are further described below.

1. Figure 18: “an exemplary GUI for a main menu”

Hotelling discloses “an exemplary main menu GUI 260 of a multi-functional device” as illustrated in Figure 18. EX1004, [0085], FIG. 18 (inset below).

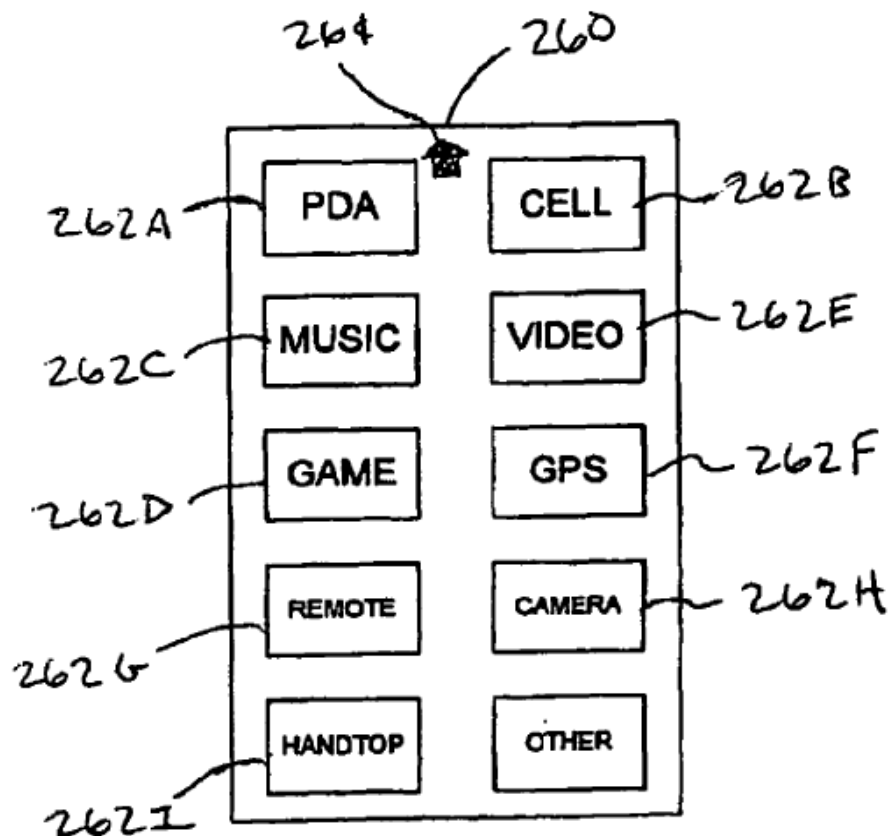


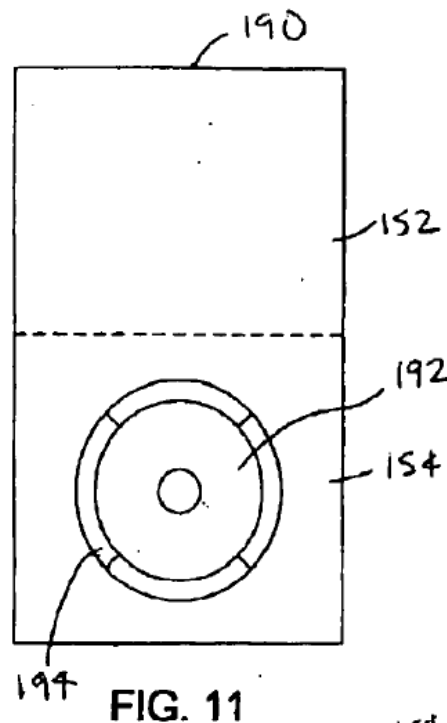
FIG. 18

EX1004, FIG. 18. When the user selects one of the various “virtual buttons” (e.g., “a music player button 262C”) shown in the figure, “the main page for the selected

functional[ity]” is shown on the display. EX1004, [0085]. If the user wishes to select a different functionality, “the user simply selects a soft home button . . . to return to the main menu page 260.” *Id.* This design ensures that, “[b]y keeping different functionalities distinct, user confusion may be reduced.” EX1004, [0091], EX2001, ¶48 (“Reducing user confusion, otherwise known as ease-of-use, is a critical goal of user interface design.”).

2. *Figure 11: “an exemplary GUI for a media player”*

Separately, Hotelling discloses “an exemplary GUI for a media player.” EX1004, [0022], [0077], FIG. 11 (inset below).



EX1004, FIG. 11. Consistent with Hotelling’s goal of providing “a GUI for each functionality” (EX1004, [0069]), a POSITA would understand that Figures 18 and

11 disclose separate embodiments of different GUIs. EX2001, ¶50. Specifically, Figure 11 depicts a “GUI 190 that is used in a music player mode.” EX1004, [0077]. The “music player mode” GUI is “divided into a standard region 152 and a control region 154.” *Id.* The “control region” further contains a “virtual scroll wheel 192 and five virtual buttons 194.” *Id.*

“FIGS. 27A-E are tables representing one example of a touch vocabulary *associated with a music player.*” *Id.*, [0038]; *see also id.*, [0151] (“One example of a touch vocabulary associated with a music player is shown in FIGS. 27A-E.”). Consistent with this description, a POSITA would understand that Hotelling’s disclosure relating to FIGS. 27A-E is part of the disclosure of “a music player” GUI, i.e., the Figure 11 embodiment. EX2001, ¶50.

A “touch vocabulary” is a set of “behaviors and user feedback” that a device can display based on a set of input variables, including “the UI mode, the force of the touch (e.g., light or hard), the number of fingers used, whether or not there is any movement during the touch, the duration of the touch, and the touch location.” EX1004, [0145]-[0150], FIG. 26, EX2001, ¶51. Figure 27A (inset below) discloses an example of a touch vocabulary that would recreate the button functionality commonly found on portable music players using the “virtual buttons” shown in Figure 11. *See* EX1004, [0038], EX2001, ¶52.

#	UI Mode	Light Touch or Tactile Click	# Fingers used	Movement during touch or click	Duration	Touchdown location (virtual button?)	Proposed Behavior	Feedback
Basic list navigation								
	List Nav.	light	1	none	any	anywhere	On touch-down, do nothing. On lift-off, highlight item (if any) under touch	highlight item touched
	List Nav.	click	1	NONE	short	virtual button / list item	On touch-down, do nothing. On click-down highlight item under touch (if any). On un-click, execute the item clicked	animate screen sliding RIGHT to expose new screen
	List Nav.	click	1	NONE	short	PLAY / PAUSE virtual button	On touch-down, do nothing. On click-down highlight Play/Pause icon. On un-click, PLAY/PAUSE	Change PLAY/PAUSE icon
	List Nav.	click	1	NONE	LONG	virtual button	On touch-down, do nothing. On click-down highlight item under touch (if any). After delay, bring-up context sensitive menu.	Context sensitive menu pop-up
	List Nav.	light or click	1	UP/DOWN	any	anywhere	On touch-down, do nothing. Scroll list UP/DOWN depending on UP/DOWN distance moved, use inertia & brakes, disregard LEFT/RIGHT motion during gesture. If highlighted item slides off visible screen, change highlighted item to one that is visible.	list scrolling UP/DOWN, first few letters enlarged
	List Nav.	light or click	1	LEFT	any	anywhere	On touch-down, do nothing. On left motion, open highlighted folder or execute highlighted item (like legacy SELECT button)	animate screen sliding LEFT
	List Nav.	light or click	1	RIGHT	any	anywhere	On touch-down, do nothing. On right motion, go back out a folder (like legacy MENU function)	animate screen sliding RIGHT

FIG. 27A

EX1004, FIG. 27A, *see also* [0038]. As shown in the figure, this “touch vocabulary” recreates the features that required physical buttons on “legacy” music players, such as “PLAY/PAUSE,” “SELECT,” or “MENU.” EX2001, ¶52, *see also id.*

B. Martyn

Martyn, filed nearly five years before Hotelling, discloses an “application summary window⁴” for “small screen devices.” EX1005, [0009], EX2001, ¶54. The summary window displays “a limited list of common functions and commonly accessed stored data” that “saves the user from navigating to the required application, opening it up, and then navigating within that application to enable the data of interest to be seen.” EX1005, [0009]-[0015]. In short, Martyn discloses a “snap-shot view” of the application’s data and functions. EX1005 [0010].

This “‘snap-shot’ view” addresses the need for “user interface[s] . . . to demonstrate or make explicit the changing internal status of [a] mobile telephone as navigation proceeds.” EX1005, [0008]. “For example, to select or initiate a function . . . a user has to understand (a) how to navigate to that function in order to select that function and (b) that the status of the telephone is such that the function can be selected or initiated.” *Id.*

To reach the summary window, a user starts by looking at a device in an “application launcher view.” EX1005, [0016]. “The Application Launcher view is

⁴ Martyn uses several different terms interchangeably: “App Snapshot,” “summary window,” and “snapshot view.” EX1005, [0009]-[0010], [0015], [0017]-[0026], [0028]-[0031].

. . . presented as a standard scrolling list of application[s].” *Id.* “The list is vertical and only one application is presented per line.” Navigating this view is accomplished by “[s]tandard highlight functions.” *Id.* A “highlight” indicates which application the user currently has the choice of selecting. *Id.* A “user may take conventional navigation steps, such as scrolling, to move the highlight and using the available select function to navigate to the required highlighted application.” *Id.*

“The innovative summary window functionality can be accessed as follows: should the highlight rest on the name of an application in the App Launcher for a certain amount of time (say a 1.2 second timeout), the summary window (the ‘App Snapshot’) drops down from the highlight bar.” EX1005, [0017]. “Other selection processes could also be used (e.g. voice activation, softkey selection etc) to access the App Snapshot.” *Id.* Additionally, “the App Snapshot may be ‘called’ . . . by using a right scroll function . . . a press and hold of the select function when an application name is highlighted; or using a right cursor key on a highlighted application name.” *Id.* This process is shown in Figures 1 and 2 below. In these figures, the red highlight rests on the messages application and by leaving the highlight over the messages application a blue summary window is accessed.



Figure 1

EX1005, Figure 1 (annotated).

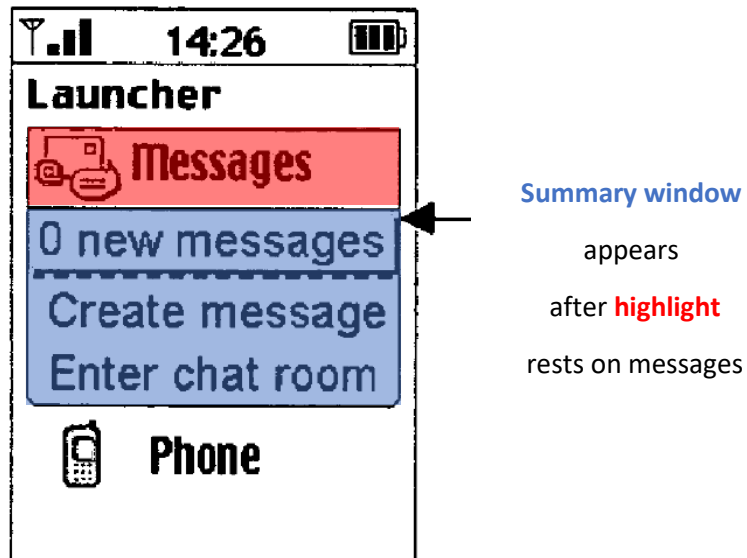


Figure 2

EX1005, Figure 2 (annotated).

Martyn also discloses multiple ways to dismiss the summary window based on how it was called. “If a timeout is used to call the App Snapshot, scrolling the highlight back to the relevant application name” or “[s]crolling down through the App Snapshot” “removes the App Snapshot.” EX1005, [0021]. “If scroll functions (e.g. right scroll) call the App Snapshot the opposite scroll function removes the snapshot.” EX1005, [0022].

VI. GROUNDS 1 AND 2 FAIL BECAUSE PETITIONER’S HOTELLING-MARTYN-CHO COMBINATION LACKS EVIDENTIARY SUPPORT

Both Grounds of the Petition fail because Petitioner’s proposed “Hotelling-Martyn-Cho Combination” is unsupported by objective evidence from the combined references. Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements,” but “must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). The Petition fails to articulate the specific reasoning, based on evidence, required by Federal Circuit precedent. *See id.*

Petitioner’s proposed combination fails for two primary reasons. First, Petitioner’s proposed combination mixes and matches features from two distinct embodiments of Hotelling without providing any motivation to combine them. Second, each of Petitioner’s motivations to combine Hotelling and Martyn are unsupported by evidence from what are two, very different user interface solutions

to two, very different user interface challenges. Since both Grounds of the Petition are based on this proposed combination, both fail. Institution should be denied.

A. The Petition mixes distinct embodiments from Hotelling without asserting a motivation to combine them

Petitioner's proposed combination mixes and matches different embodiments from Hotelling without any explanation as to how or why it would have been obvious to do so. *See, e.g.*, Pet., 22-31. The Petition asserts that Figure 18 of Hotelling discloses "display indicia" as required by claim 1. Pet., 22. However, the Petition later asserts that the functionality associated with the "display indicia" of claim 1 is disclosed by the touch vocabulary of Hotelling's music player mode. *See e.g.*, Pet., 24, 26, 29. Such a combination, without an express motivation to combine, is insufficient to support an assertion of obviousness. *See In re Stepan*, 868 F.3d at 1346 n.1 ("Whether a rejection is based on combining disclosures from multiple references, ***combining multiple embodiments from a single reference***, or selecting from large lists of elements in a single reference, there must be a motivation to make the combination and a reasonable expectation that such a combination would be successful, otherwise a skilled artisan would not arrive at the claimed combination."); *see also Net MoneyIn, Inc. v. Verisign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) ("[I]t is not enough that the prior art reference . . . includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.").

Specifically, the Petition cites Figure 18 of Hotelling as disclosing the “display indicia” described in Limitations [1a], [1c], and [1d]⁵, but turns to Figures 27A-E for the disclosure of the claimed functionality associated with this indicia in Limitations [1b-f]. *See* Pet., 22-31. As explained in the overview of the prior art, these figures are two distinct embodiments of Hotelling that describe separate user interfaces with separate purposes and functionality. *See supra*, §V.A. One is “an exemplary main menu GUI.” EX1004, [0085], FIG. 18. The other is “a touch vocabulary associated with *a music player*.” EX1004, [0151], FIGS. 27A-E, *see also* EX2001, ¶62 (explaining the different design considerations between user interfaces for main menus and those for applications, such as a music player mode).

Without explaining why a POSITA would be motivated to graft the input functionality of a music player onto a main menu, the Petition treats these two embodiments interchangeably. Viewed side-by-side, the differences between the “main menu GUI” and “music player mode” embodiment are stark:

⁵ Similar limitations at [16f/16h/16i] and [84b/84d/84e].

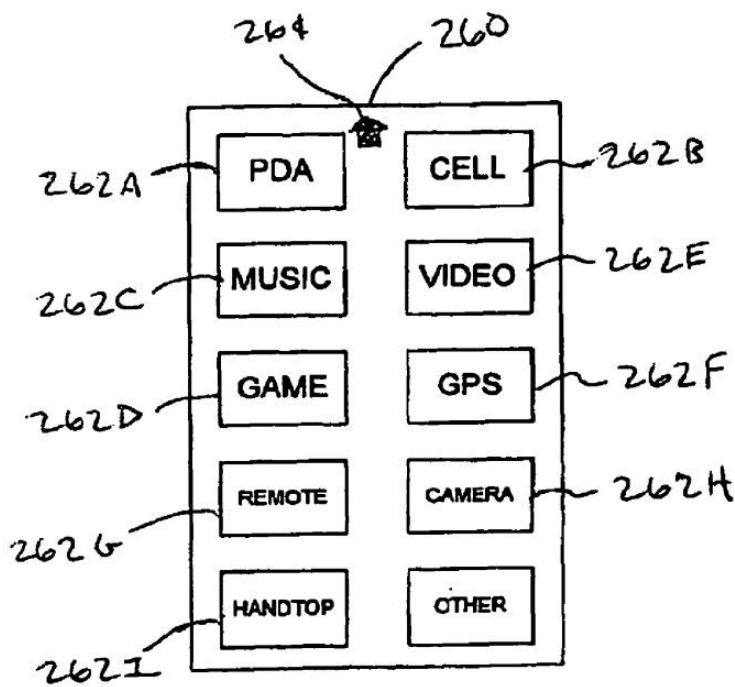


FIG. 18

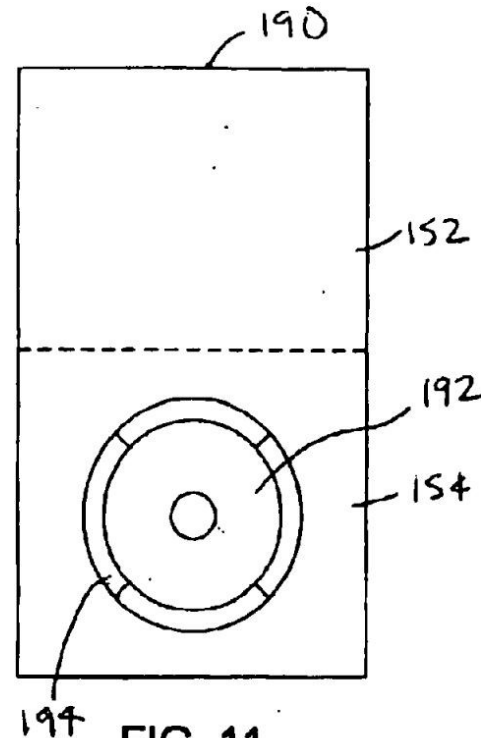


FIG. 11

EX1004, Figures 11, 18. As shown above, these embodiments are different GUIs with different buttons, different functions, and different purposes. EX2001, ¶¶62-63, *see also* EX2001, ¶¶48-53. The Petition combines the buttons of one with the functionality of the other, without making any attempt to explain why a POSITA would do so. *See* EX2001, ¶63 (“Dr. Cockburn glosses over this distinction, making his analysis incomplete”).

The relevant portions of Hotelling’s specification cited by the Petition in its mapping of Hotelling to the limitations of claim 1 are as follows:

- [0084]-[0085], [0097], [0172]-[0173] (describing the “main menu GUI,” shown in Figure 18, including “icons/buttons 262 for launching each of the various device functionalities”);
- [0151], Figures 27A-E (describing a “touch vocabulary *associated with a music player*”);
- [0145], [0149]-[0150] (describing possible variables for a “touch vocabulary” for each device mode’s functionality).

The Petition conflates these distinct embodiments in its mapping of the limitations of claim 1 of the ’212 patent, treating them as if they are an interface and touch vocabulary for a single menu. *See e.g.*, Pet., 23 (citing Figure 18 of Hotelling as disclosing the claimed “indicia”), 24 (citing Figures 27A-27B and [0149]-[0150] of Hotelling as teaching “short” and “long” touches that allegedly correspond to a “first duration” and “second duration”), 26-31 (citing [0145], [0149]-[0151] as disclosing the functionality of the claimed “indicia” described in Limitations [1c] and [1d]). They are not. *See* EX2001, ¶68 (citing EX1004, [0038]) (“It would be obvious to a POSITA that the touch vocabulary shown in Figures 27A-E is for a music player interface because that is exactly what Hotelling says.”).

Petitioner therefore mixes functionality associated with an operational mode (e.g., touch vocabulary associated with a music player mode as shown in FIGS. 27A-E)” with Hotelling’s “main menu GUI,” without articulating any obviousness

rationale for doing so (or pointing to anything in Hotelling that would purportedly do so). *See* Pet., 22 (“[A]s illustrated below in Figure 18, Hotelling describes a GUI 260 providing a ‘main menu page’ presenting a number of ‘icons/buttons 262 for launching each of the various device functionalities.’”); *cf* Pet., 26 (citing EX1004, [0145], [0150]-[0151], FIGS. 26, 27A-27B) (“According to Hotelling, ‘the duration of the touch[] and the touch location’ are variables of a ‘touch vocabulary’ that dictates the responsive ‘behaviors’ of the interface...[and] Hotelling’s Figure 27A (below) depicts an exemplary touch vocabulary with ‘duration’ variables highlighted in yellow”).

Further, the purpose and functionality of the simple “main menu GUI” is ***inconsistent*** with a complicated set of touch commands (such as the music player mode touch vocabulary). EX2001, ¶70. The only functionality that Hotelling describes for its main menu buttons is “launching each of the various device functionalities.” EX1004, [0085]; *see also* [0084] (describing how, after an icon is selected, “[f]rom that point on, the multi-functional device operates like the selected device”). In fact, the only section in Hotelling that discusses the “main menu GUI,” as depicted in Figure 18, is entitled simply “Switching Between Devices.” EX1004, 6.

Hotelling’s main menu is designed for simplicity. EX2001, ¶¶70-71. It is a switchboard used to reach each separate application. *See id.* Hotelling discloses that

“it is preferable, not to overload the hand-held devices with a large number of input mechanisms” and, “[b]y keeping different functionalities distinct, user confusion may be reduced.” EX1004, [0007], [0091]. Incorporating a set of complicated, multi-touch gestures into the main menu would do nothing but frustrate this goal. EX2001, ¶71 (“a complicated main menu would have strayed too far from a user’s past experience, thereby increasing confusion rather than reducing it.”). The Petition’s unexplained addition of the music player mode’s touch vocabulary to Hotelling’s simplistic main menu makes no sense in light of Hotelling’s specification. *See id.* (“Neither Dr. Cockburn nor the Petition explain why a POSITA would ignore both fundamental user interface design principles and Hotelling’s teachings of simple functions for its main menu GUI”).

Accordingly, the Petition’s mapping of “indicia associated with an application” to one embodiment of Hotelling and the indicia’s related functionality, such as a responding to a “first duration” and “second duration” touch associated with “the indicia” is unsupported in both the Petition and Hotelling itself. Each embodiment, taken alone, fails to show every element as arranged in the claim. Petitioner fails to explain how a POSITA would “at once envisage” this combination (i.e., a main menu with the disclosed touch vocabulary meant for a music player) and, therefore, Petitioner must articulate why or how these different embodiments would be combined. *See Microsoft Corp. v. Biscotti, Inc.*, 878 F.3d 1052, 1068-70

(Fed. Cir. 2017). Petitioner does not. Therefore, Petitioner's proposed combination upon which each of the Petition's grounds rest is flawed. Institution should be denied.

B. The Petition's asserted motivations to combine Hotelling and Martyn are also deficient

Petitioner fails to show that it would have been obvious to combine the main menu page GUI of Hotelling with the App Snapshot dropdown menu of Martyn. The petition asserts four motivations to combine Hotelling and Martyn. *See* Pet., 14-17. However, for the reasons explained below, each motivation is deficient alone and in combination with the others.

The obviousness inquiry requires an analysis of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Specifically, Petitioner must provide reasons why a POSITA would have been motivated to modify Hotelling's main menu page with Martyn's App Snapshot menu, rather than merely showing that a POSITA *could have* made the modification. *See In re Giannelli*, 739 F.3d 1375, 1380 (Fed. Cir. 2014) ("[T]he mere *capability* of pulling the handles is not the inquiry that the Board should have made; it should have determined whether it would have been obvious to modify the prior art apparatus to arrive at the claimed rowing machine.")

(emphasis in original). Petitioner has failed to articulate reasons that rise above the mere capability of combining the references.

1. Petitioner’s first asserted motivation is a generalized assertion that lacks objective evidence

Petitioner’s first purported motivation to combine is a generalized assertion about the “ubiquitous” use of “contextual menus” in computer technology at the time of the ’212 patent. *See* Pet., 14-15. Petitioner asserts that, since Martyn “employs a contextual shortcut menu,” it would have been “axiomatic” to integrate Martyn’s teachings with Hotelling’s interface. *Id.* This is precisely the sort of “common sense” argument that the Federal Circuit has rejected previously. *See Arendi S.A.R.L v. Apple, Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016) (“common sense—whether to supply a motivation to combine or a missing limitation—cannot be used as a wholesale substitute for reasoned analysis and evidentiary support”) (internal quotation marks omitted), *see also* EX2001, ¶74 (“While it is true that menus have been used in digital devices for decades, that does not explain why a POSITA would be motivated to combine *this* menu with *this* interface.”).

Hotelling and Martyn are different menus for different devices with different design constraints. EX2001, ¶75. Martyn addresses problems with “small screen” devices. EX1005, [0009]. It was published at a time when touch screen mobile devices were not common. EX2001, ¶75. In fact, Martyn does not make a single reference to touch screens or touch screen devices. Martyn does not contemplate

gesture-based inputs, virtual buttons, or touch-based menu navigation, features that would all allow the user to navigate the device more efficiently, a key goal of Martyn. *See e.g.*, EX1005, [0005] (“with conventional user interfaces, a user may need to scroll around and switch view many times to find the right data/functionality”), *see also* EX2001 ¶76 (quoting EX1005, [0007]) (“Martyn recommends against multi-gesture inputs” which “appeal only to a small number of expert users”).

On the other hand, Hotelling discloses a device that “preferably uses a touch screen as the primary input device.” EX1004, [0061]. Hotelling’s use of a touch screen “substantially increase[s]” the “display size” over similar mobile devices, reducing the need to optimize screen organization. *See id.*, [0009]. The Hotelling device did not face the same user interface challenges as the device disclosed in Martyn. EX2001, ¶77. For example, unlike a user of the Martyn device, a user of the Hotelling device could access application functionality in as few as two steps (i.e., launch the main menu and then launch the device mode where users could access core functionality associated with the device mode). *See e.g.*, EX1004, FIG. 11 (depicting virtual scroll wheel and five virtual buttons associated with a “music player mode.”). As a result, a POSITA would not have been motivated to look to Martyn for its App Snapshot functionality, which addressed problems faced by older mobile devices. EX2001, ¶79 (“Dr. Cockburn’s generic statement . . . does

not mean that all menus are created equally, for the same purposes, and are useful in the same contexts.”).

Rather than considering or explaining any of the differences and particular teachings between Hotelling and Martyn, the Petition merely lists buzz words like “core feature,” “exceedingly well-known,” and “axiomatic.” Pet., 14-15. Nowhere does this first purported motivation explain why a POSITA would have expected the addition of Martyn’s menu to be beneficial to Hotelling. *Id.* Even assuming contextual menus within main menu user interfaces were “ubiquitous” at the time, Petitioner cannot rely on this “common sense” motivation for a proposed combination of two different inventions that solve two fundamentally different problems. “Common sense” reasoning is the exception, not the rule, and it is inappropriate in this case.

2. Petitioner’s second asserted motivation manufactures a usability issue with Hotelling’s display that is unsupported by objective evidence

Petitioner’s second motivation manufactures a usability issue with Hotelling’s display that is unsupported by Hotelling or any other cited prior art, then proposes to solve it with Martyn, which features all of the substantially worse usability issues faced by older devices without touch screens. *See* EX2001, ¶80. Petitioner asserts “that applying Martyn’s teaching of a contextual menu would predictably improve Hotelling’s main page GUI.” Pet., 15. However, the Petition downplays the

significant differences between the user interfaces of Hotelling and Martyn. EX2001, ¶80 (“The cell phones and other mobile devices of Martyn’s era had to manage slower processing devices with tiny screens and a limited set of physical buttons for navigation.”).

Petitioner contends that a POSITA “would have known [that] usability in this context . . . was a key differentiator amongst competing mobile devices.” Pet., 15. Petitioner goes on to explain that “[t]he mobile device with a superior interface from a usability standpoint would be more attractive to consumers.” *Id.* But Petitioner ignores the fundamental differences in user interface design between a touch screen phone and a 2000s-era cell phone with no touch screen, a scroll wheel, and menus that display four options at a time. *Compare* EX1004 [0061] (“the hand-held device preferably uses a touch screen”) *with* EX1005, FIG. 1 (depicting a non-touch screen device with limited visible options), *see also* EX2001, ¶81-82.

The usability issues faced by Martyn and any hypothetical usability issues faced by Hotelling are too different to look back to Martyn to design a new touch screen user interface. EX2001, ¶83. A POSITA would have understood Martyn as disclosing the use of a physical scroll wheel and a “right cursor key” to launch the App Snapshot and make selections on a device with a “small screen”, as was common with older mobile devices containing physical buttons, keys, scrolls. *See* EX1005, [0018], *see also id.* Further, a POSITA would have understood that this

was slower, less efficient, and more frustrating for a user than Hotelling’s touch-screen display. EX2001, ¶83. A POSITA would not have been motivated to look to Martyn for its App Snapshot functionality, which addressed problems faced with older mobile devices and their comparatively rudimentary input devices. *Id.*, ¶84. This is especially true with respect to usability, as the device of Martyn, by virtue of being a device with physical buttons and a tiny screen, has substantially worse and different usability problems than the device of Hotelling. *Id.* (“[Martyn] was an older design directed to legacy devices.”).

Touch screens opened the door to a whole new world of gestures, screen organization, and navigation possibilities that revolutionized the world of mobile devices. *Id.*, ¶85. Both the usability problems and solutions changed radically with the advent of devices featuring full-screen touch screens and virtual buttons, such as those disclosed in Hotelling. *See id.*, ¶¶80-85. Given this paradigm shift in user interfaces, a POSITA would not have looked to a reference such as Martyn with an outdated interface for the solutions of the future. *Id.*, ¶85 (“It was not obvious [in 2011] that the solutions of legacy devices would be equally desirable for the new generation of mobile devices.”).

Those differences mean that Petitioner’s failure to explain *why* or *how* its proposed modifications to Hotelling would have resulted in any improvement to “usability” renders its conclusions completely unsupported. *Id.*, ¶86 (citing Pet.,

15). For example, Petitioner mentions “fewer user inputs,” but fails to compare user inputs in Hotelling versus the purported “Hotelling-Martyn” combination. *Id.* Nor does the Petition offer any comparison in speed of performing similar functions in Hotelling versus the purported “Hotelling-Martyn” combination. *Id.* Petitioner’s failure to actually compare the two is fatal to Petitioner’s second motivation. For example, Martyn’s interface required a user to highlight—with a limited input (scroll wheel)—a desired application and then wait for a timeout. EX1005, [0017] (“The innovative summary window functionality can be accessed as follows: should the highlight rest on the name of an application in the App Launcher for a certain amount of time (*say a 1.2 second timeout*), the summary window (the ‘App Snapshot’) drops down from the highlight bar.” (emphasis added)). While such a pop up menu may have been desirable when stuck with Martyn’s comparatively rudimentary input devices, the desirability of such a menu is not a foregone conclusion with a touch screen. EX2001, ¶86. For example, Hotelling’s touch screen would have allowed a user to simply open an app and choose a function more easily and much more quickly than with a long press. *Id.* The Petition therefore fails to support its conclusory assertion of any improvement in usability.

For these reasons, Petitioner’s second motivation to combine is insufficient to support the combination. It is based on a flawed comparison of two wildly different usability puzzles and a purported solution that is contrary to plain logic.

3. *Petitioner's third asserted motivation conflates Hotelling's music player mode with its main menu GUI*

Petitioner's third motivation fails as well because again, Petitioner conflates Hotelling's "touch vocabulary for a music player mode" with proposed functionality of the "main menu page GUI." Petitioner asserts that "a POSITA would have been prompted to pursue a combination with Martyn based on Hotelling's suggestions to do so." Pet., 16. However, Petitioner then cites to Hotelling's teaching of a "context sensitive menu pop-up" in Hotelling's "music player mode" embodiment as support for this assertion. *Id.* (citing EX1004, [0151], Figures 27A-27B). In essence, Petitioner asserts that a POSITA would look to Martyn's disclosure of user interface elements for a main menu to supplement the music player user interface of Hotelling. *See* Pet., 16. As explained, however, the purposes, functions, layout, buttons, and design constraints for the main menu and music player of Hotelling are different. *See supra*, §VI.A, *see also* EX2001, ¶¶60-72, 88 ("Dr. Cockburn fails to explain why a POSITA would look to a design for a menu that is **not** for a music player").

The "context sensitive menu pop-up" of Hotelling's "music player mode" is just that: **context** sensitive. *See* EX1004, FIGS. 27A-E, EX2001, ¶83 ("context is critical when sculpting a user interface."). The Petition cites to Martyn's "exemplary GUI element," "content," and "various ways to interact with the menu" as three reasons that a POSITA would see Martyn as "a natural and obvious extension of Hotelling." Pet., 16. But, none of these aspects of a menu would necessarily be the

same between a music player menu and a main menu App Snapshot menu. EX2001, ¶90. In fact, they would be different. *Id.* (explaining difference in GUI elements, content, and functionality between Hotelling’s main menu and music player). They are different applications in different contexts with different design goals from a user interface perspective. *Id.* The Petition ignores this fact because it has confused the “main menu GUI” and “music player mode GUI” embodiments of Hotelling. *See id.*, ¶89(“[the Petition’s] conclusion only makes sense if one confuses the main menu GUI of Hotelling with its music player mode”). Indeed, the Petition expressly seeks to modify Hotelling’s main menu GUI. *See Pet.*, 13.

Petitioner’s reliance on Hotelling’s disclosure of a “context sensitive menu pop-up” for a music player mode as a suggestion that Martyn’s App Snapshot should be combined with Hotelling’s music player to “provide implementation details on contextual menus” in Hotelling’s main menu GUI is, at best, misplaced. *See Pet.*, 16. As a result, Petitioner’s third motivation to combine fails.

4. Petitioner’s fourth asserted motivation ignores the difference between the user interface challenges of Hotelling and Martyn

Petitioner’s fourth asserted motivation similarly ignores fundamental differences in the obstacles faced by Martyn, a non-touch screen device with extremely limited screen space and physical buttons, with Hotelling, a full-screen touch screen device. Petitioner asserts that Martyn identifies “specific advantages” of Martyn’s App Snapshot, which “yields many advantages in ease and speed of

navigation. *See* Pet., 17 (internal quotation marks omitted). Petitioner further asserts that “the similarities between Hotelling and Martyn’s respective multi-functional mobile devices” would indicate to a POSITA that a combination would lead to the “predictable improvement” of Hotelling. *Id.*, *see* EX2001, ¶¶92-93.

Petitioner also glosses over a key piece of Martyn’s disclosure. Martyn’s “advantages” were that navigation was “far faster and easier than *conventional* navigation approaches.” EX1005, [0015]. This is far from an assurance that Martyn’s App Snapshot will be predictably more advantageous than the navigation approaches that became available with the widespread adoption of touch screens on mobile devices. EX2001, ¶93 (“A POSITA would appreciate the differences in these contexts, exercising care in merging solutions from outdated devices, whose solutions themselves may also be outdated.”).

Martyn cannot be read to teach that its App Snapshot has advantages over touch screen navigation approaches because Martyn does not contemplate touch screens. *See* EX2001, ¶94. To the contrary, Martyn itself illustrates that its “improvement” would be no such thing for a more modern touch-screen device. For example, Martyn thought it an “innovative” improvement to scroll to an app and wait for longer than a second to see a pop-up menu rather than simply opening the app: “The innovative summary window functionality can be accessed as follows: should the highlight rest on the name of an application in the App Launcher for a

certain amount of time (*say a 1.2 second timeout*), the summary window (the ‘App Snapshot’) drops down from the highlight bar.” EX1005, [0017]. Hotelling, on the other hand, benefited from a full-screen touch-screen input that allowed the selection of an app to bring up a user interface in which the corresponding app options were literally at a user’s fingertips. EX2001, ¶94 (citing EX1004, FIGS. 9-13).

In a design space with touch screens, virtual buttons, and full-screen displays, a POSITA (if they looked to Martyn at all) would have understood the exact opposite of what the Petition asserts: that one would *not* expect the “advantages” of Martyn over conventional navigation approaches would also “improve Hotelling’s interface in the same way.” See EX2001, ¶94 (“Dr. Cockburn ignores the differences between what was conventional in 2001 and what was conventional in 2011”), *see also* Pet., 17. Since the results would be far from predictable, Petitioner’s fourth and final motivation to combine Hotelling and Martyn is also inadequate to justify the obvious combination of the references under the *KSR* standard.

All of Petitioner’s motivations to combine the cited references are flawed. Since the Petition’s arguments collapse without its proposed “Hotelling-Martyn-Cho” combination, institution should be denied.

VII. GROUNDS 1 AND 2 ALSO FAIL BECAUSE, EVEN ACCEPTING THE PROPOSED COMBINATION, THAT COMBINATION DOES NOT MEET ALL ELEMENTS OF THE CHALLENGED CLAIMS

Even setting aside the flaws in Petitioner’s proposed combination, the combination still fails to show all claimed aspects of the ’212 patent. Petitioner contends that its proposed “Hotelling-Martyn-Cho Combination” renders obvious each of the independent claims of the ’212 patent. Pet., 20-40, 45, 52. However, despite the Petition’s assertions, none of the prior art cited in the Petition discloses Element [1c]: outputting “feedback that is perceptible to touch” after both a first and second duration have elapsed. Institution should be denied for this reason⁶.

A. Limitations [1.c], [16.h], [84.d]: “[when] / [based on] a second duration of the touch . . . [is] / [being] detected . . . output feedback that is perceptible by touch”

None of the cited references disclose “[when] / [based on] a second duration of the touch, that is different than the first duration of the touch, being applied to the touch screen [is] / [being] detected in connection with the indicia after the first

⁶ This argument applies equally to both grounds in the Petition. Ground 2 challenges only dependent claims 56 and 57, which depend from independent claim 16. As will be shown, Petitioner has failed to show that independent claim 16 is obvious in view of the cited prior art. Therefore, claims 56 and 57 are nonobvious by virtue of depending from a nonobvious claim.

duration is detected without the ceasing, output feedback that is perceptible by touch, utilizing the actuator,” as required by Limitations [1.c], [16.h], and [84.d]. The Petition advances two alternatives disclosures of these limitations in the cited prior art: (1) the “haptics” of Hotelling, or (2) the “haptics” of Hotelling in view of the knowledge of a POSITA. Pet., 28-29. Neither alternative is sufficient.. *See also* EX2001, ¶¶98-110.

1. A POSITA would not have “understood” Hotelling to disclose providing haptic feedback upon recognizing a long touch

The Petition asserts: “Specifically, Hotelling explains that ‘tactile...feedback can be used in conjunction with an input event including touch events’—e.g., short and long (second) duration touches on ‘a virtual button.’ *Id.*” Pet., 28. To be clear, the quoted portion of the passage is an accurate (partial) quote from paragraph [0163] of Hotelling, but the “e.g.” is neither found in nor suggested by Hotelling. To the contrary, as discussed in detail below, Hotelling discloses haptic feedback to “make[] the virtual UI feel more like a physical UI” by “provid[ing] force feedback in the form of vibration” “in response to touching a virtual button on the GUI.” EX1004, [0161], [0163]; *see also id.*, [0067]-[0070]; EX2001, ¶98. Hotelling is clear that this is based on a ***pressure*** (not time) threshold that is independent of the duration of the touch. *See e.g., id.*, [0163] (“The force threshold used may be similar to the threshold used to determine whether a touch is a light or hard touch.”), (“The

feedback may provide information so that the user knows that they actually implemented an input (simulates the audio and tactile feel of a button or switch).”).

Hotelling explains that the “haptics mechanism . . . enhances the users experience and *makes the virtual UI feel more like a physical UI.*” EX1004, [0161]; *see also id.*, [0067]-[0070] (describing the elimination of physical buttons and replacement with “virtual controls that mimic the physical controls are displayed in the control region 154.”). Hotelling explains further:

For example, when a certain force threshold is reached, the audio feedback device may create a “click” on the press and a “clock” on the release. *The force threshold used may be similar to the threshold used to determine whether a touch is a light or hard touch. The “click” and “clock” may be used to simulate a button click when a hard touch is made.*

EX1004, [0163].

Based on the above disclosure, a POSITA would have understood Hotelling as teaching “outputting tactile feedback” with a haptics mechanism in order to *mimic physical buttons* through haptic feedback used in conjunction with a “clicking” sound upon a button press and a “clocking” sound upon release. *See* EX2001, ¶100 (“one of Hotelling’s goals is to merge the various separate legacy devices that featured physical buttons . . . [users] are used to.”). The device “clicks” and vibrates when a button touch passes a certain *force* threshold (i.e., when a user pushes a

virtual button), outputting audio and haptic feedback to simulate a physical button. *Id.* (“[t]hus, users are able to easily understand that the GUI element they are selecting is a button like the physical buttons of legacy devices.”).

Providing haptic feedback in response to exceeding a *pressure* threshold or upon a release of a touch does not meet the plain language of Limitations [1.c], [16.h], and [84.d], which require providing haptic feedback “[when] / [based on] a second duration of the touch.” Neither a pressure threshold nor a release event can meet the plain claim language which requires providing haptic feedback “[when] / [based on]” a touch is held for a period of time.

For this reason, the Petition’s reliance on Hotelling alone is insufficient to show this element. *See* EX2001, ¶102, *see also id.* ¶103 (“Dr. Cockburn downplays the fact that user interface designers make deliberate, considered choices with respect to how haptic feedback is used by their interfaces.”).

2. *It would not have been obvious to modify Hotelling to provide haptic feedback upon recognizing a long touch*

Alternatively, the Petition asserts that “it would have been obvious for a POSITA to implement Hotelling’s teachings such that the output of feedback that is perceptible by touch occurs in response to detecting a ‘long’ (second) duration of the touch.” Pet., 28. But Petitioner’s argument is not “to implement” Hotelling’s teachings, but rather to *modify* them.

Petitioner fails to provide an adequate explanation why a POSITA would modify Hotelling in this way. EX2001, ¶106 (“a POSITA would understand that *when* to alert the user is just as important as *how*.”). The Petition cites Hotelling’s disclosure that tactile feedback “*can* be used in conjunction with . . . touch events.” Pet., 28.

Without citing to any other references or objective evidence, the Petition essentially asserts that a POSITA would understand this sentence to mean that any use of tactile feedback in conjunction with any of the touch events described in Hotelling or elsewhere are rendered obvious. EX2001, ¶107. Hotelling’s disclosure is too general to support such an assertion. *Id.*, ¶¶107-108. As discussed above, the Petition’s suggestion that reference to “touch events” renders obvious use of haptic feedback for *any* touch event is not consistent with Hotelling’s actual disclosure. The Petition’s remaining justifications of “a well-known solution to the longstanding problem” and “design trends and market forces” (Pet., 28-29) are too general to meet Petitioner’s burden. *See Johns Manville Corp. v. Knauf Insulation, Inc.* (IPR2018-00827, Paper 9) at 13-14 (“An unsupported statement that combining the teachings of the two references would have been ‘well within the skill of a POS[IT]A,’ because the results . . . ‘were well-known and predictable’ does not meet Petitioner’s burden.”).

Further, Petitioner's argument discards Hotelling's explicit teachings. Figures 27A-27E, the music player mode touch vocabulary that the Petition cites for the rest of the claim limitations, references the same "tactile click" discussed above (i.e., haptic and audio feedback used to mimic a physical button). EX1004, FIGS. 27A-E, EX2001, ¶109. The "click" is independent of the duration of the touch, as the chart lists the same "click" for both "short" and "long" touches. *See e.g., id.*, FIG. 27A, EX2001, ¶109. Thus, the reference to "tactile click" in Figures 27A-27E is consistent with the explicit disclosure of Hotelling discussed above of using haptics to simulate pressing of physical keys rather than feedback for any "touch event."

Thus, the proposed combination does not render obvious any of the challenged claims. Both grounds of the Petition rely on this combination. Therefore, institution should be denied.

VIII. CONCLUSION

For the reasons explained above, the Board should deny institution because Petitioner has not established any reasonable likelihood of success on any of its proposed grounds.

Dated: October 22, 2024

Respectfully submitted,

/Eagle H. Robinson/

Eagle H. Robinson

Reg. No. 61,361

Lead Counsel for Patent Owner

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(a)(i), the undersigned certifies that this Paper—exclusive of the table of contents, table of authorities, certificate of service, and this certificate of word count—includes 7,725 words. The undersigned relies upon the word count generated by Microsoft Word.

/Eagle H. Robinson/
Eagle H. Robinson (Reg. No. 61,361)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that on October 22, 2024, complete copies of Patent Owner Preliminary Response and EX2001-EX2004 were served on Petitioner via email (by consent), at the following email address(s):

IPR50095-0169IP1@fr.com

/Eagle H. Robinson/

Eagle H. Robinson (Reg. No. 61,361)