

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

DECLARATION OF DR. VIJAY MADISETTI

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I. Introduction

1. My name is Dr. Vijay Madiseti. I have been retained by Smith Interface Technologies, LLC as an independent expert consultant in this inter partes review (“IPR”) proceeding before the United States Patent and Trademark Office (“PTO”) regarding US Patent No. 10,671,212 (“the ’212 Patent”).

II. Professional Background

2. All of my opinions stated in this Declaration are based on my own personal knowledge and professional judgment. In forming my opinions, I have relied on my knowledge and experience in designing, developing, and researching the technology referenced in this Declaration.

3. I am over 18 years of age and, if I am called upon to do so, I would be competent to testify as to the matters set forth herein. I understand that a copy of my current curriculum vitae, which details my education and professional and academic experience, is being submitted as EX2008. The following provides a brief overview of some of my experience that is relevant to the matters set forth in this Declaration.

4. I received my Bachelor of Technology (Honors) in Electronics and Electrical Communication Engineering at the Indian Institute of Technology (IIT) in Kharagpur, India in 1984. I obtained my Ph.D. in Electrical Engineering and Computer Science at the University of California at Berkeley in 1989. I received

the Demetri Angelakos Outstanding Graduate Student Award from the University of California at Berkeley and the IEEE/ACM Ira M. Kay Memorial Paper Prize in 1989. I am now a tenured Full Professor in the Colleges of Computing and Engineering at Georgia Tech and serve as its representative to the European Telecommunications Standard Institute (ETSI). I am knowledgeable and familiar with topics including software engineering, web applications, cloud computing, user interface design, wireless networks, and associated software and firmware design—including software and firmware design for wireless and telecommunications terminals and base stations in general and ETSI/3GPP/3GPP2 standards based cellular architecture and infrastructure. I have created and taught undergraduate and graduate courses in hardware and software design for computer science and engineering applications at Georgia Tech for the past thirty years. I have been the principal investigator (“PI”) or co-PI in several active research programs in these areas, including DARPA’s Rapid Prototyping of Application Specific Signal Processors, the State of Georgia’s Yamacraw Initiative, the United States Army’s Federated Sensors Laboratory Program, and the United States Air Force Electronics Parts Obsolescence Initiative. I have received an IBM Faculty Award and NSF’s Research Initiation Award.

5. I have designed several specialized computer and communication systems over the past two decades at Georgia Tech for tasks such as wireless

audio/video processing and messaging/protocol processing for portable platforms, such as cell phones and Personal Digital Assistants. I also developed UIs for tools for electronic design automation of complex chipsets and their reverse engineering processes for the U.S. Air Force and Lockheed Martin and Boeing in the late 1990s and early 2000s. I have worked on designing systems that are efficient from performance, size, weight, area, and thermal considerations. I have developed courses and classes for the industry on these topics, and many of my lectures in advanced computer system design were developed under the sponsorship of the United States Department of Defense in the late 1990s and have been used by several U.S. and international universities as part of their course work. I graduated more than 20 Ph.D. students that now work as professors or in technical positions around the world.

6. Over the years, I have been an active consultant to industry and various research laboratories (including Massachusetts Institute of Technology Lincoln Labs and Johns Hopkins University Applied Physics Laboratory). As part of that involvement in the industry, I have been actively involved in product development. For example, in the early 2000s, I designed three GSM multiband mobile phones for a leading telecom equipment manufacturer in Asia, and in the mid 2000s, I developed wireless baseband and protocol stack software and assembly code for a leading telecommunications handset vendor that focused on efficient realization of

speech codecs and echo-cancellation and for another in the optimization of their 3G software stack. My work in this regard included creation of software code, and analysis and revision of existing software code.

7. I have also founded three companies in the areas of embedded software, military chipsets involving imaging technology, and wireless communications. The first of these companies, VP Technologies, offers computing systems for helicopter imaging systems for the United States Air Force. The second of these companies, Soft Networks, LLC, offers software for multimedia and wireless computing platforms, including the development of a set-top box for Intel that decodes MPEG-2 video streams and imaging codes for multimedia phones. The third of these companies, Elastic Video, uses region-of-interest based video encoding to capture high quality video at low bit rates, with primary application for wireless video systems. I also have extensive experience developing user interfaces for products. Recent examples of such work include my work developing a crypto exchange prototype, and my work on a web-based document management environment, called CatchUp, which is now commercialized as CatchUp Cloud (<https://catchup.cloud>).

8. I have authored more than 110 refereed journal publications and around forty peer-reviewed conference publications. I have served as associate editor or on the editorial board for technical journals, including IEEE Transactions on Circuits & Systems II, International Journal in Computer Simulation, and International

Journal in VLSI Signal Processing. I have also authored or co-authored several books, including VLSI Digital Signal Processors (IEEE Press 1995) and the Digital Signal Processing Handbook (CRC Press, 1998, 2010). I also co-authored Quick-Turnaround ASIC Design in VHDL (Kluwer Academic Press 1996) and Platform-Centric Approach to System-on-Chip (SoC) Design (Springer 2004). I am also the editor of several books, including the three-volume DSP Handbook set: Volume 1: Digital Signal Processing Fundamentals, Volume 2: Video, Speech, and Audio Signal Processing and Associated Standards, and Volume 3: Wireless, Networking, Radar, Sensory Array Processing, and Nonlinear Signal Processing, published in 2010 by CRC Press, Boca Raton, Florida. More recently I have authored Cloud Computing (2014, CreateSpace Press), and Internet of Things (2014, CreateSpace), and the book, Cloud Computing, was nominated as a Notable Book of 2014 by the Association of Computing Machinery (ACM) in July 2015.

9. I have worked in the area of user interfaces over the past twenty years as part of my extensive development in mobile and portable applications for mobile phones and portable devices since the early 2000 timeframe. I developed commercial products for leading companies, and was part of the team that developed the user interfaces for a Soft Switch, called SNX 8500, that provides voice and VOIP services for enterprises. In addition to authoring textbooks and research papers in the area of wireless messaging interfaces, I have developed web-based document

management systems and web-based fintech applications. I have submitted approximately 100 invention disclosures and provisional patents over the past ten years. I am listed as a first inventor on over thirty issued US patents. Many of my patents disclose techniques for efficient user interface design including use of multilevel hierarchies and other UI innovations in the area of user interfaces for work environments.

10. I have been extensively involved in the activities of one of the premier standard setting organizations in the world, the IEEE, since the 1980s, and was a member of the IEEE Press Board from 1995-1997. I was the Technical Program Chair of IEEE ICASSP in 1996. I was also the Associate Editor of IEEE Transactions on Circuits & Systems II from 1994 to 1997. I am also the director of the IEEE Atlanta Chapter, and the author of several drafts of IETF proposals in the area of VOIP and Voice/Video streaming over the internet. I have been elected a Fellow of the IEEE. The Fellow is the highest grade of membership of the IEEE, a world professional body consisting of over 300,000 electrical and electronics engineers, with only one tenth of one percent (0.1%) of the IEEE membership being elected to the Fellow grade each year. Election to Fellow is based upon votes cast by existing Fellows in IEEE.

11. I have also been awarded the 2006 Frederick Emmons Terman Medal by the American Society of Engineering Education for contributions to Electrical

Engineering, including authoring a widely used textbook in the design of VLSI digital signal processors. I was awarded VHDL International Best Ph.D. Dissertation Advisor Award in 1997 and the NSF RI Award in 1990. I was Technical Program Chair for both the IEEE MASCOTS in 1994 and the IEEE Workshop on Parallel and Distributed Simulation in 1990.

III. Compensation

12. My work on this matter is being billed at my customary rate of \$700 an hour. Also, I am being reimbursed for reasonable expenses I incur in relation to my services. I have no pecuniary interest in the outcome of this proceeding. I understand I will be paid regardless of the outcome of any proceeding in which my work is used.

IV. Legal Consideration

13. I am not an attorney. My understanding of the law is based on information provided by counsel for Smith Interface Technologies, LLC.

A. Obviousness

14. I understand that a claimed invention is obvious and, therefore, not patentable if the subject matter claimed would have been obvious to a person of ordinary skill in the art at the time that the invention of the '212 Patent (a "POSITA"), which I have been asked to treat as August 5, 2011.

15. I understand that a claim can be obvious in view of a single prior art reference (e.g., via modification of that prior art reference) or multiple prior art references (e.g., via a combination of two or more prior art references), if such a modification or combination was within the skill of a POSITA. I understand that there must be some articulated reasoning with some rational underpinning to support a conclusion of obviousness. I also understand that to establish a finding of obviousness one must show that one of ordinary skill in the art would have had a motivation to combine the prior art references to produce the claimed invention and a reasonable expectation that the combination would be successful.

16. I further understand that exemplary rationales that may support a conclusion of obviousness include: (1) simply arranging old elements in a way in which each element performs the same function it was known to perform, and the arrangement yields expected results, (2) merely substituting one element for another known element in the field, if the substitution yields no more than a predictable result, (3) combining elements in a way that was “obvious to try” because of a design need or market pressure, where there was a finite number of identified, predictable solutions, (4) that design incentives or other market forces in a field would have prompted variations in a work that were predictable to a person of ordinary skill in the art, and (5) that there was some teaching, suggestion, or motivation in the prior

art that would have led a POSITA to modify or combine prior art references to arrive at the claimed invention.

B. Claim Interpretation

17. I understand that a claim term is interpreted according to its ordinary and customary meaning as a POSITA would have understood the term in light of the surrounding claim language, other claims, the specification, and the patent's prosecution history, which are referred to as intrinsic evidence. I also understand that prior art references cited in the patent's prosecution history are considered intrinsic evidence. I further understand that evidence outside the patent and its prosecution history (e.g., dictionaries and technical articles), may inform the context in which a POSITA would have understood the claims of a patent. I understand this ordinary and customary meaning applies absent unique circumstances, such as where a patent clearly expresses an intent to set forth a special meaning for a term.

V. Overview of Task & Basis for Opinions

18. I have been asked to review the '212 Patent. I have been asked to provide opinions related to certain issues from the perspective of a person of ordinary skill, having knowledge of the relevant art, as of August 5, 2011, and—except where otherwise noted—the opinions stated in this declaration are from that perspective. The qualifications and abilities of such a person are described in Section VI below.

19. More particularly, I have been informed that the Patent Trial and Appeal Board (the “Board”) will decide whether the Petition establishes by a preponderance of the evidence that at least one claim of the ’212 Patent is invalid. I have been asked to focus my analysis on the Petition’s proposed invalidity theories related to the challenged claims of the ’212 Patent.

20. My opinions are based on my education, training, and experience as well as items that I reviewed to prepare my opinions, including the Petition, the documents listed in the Exhibit List included with the Petition, the deposition of Petitioner’s expert, Dr. Cockburn, and any other items that I reference in my below analysis.

21. I understand that other issues may arise that require further explanation, and I will provide that explanation if appropriate. As a result, I respectfully reserve the right to update and supplement this declaration and the information and opinions provided herein.

VI. Level of Ordinary Skill in the Art

22. I understand that a patent must be analyzed from the perspective of a person of ordinary skill in the art (“POSITA”) as of the time of invention of the patent, which is typically considered to be the patent’s earliest filing date.

23. I agree with the level of ordinary skill in the art adopted by the Board for the purposes of the Institution Decision. *See* Paper 7, 8-9. Specifically, a POSITA:

“would have had ‘a bachelor’s degree in computer science, computer engineering, or a comparable field and at least two years of professional experience working with graphical user interfaces and applications for computers.’”

Id., 8.

24. I also agree with the Board’s rejection of two other parts of the Petition’s level of ordinary skill. First, the phrase “[a]dditional years of experience could substitute for an advanced-level degree (and vice versa)” (Pet., 6) is inapplicable where the base degree is a bachelor’s degree as here and was likely a simple copy and paste error. Dr. Cockburn confirmed that striking “additional years of experience could substitute for the advanced-level degree” from his definition cited in the Petition would still leave a “complete definition.” *See* EX2006, 12:15-21.

25. Second, I agree with the Board that Petitioner’s additional statement that a POSITA “would have possessed extensive background knowledge and understanding of the pertinent technologies” listing specific areas (Pet., 6) should not be adopted. *See* Paper 7, 9. This additional requirement is either redundant with the level of ordinary skill articulated above, or inconsistent to the extent it seeks to

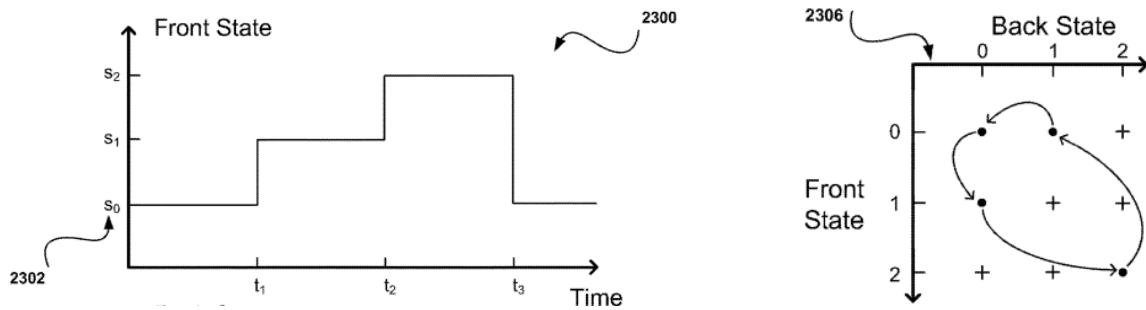
impose a level of ordinary skill beyond “a bachelor’s degree ... and at least two years of professional experience.”

VII. Overview of the ’212 Patent

A. Multi-Part Pattern-Based Gestures

26. At the time of the ’212 Patent’s 2011 priority date, touch screen mobile devices were becoming increasingly capable of more complex tasks that required control beyond what was possible with the basic input methods known in the art. Further, limited screen real estate meant that input and output techniques used for more complex tasks on desktop computers could not be used. The ’212 Patent addresses this shortcoming by enabling users to operate these new, powerful mobile devices and their feature-rich applications through multi-part gestures where users can take successive actions and receive feedback at each stage.

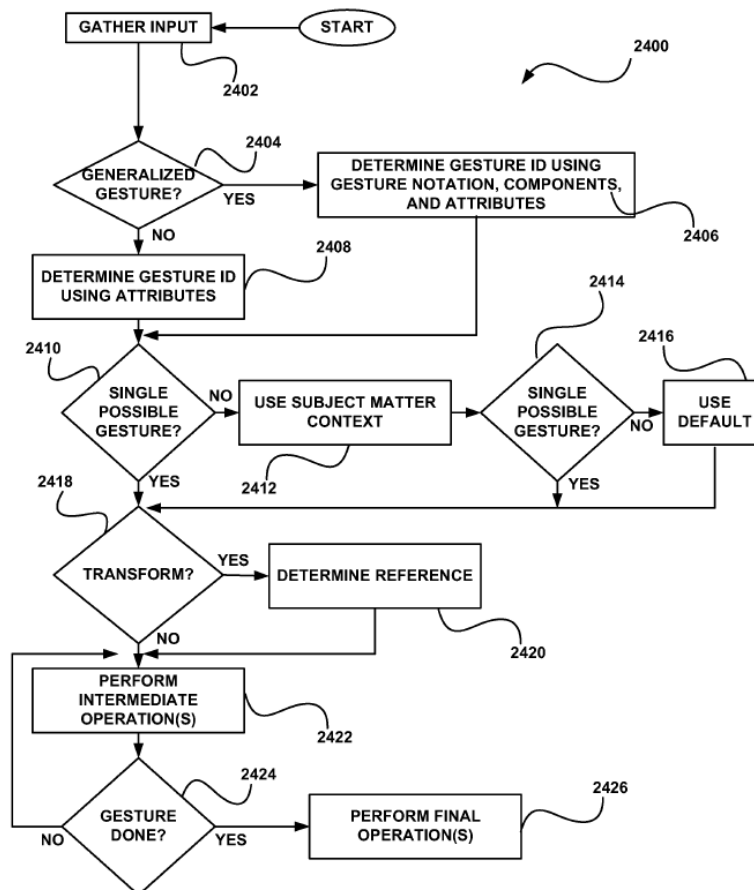
27. The ’212 Patent describes these multi-part, multi-action gestures as “pattern-based gestures” that “may be recognized in the form of an ordered sequence” by, for example, “using a decision tree.” EX1001, 74:24-26; EX2007, [00581]. The “pattern-based gesture” may be defined as “a path through a phase space of one or more dimensions.” EX1001, 72:27-29; EX2007, [00564]. Exemplary “pattern-based gesture 2302” is “described by a phase space path which represents the time evolution of the touch state associated with a contact point” on the touch screen. EX1001, 72:41-46; EX2007, [00566].



EX1001, FIG. 23; EX2007, FIG. 28. Each state, and transitions between states, may be defined by factors including “contact point changes” and “the time spent on each leg of the path through phase space.” EX1001, 73:5-7; EX2007, [00567]-[00570]. Consistent with the “decision tree” aspect of these pattern-based gestures, multiple patterns may share the same starting (and intermediate) points. EX1001, 74:24-26; EX2007, [00581].

28. To detect these pattern-based gestures, the '918 Provisional, which the '758 incorporates by reference (EX1001, 1:22-24), discloses “gesture differentiation,” which is distinguished from simply detecting a “basic user interaction (i.e., button press, basic application interaction, etc.),” techniques. EX2007, [00498]-[00502]. The process begins by “determin[ing] whether there is any meaningful user input,” including by applying a “threshold above which user interaction may rise before it may be deemed meaningful.” *Id.*, [00501]-[00502]. Detecting the gesture may involve “gesture subject matter context,” including “objects displayed at or near the location of the gesture.” *Id.*, [00512]. For example,

the starting point may be the beginning of a touch contact at a particular location of a specific object on the touch screen. *Id.*



EX2007, FIG. 24.

29. Again, as indicated by the flow chart, multiple complete, full patterns may share the same starting (and intermediate) points. Consistent with the multi-part nature, the device may perform “intermediate operations associated with the identified gesture.” *Id.*, [00521]. “[E]ach execution of intermediate gesture operations may trigger a display update (i.e. rendering, etc.).” *Id.*, [00524]. One

purpose of these intermediate gestures is so “a user may receive feedback on their gesture before terminating the interaction.” EX2007, [00522].

30. A “gesture may be ended by ending one or more user inputs” or “by performing a different gesture” at which time “the final operations associated with the identified gesture are performed.” *Id.*, [00526]-[00528]. “For example, in one embodiment, a gesture which triggers the display of a pop-up menu and allows a user to cycle through menu items may have as a final operation the selection of the current menu item and removal of the pop-up menu.” *Id.*, [00529].

B. Independent Claims 1, 16, and 84

31. Petitioner challenges the three independent claims of the '212 Patent: Claims 1, 16, and 84 (the “Challenged Independent Claims”). Claim 1 is directed to a “non-transitory computer-readable media storing computer instructions.” Limitation [1.pre]. Claim 16 is directed to a “mobile device” comprising “a touch screen.” Limitations [16.pre-a]. Claim 84 is directed to a method. Limitation [84.a] Claims 1, 16, and 84 are substantially similar.

32. The Challenged Independent Claims each recite logic to process user inputs, some of which begin from a common starting point (the claimed “touch”), and some of which may be used after the logic has detected a second duration of the touch (the “selection touch” and “slide or swipe gesture”). *See* Limitations [1.pre],

[16.pre-a], [84.a]. This sort of decision tree logic is described both in the '212 Patent and in the '918 Provisional, as explained in Section II.A.

33. The Challenged Independent Claims recite the following logic and corresponding device functionality:

- “[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.” Limitations [1.c-d], [16.h-i], [84.d-e].
- “[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].
- “[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].

VIII. Claim Construction

34. Limitations [1.b-f], [16.g-k], [84.c-g] collectively recite logic and functionality for paths of a decision tree, support for each of which is necessary to meet the claims. Limitation [1.b] describes one path's logic: "[when] / [based on] a first duration of a touch [being applied to the touch screen is] / [applied to the touch screen being] detected as ceasing in connection with the indicia," and Limitations [1.c-d] describe another path's logic: "[when] / [based on] a second duration of the touch ... [being applied to the touch screen is] / [applied to the touch screen being] detected in connection with the indicia after the first duration is detected without the ceasing." These Limitations collectively describe logical functions/steps to process instances of user input on a touch screen that begin from a common starting point—the start of "a touch being applied to the touch screen ... in connection with the indicia." Based on the evolution of the user's input from the common starting point, the device may respond differently. In some circumstances, this can allow for more than one possible function to be called without requiring multiple touches from the user.

35. This is consistent with "decision-tree" and detection logic for detecting multi-part pattern-based gestures as described in connection with Figure 23 of the '212 Patent and Figure 24 of the incorporated-by-reference '918 provisional as further discussed in Section II.A, above. This feature of touch screen devices allows

for more complex user interface designs that can integrate multiple layers of logic within the branching decision tree to create a responsive device. The device's logic determines the proper action to take, of the available actions in the "decision tree," based on the evolution of the user's input, either in location, duration, pressure, or some other input variable.

36. While Claim 84 is technically a method claim, it adheres to the same "decision tree" concept disclosed in the '212 Patent and the '918 provisional application. Claim 84 includes multiple conditional steps that specify different actions based on the evaluation of the touch input against various criteria that must be performed when the precondition is met. Each condition leads to a different action, or set of actions, and understanding the claim fully requires evaluating all possible conditions and their corresponding actions. Further, claim 84 recites the context of the method being performed "at a mobile device including a touch screen" (Limitation [84.a]), which connotes, for example and as discussed above, a set of logic, or "decision tree" that corresponds to a set of logical preconditions, each of which the device must be capable of recognizing and responding to for the "decision tree" to be complete.

IX. Overview of the Prior Art

A. Hotelling

37. 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].

38. 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.*

39. 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.” *Id.*, [0069]. Then, the device has “a GUI for each functionality.” *Id.* By replacing physical buttons with virtual buttons on a touch screen, Hotelling’s

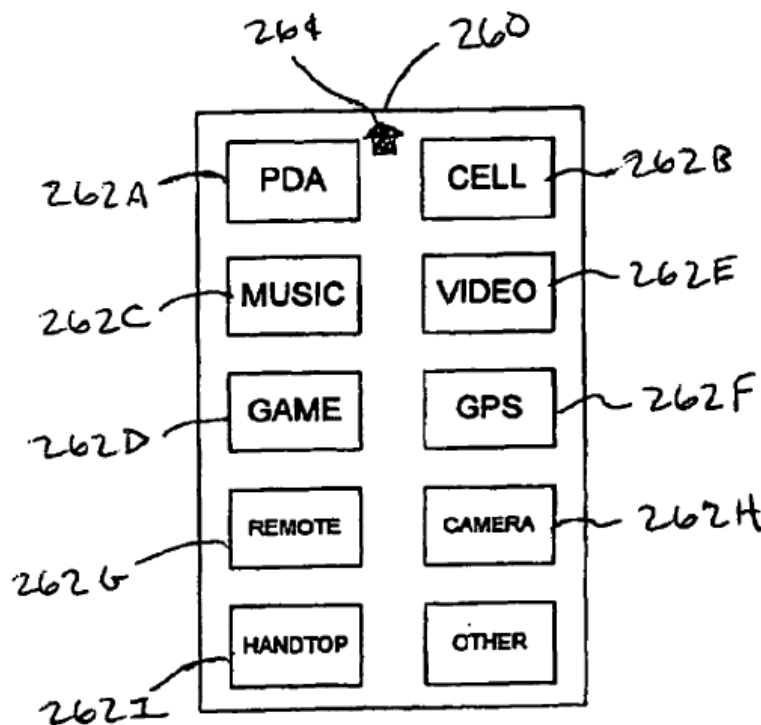
design has the added benefit that the “display size can be substantially increased.” *Id.*, [0009].

40. 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. *Id.*, [0161]-[0163]. Hotelling teaches that “[t]his particular feature enhances the users experience and makes the virtual UI feel more like a physical UI.” *Id.*, [0161]. “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.” *Id.*, [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.*

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

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

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

**FIG. 18**

Id., 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. *Id.*, [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.” *Id.*, [0091].

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

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

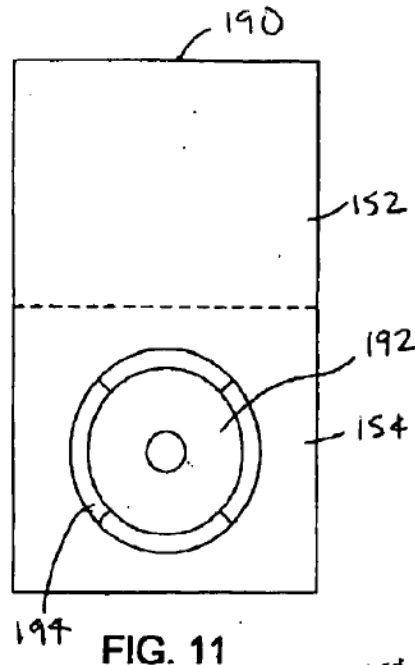


FIG. 11

Id., FIG. 11. Consistent with Hotelling’s goal of providing “a GUI for each functionality” (*Id.*, [0069]), a POSITA would understand that Figures 18 and 11 disclose distinct GUIs, each with their own functionality and related inputs. Specifically, Figure 11 depicts a “GUI 190 that is used in a music player mode.” *Id.*, [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.*

44. “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 GUI.

45. 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." *Id.*, [0145]-[0150], FIG. 26. 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 Id.*, [0038].

#	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

Id., FIG. 27A, *see also id.*, [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.” *See id.*, FIG. 27A.

B. Martyn

46. Martyn, filed nearly five years before Hotelling, discloses an “application summary window¹” for “small screen devices.” EX1005, [0009]. 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.” *Id.*, [0009]-[0015]. In short, Martyn discloses a “snapshot view” of the application’s data and functions. *Id.*, [0010].

47. This “‘snapshot’ view” addresses the need for “user interface[s] . . . to demonstrate or make explicit the changing internal status of [a] mobile telephone as navigation proceeds.” *Id.*, [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.*

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

¹ 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.*

49. “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.” *Id.*, [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

Id., Figure 1 (annotated).

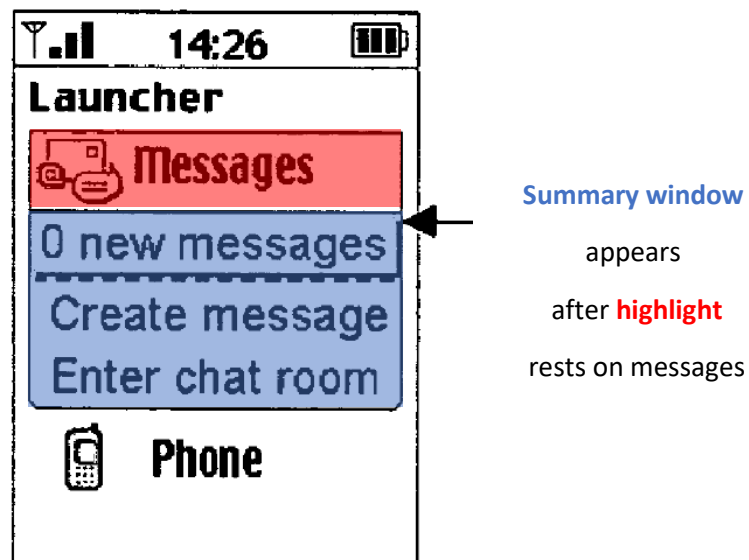


Figure 2

Id., Figure 2 (annotated).

50. 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.” *Id.*, [0021]. “If scroll functions (e.g. right scroll) call the App Snapshot the opposite scroll function removes the snapshot.” *Id.*, [0022].

X. Petitioner’s Proposed Modifications of Hotelling’s Main Menu GUI to Add the Actions Recited in Limitations [1.c-d], [16.h-f], and [84.d-e] Do Not Meet the Requirement to Perform Those Actions “When” / “Based On” The Recited Condition

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”

51. Limitations [1.c], [16.h], [84.d] do not simply recite “output[ting] feedback that is perceptible by touch, utilizing the actuator,” they recite doing so “[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 duration is detected without the ceasing.” Together with Limitations [1.d], [16.i], [84.d], which recite “display[ing] at least one menu including a plurality of particular actions” “[when] / [based on]” the same condition, these limitations recite providing visual and haptic feedback during an ongoing gesture. This advantageously guides the user through a multi-part gesture. EX2007, [00522] (“a user may receive feedback on their gesture before terminating

the interaction”), [00524] (“each execution of intermediate gesture operations may trigger a display update (i.e. rendering, etc.)”). Because multi-part gestures can involve multiple breakpoints, or branches in the decision tree that lead to different device actions, it can be beneficial to signal to the user that they have reached or past a breakpoint so that they know they have implemented a certain input. However, the user’s experience may not be improved by giving feedback at every breakpoint because this can overwhelm or confuse the user. Instead, a coherent UI design that takes a holistic approach to balancing input complexity with user confusion is preferred. The cited references do not disclose or render obvious the specific approach claimed in this Limitation.

52. In connection with the Figure 18 “GUI for a main menu” that is the basis of Petitioner’s mapping, Hotelling does not describe performing *any* action “[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 duration is detected without the ceasing.” EX1004, [0085]-[0091]. Rather, Petitioner proposes modifying the functionality of the Figure 18 “GUI for a main menu” to include: (a) Martyn’s disclosure of an “app snapshot” context menu, (b) Hotelling’s Fig. 27A disclosure of a “long” touch in a “List Nav” UI mode for a “music player,” *and* (c) Hotelling’s references to “tactile feedback.” Pet., 26-29.

53. The problem for Petitioner is Hotelling describes providing feedback for specific purposes—“mak[ing] the virtual UI feel more like a physical UI” or “work[s] similarly to the [alert] indicators” (EX1004, [0160]-[0163])—and applying those teachings to modify the Figure 18 “GUI for a main menu” results in adding “tactile feedback” when / based on conditions that do not match the Challenged Claims. This is not the specific use of feedback that is claimed in the Challenged Claims for reasons I explain in more detail below.

54. Perhaps aware of the mismatch in Hotelling’s teachings and the Asserted Claims, Petitioner alternatively asserts that it was obvious to incorporate tactile feedback “for this purpose” as a “well known solution to a longstanding problem.” Pet., 28-29. But 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.” *See Johns Manville Corp. v. Knauf Insulation, Inc.* (IPR2018-00827, Paper 9) at 13-14.

1. Applying Hotelling’s Disclosure of Haptics to Simulate Physical Button Presses Does Not Result in the Claims

55. The Petition asserts: “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.’” Pet., 28. This partial quotation from paragraph [0163] of Hotelling mischaracterizes Hotelling’s disclosure. The

actual context does not support interpreting “touch events” as including “long (second) duration touches on ‘a virtual button.’” Rather, Hotelling repeatedly and consistently explains that “haptics mechanism” “may be used to *enhance the feel of actuality a GUI element such as a soft button or scroll wheel*,” which “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.”).

56. Based on these disclosures, a POSITA would understand that implementing Hotelling’s disclosure to simulate interacting with a physical control would entail providing haptic feedback upon the initial press and/or upon release—*not* when a time threshold of holding down a button is passed because a physical button does not provide any tactile response to being held. If the goal of Hotelling’s design is to provide users with a familiar interface that behaves like buttons they recognize, it would go against that purpose to provide users with buttons that do not behave like buttons they recognize. A POSITA would have understood the importance of an intuitive, familiar design to user interface adoption and success. There is also no basis to interpret the words “input event” more broadly than this stated purpose. The very paragraph Petitioner quotes repeatedly emphasizes this

concept of providing feedback to simulate the physical button—*not* an “input event”

that has no impact on a physical button:

Audio and/or tactile feedback may be used to alert a user that a user input has been made. For example, *in response to touching a virtual button on 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. The tactile audio feedback can be used in conjunction with **an input event** including touch events, motion events, squeeze events. 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*). In one implementation, the feedback is tied to the level of force being applied to the force sensing devices. 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.*

Id., [0163]. Based on the above repeated examples of feedback that makes a virtual button behave like a physical button, a POSITA would have understood this paragraph to refer to only this use of feedback, rather than a more generalized use. While it easy to look back with hindsight and see the value of tactile feedback, it was not fully appreciated at the time and a POSITA at that time would not have recognized the wide range of uses that were possible. Certainly, a POSITA would not have recognized it based on the disclosure above, which provides only examples of tactile feedback to simulate a button click.

57. Based on the above disclosure, a POSITA would have understood this teaching of Hotelling to disclose “outputting tactile feedback” with a haptics

mechanism in order to *mimic physical buttons* through haptic feedback. Doing so would entail providing haptic feedback upon the initial press and/or upon release—*not* when a time threshold of holding down a button is passed because a physical button does not provide any tactile response to being held. Such functionality 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.” This is a specific use of tactile feedback that is not disclosed in Hotelling or the other references cited in the Petition.

58. The Board found, on a preliminary record, that “Hotelling teaches haptics ‘alert[ing] a user that a *user input* has been made.’” D.I., at 23-24. However, that finding did not address whether “user input” as used in Hotelling referred to “long (second) duration touches on ‘a virtual button’” as Petitioner asserts. As discussed above, it does not.

2. Applying Hotelling’s Disclosure of Haptics as Alert Indicators Does Not Result in the Claims

59. Hotelling first teaches that “[t]he haptics mechanism may work similarly *to the indicators described above (alert)*.” EX1004, [0161]. In its Institution Decision, the Board cites this sentence as secondary evidence supporting its preliminary finding regarding the scope of Hotelling’s teachings. Institution, at 23-24. In addition, the Board edited this excerpt of Hotelling to read: “haptics mechanisms may work similarly to *[alert indicators]*.” *Id.* However, Hotelling does

not refer to alert indicators in a general sense, but rather to the specific kind of alert indicators taught in Hotelling. *See id.*, [0161]. Because this paragraph refers back to the indicators described in Hotelling, a POSITA would have looked to the specific disclosure in Hotelling to understand the recommended uses of tactile feedback associated with Hotelling's indicators.

60. Hotelling's "indicators" "provide user feedback or indicate events associated with the device." *Id.*, [0158]. These "events," include "signals, conditions, or status of the device." *Id.* For example, "the indicators provide status of battery life or **alert** a user when there is an incoming call." *Id.* The rest of this section in Hotelling, entitled "Indicator (LED)," goes on to describe device functionality consistent with indicators that signal global device events unrelated to user input. *See id.*, [0158]-[0159]. Hotelling includes no other disclosure of alert "indicators" outside of these two paragraphs. In addition, Hotelling provides no teaching that would lead a POSITA to understand indicators that "provide user feedback" to relate to anything other than feedback related to the sorts of events listed in these examples. *Id.*, [0158]-[0159]. Providing user feedback describes such a broad category of possible actions, uses, or responses that a POSITA would look to the specific examples provided to understand what Hotelling means. On its own, this phrase is essentially meaningless because it does not provide any specific implementation that would lead a POSITA to understand how to implement tactile

feedback effectively. The examples, on the other hand, do just that. Based on these examples, a POSITA would be able to understand the kind of user feedback that Hotelling refers to.

61. Read in view of this context, Hotelling's reference to "the indicators described above (alert)" clearly teaches that haptics may be used in conjunction with "events associated with the device," such as "status of battery life" or "alert[s] ... when there is an incoming call." *See id.*, [0161], [0158]-[0159]. A POSITA would have understood this exemplary list of "events" to be distinct from user input events, such as detecting a first or second duration of a touch because these examples are wholly unrelated to user input. This list could be more accurately described as related to device notifications, or device-wide alerts. Hotelling teaches that haptic feedback may be useful in the context of this narrow category of "events" (i.e., events that trigger indicators). *See id.*, [0158]-[0159]. Therefore, contrary to the Board's preliminary finding, this excerpt from Hotelling does not teach the application of haptics to a broader category of alerts that could be read to include haptics as claimed in Limitation [1.c] of the '212 Patent. *See Institution*, at 23-24. To interpret this limited teaching of Hotelling otherwise is hindsight based on the myriad of uses of haptic feedback in today's devices, not a proper interpretation of the scope of Hotelling's teachings.

3. *Petitioner's "Obviousness" Theory Relies on Hindsight*

62. 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. However, as explained above, Hotelling does not suggest the use of haptic feedback in the way claimed in the ’212 Patent and does not provide examples of haptic feedback used in conjunction with a gesture, touch vocabulary, or similar mechanism that would support the Petition’s assertions. Instead, Hotelling discloses many *other* examples of haptic feedback. *See e.g.*, EX1004, [0161] (“[the] haptics mechanism . . . enhances the users experience and makes the virtual UI feel more like a physical UI.”); [0161] (“For example, during movies or game playing, the haptics mechanism can simulate the action being displayed.”); [0161] (“For example, the haptics mechanism may provide force feedback in the form of vibration when a car explodes during a movie or game.”); [0163] (“the feedback . . . simulates the audio and tactile feel of a button or switch”); [0163] (“In one implementation, the feedback is tied to the level of force being applied to the force sensing devices.”). The Petition’s failure to explain how or why a POSITA would arrive at Limitation [1.c]’s specific use of haptic feedback is contrary to what *is* disclosed in Hotelling.

63. In support of its POSITA-based theory, the Petition cites only 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 single 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. Hotelling’s teachings are either too general to support such an assertion, or specific examples that teach uses of haptic feedback different from those claimed in the ’212 Patent. The Petition’s remaining justifications of “a well-known solution to the longstanding problem” and “design trends and market forces” (Pet., 28-29) are also exceedingly general and fail to support the specific combination of logic claimed in the ’212 Patent.

64. Petitioner’s second theory is also inconsistent Hotelling’s explicit teachings related to its music player touch vocabulary. 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, [0163], FIGS. 27A-E. 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. 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 conceivable “touch event.” *See id.*, [0163], FIG. 27A. Contrary to what is asserted in the Petition, a POSITA would understand Hotelling

to suggest, if anything, that “tactile click” haptic feedback may be used with the music player touch vocabulary to “mimic the physical controls” by outputting feedback at the start of the touch. *See id.*, [0070], [0163], FIGs. 27A-E. Accordingly, even if the Petition’s second theory was adequately supported, a POSITA would not understand Hotelling to teach the use of haptic feedback that the Petition asserts.

65. For the reasons discussed above, the proposed combination fails to render obvious each of the Challenged Claims because neither Hotelling nor Hotelling as interpreted by a POSITA without the benefit of hindsight render obvious Limitations [1.c], [16.h], and [84.d].

B. Limitations [1.d], [16.i], [84.e] “[when] / [based on] the second duration of the touch ... [is] / [being] detected ... display at least one menu including a plurality of particular actions”

66. Hotelling and Martyn do not teach this Limitation and the Petition’s lack of analysis related to Hotelling’s disclosure is fatal to its proposed combination. Specifically, Petitioner proposes: (1) adopting the “App Snapshot” of Martyn, (2) applying it to the “exemplary main menu GUI 260 of a multi-functional device” shown in Figure 18 of Hotelling, and (3) using the input gestures of Figure 27A’s “touch vocabulary associated with a music player” with the “exemplary main menu GUI 260” of Figure 18. Pet., 22-33.

67. As a threshold matter, Hotelling does not teach the application of Figures 27A-E (the touch vocabulary for a music player) to Figure 18 (the main menu GUI). Neither the Petition nor Dr. Cockburn provides such an analysis or even addresses this clear difference between Hotelling’s disclosure and the Petition’s interpretation of Hotelling. Further, a POSITA would affirmatively understand Hotelling’s touch vocabulary for a music player not to be applicable to its main menu GUI. Thus, the Petition fails both legally (lack of reasoned analysis) and factually (Hotelling does not teach or suggest what is asserted in the Petition).

1. Hotelling does not teach the combination of its music player touch vocabulary with its main menu GUI.

68. Hotelling discloses a number of different GUIs (i.e., operating modes) that can be used with its multi-functional device. *See* EX1004, [0074]-[0083], FIGs. 5-18. Of these distinct GUIs for different operating modes, Figure 18 “illustrates an exemplary GUI *for a main menu* of a multi-functional hand held device,” Figure 11 “illustrates an exemplary GUI *for a media player*,” and Figures 27A-E illustrate an “example of a touch vocabulary *associated with a music player*.” *Id.*, [0022], [0029], [0085], [0151].

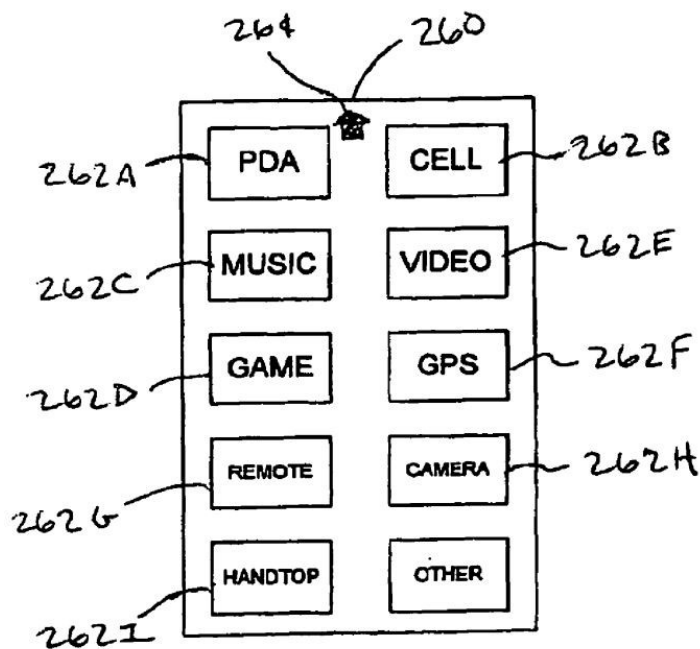


FIG. 18

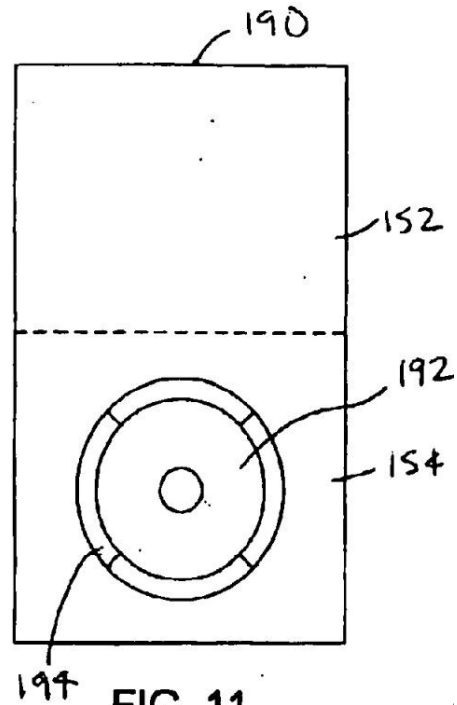
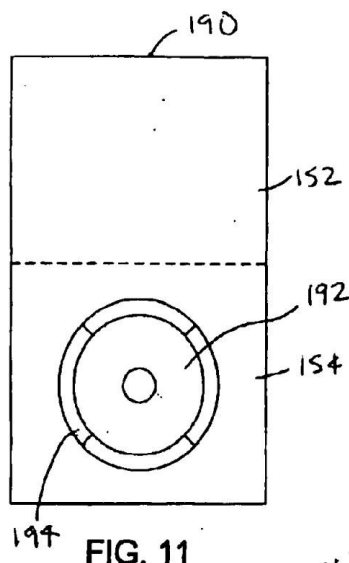


FIG. 11

Id., FIGs. 11, 18. While the Petition blurs the lines between Hotelling's main menu and music player GUIs, it cannot be reasonably disputed that they are distinct. In his deposition, Petitioner's expert, Dr. Cockburn acknowledged that Hotelling "characterize[s]" Figure 11 as a GUI that is used in a music player mode and Figure 18 as a main menu GUI. *See* EX2006, 16:19-17:1; 17:16-20. But, Hotelling speaks for itself. Figure 18 is not a GUI for a music player. *See* EX1004, [0029], [0085], FIG. 18. There is no teaching in Hotelling that would suggest this to be the case. Further, based on Figures 9-17, a POSITA would understand Hotelling to teach the use of a separate GUI for each device functionality. It makes no sense to understand Figure 18 as a music player GUI when Hotelling explicitly states it is a main menu GUI, the Figure looks like a main menu GUI, and Hotelling provides a separate GUI

(Figure 11) for a music player. When pressed as to what music player functions Figure 18 included, all Dr. Cockburn asserted is that Figure 18 “will launch,” “provides access to,” and “is associated with” a music player. EX2006, 17:21-19:20 (“this graphical user interface provides access to a music player”), (“Figure 18 provides a graphical user interface that is associated with a music player”), (“this representation of the graphical user interface in Figure 18 will launch a music player”). Dr. Cockburn’s admission that the music player button will “launch” a music player confirms that Figure 18 is not a music player. A person of skill in the art like Dr. Cockburn would understand that launching an application like a music player would involve replacing the device’s current GUI with a new GUI related to the launched application. For example, Figure 11 below is a music player GUI disclosed in Hotelling:



EX1004, FIG. 11. This is the GUI that is launched when music player button 262C is pressed and is the exemplary GUI in Hotelling that is associated with a music player. EX1004, [0085] (“When a button [262] is pressed, the main page for the selected functional[ity] (e.g., as shown in FIGS. 9-17) is brought into view on the display.”), [0077] (“FIG. 11 is a diagram of a GUI 190 that is used in a music player mode.”).

69. Hotelling further teaches that Figures 27A-E of Hotelling are “a touch vocabulary associated with a music player,” such as the music player shown in Figure 11 above. EX1004, [0038], [0151]. The specific row of Figure 27A relied on by the Petition recites, in a “List Nav.” UI mode, and in response to a “LONG” touch with “click” pressure on a “virtual button,” taking the following action: “On touch-down, do nothing. On click-down highlight item under touch (if any). After delay, bring-up context sensitive menu.” Pet., 29-31; *see* EX1004, [0085], [0151], FIG. 18, FIG. 27A. While Figure 11 is consistent with this disclosure, the main menu GUI shown in Figure 18 of Hotelling above is not a “music player,” nor can it be used in a “List Nav.” mode. *See* EX1004, [0085], [0151]. A POSITA would not have looked to Figure 18 for a GUI to use with the functionality described in Figures 27A-E because Hotelling already provides one in Figure 11.

70. Based on the evidence cited above, Hotelling does not—on its face—teach or suggest that Figures 27A-E describe gestures for the main menu GUI shown

in Figure 18. Figures 27A-E do not describe functionality of a GUI that is tangential to the music player itself (i.e., because it launches or provides access to one). They describe functionality central to the operation of the music player. *See e.g.*, EX1004, FIG. 27A (describing a “PLAY/PAUSE” button, “legacy SELECT button,” “legacy MENU function,” and folder navigation all characteristic of prior art media players like an iPod); *see also* EX1004, [0005] (referencing an “iPod” as a prior art “media player”). Therefore, a POSITA would have understood Figures 27A-E to describe functionality associated with Figure 11, ***not*** Figure 18.

2. The Petition does not provide a reasoned analysis to support its particular combination.

71. The Petition mixes and matches the distinct GUIs of Hotelling discussed above without analyzing or even addressing the fact that Figures 27A-E are not directed to the main menu GUI in Figure 18. *See, e.g.*, Pet., 22 (“Hotelling describes a GUI 260 providing a ‘main menu page’), 23 (depicting “GUI 260” of Hotelling), 26 (“Hotelling’s Figure 27A (below) depicts an exemplary touch vocabulary [for a music player]”). 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).

72. The Petition conflates these distinct teachings in its mapping of claim 1, treating them as if they are all directed to the same 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* EX1004, [0038]; *supra* Section V.A.

73. Petitioner therefore mixes functionality associated with a music player GUI (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 rationale for doing so (or pointing to anything in Hotelling that would purportedly provide such a rationale). *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”).

74. Dr. Cockburn also does not explain why a POSITA would understand Hotelling’s teachings for a “music player” to apply to a “main menu,” ignoring this obvious discontinuity in the Petition’s mapping of Hotelling. *See* EX1003, ¶¶121-124, 131-132. As a result, there is no reasoned analysis anywhere in the record regarding the application of touch gestures meant for a “List Nav.” of a “music player” to a GUI that is neither of those things.

3. A POSITA would not be motivated to combine Hotelling’s music player touch vocabulary with its main menu GUI.

75. The Petition’s proposed combination is also inconsistent with how a POSITA would have understood Hotelling. As explained above, Hotelling does not itself teach to combine Figures 27A-E and Figure 18. Therefore, the Petition’s proposed combination must implicitly rely on a POSITA interpreting Figures 27A-E to apply to Figure 18. Such an interpretation is inconsistent with Hotelling’s specification as a whole for the reasons below.

76. First, Hotelling’s disclosure does not support the combination of one GUI’s functionality with another, generally. *See also* EX1004, [0067]-[0083] (describing user input “Adaptability” accomplished in part by a “GUI Based on

Functionality”), [0020]-[0028] (listing separate GUIs for each operating mode).

Rather, Hotelling teaches that its “multi-functional device is capable of ***reconfiguring*** its user interface based on the state or mode of the device.” *Id.*, [0067] (emphasis added). As Hotelling explains, reconfiguration includes the GUI’s inputs, which “correspond[]” to the GUI for a particular device:

“Alternatively adaptability may be accomplished by virtually incorporating the physical inputs for each functionality into the GUI in conjunction with a touch screen. This allows the GUI to adapt to whatever device is selected, and ***the touch screen can receive inputs corresponding to the GUI***. With a GUI for each functionality, the UI for the hand-held device adapts such that the multi-function device, in effect, becomes a particular device. For example, if the cell phone functionality is selected, the GUI presents a set of virtual or soft controls that look similar to the physical controls typically used on a cell phone, such as a keypad, function buttons and possibly a navigation pad, for example.

Id., [0069] (emphasis added), *see also id.*, [0067]-[0073] (describing Hotelling’s “adaptability”), [0074]-[0083] (describing various “GUIs for different states or modes”). In addition, “[w]hen a particular functionality is selected for use, the hand-held device loads the software for the selected functionality and configures the GUI” so that “[t]he controls in the control region can therefore be used to control whatever is being shown in the standard region.” *Id.*, [0072]. Thus, a POSITA would not understand Hotelling’s music player touch vocabulary to be applicable to the main menu GUI because Hotelling teaches that “inputs” are specific to each GUI for each operating mode. *See id.*, [0069], [0072].

77. Second, Hotelling suggests that Figures 27A-E are “a touch vocabulary associated with a music player” and only with a music player. EX1004, [0038] (emphasis added), [0151]. Hotelling does not disclose that these Figures represent a generic touch vocabulary, a multi-purpose touch vocabulary, or anything of the sort. There is nothing in Hotelling that would suggest that this touch vocabulary is universally applicable. In fact, the opposite is true. As shown in FIG. 27A (the specific Figure cited by the Petition), many of the functions are not universally applicable and several are specific to a music player alone (e.g., a “PLAY/PAUSE” button, “list scrolling UP/DOWN, first few letters enlarged,” “open highlighted folder ... like legacy SELECT button,” “go back out a folder ... like legacy MENU function,” etc.). *See id.*, FIGs. 27A, 11. A POSITA would not look at the list of features described in Figures 27A-E and understand them to be applicable to a main menu without substantial modification and experimentation to determine which inputs are desirable outside of the music player context and which are not.

78. Figure 18 is also inconsistent with Figure 27A. For example, Figure 18 does not distinguish between “list items” and “virtual buttons,” or provide a “display region” and a “control region.” Figure 18 is a full-screen native touch GUI with “icons/buttons 262 for launching each of the various device functionalities.” *See* EX1004, [0085]. Hotelling describes these “buttons 262” as “virtual buttons” (EX1004, [0085]) in the sense that they are not physical controls, but they are *not*

“virtual controls that mimic the physical controls,” nor are they distinguishable from “list items” as Figure 18 does not include any list other than the buttons themselves.

79. Figure 18 also does not include “standard region 152” and “control region 154” labels found in each of Figures 5-17, nor is there any way to divide Figure 18 into those two regions. *See* EX1004, [0084]-[0085], FIG. 18; *see also* EX2006, 29:18-19. This stands in stark contrast to the other GUIs in Hotelling, which show a dotted line between the two regions. This is because Figure 18 is not illustrating a virtual version of a physical device having a display that could display list items and physical controls to provide input. Figure 18 is a switchboard that allows a user to quickly navigate between different functionalities that were previously separate devices. Emphasizing the inapplicability of Hotelling’s primary disclosure to Figure 18, when asked how he would reconcile the standard/control region design with Figure 18, Dr. Cockburn suggested that the standard and control regions would both make up the entire screen. EX2006, 40:3-13. But the Hotelling explains that the GUI is “*separated into* a standard region 152 and a control region 154.” EX1004, [0070]; *see also id.* (describing the control region “*on the other hand*” and thus distinct from the standard region). If each region occupies the entire screen, the distinction between the two becomes meaningless. There would be no need to categorize regions of the screen if they describe the same region.

80. This interpretation of Hotelling is also consistent with a POSITA's understanding of the art. GUI design, including touch vocabularies or user inputs, are context-specific. The input gestures that strike the best balance between increased functionality and increased confusion depend on the particular device or operating mode. For example, music players in the prior art commonly have a storage system of folders, organized by artist, album, song, etc. that users navigate to select a specific song. In that context, a more complex set of gestures can be useful to allow a user to quickly find the song they would like to hear. *See e.g. id.*, FIG. 27A. Using a touch gesture can reduce what used to be a series of inputs to a single swipe. However, the gesture must also be intuitive for users. If the number of possible inputs is large, the GUI can become overwhelming, which can defeat the point of using more complex inputs in the first place. In the main menu context, as another example, a POSITA would have understood this principle of simplicity to outweigh the need for complex touch gestures. In either case, however, a POSITA would need to test various combinations of inputs to identify a set of inputs that create a successful GUI that will be adopted and appreciated by users.

81. Third, the purpose and functionality of Hotelling's "main menu GUI" is inconsistent with a complicated set of touch commands (such as the music player mode touch vocabulary). 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. Based on this disclosure, a POSITA would have understood Hotelling’s main menu as designed for simplicity. It is a switchboard used to reach each separate application. *See id.*; *see also* EX1004, [0085]. 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 frustrate this express goal of Hotelling.

82. In the Institution Decision, the Board determined that “Petitioner has sufficiently shown that Hotelling’s general teachings regarding gestures received on a touch screen includes the recognition of touch gestures ... while Hotelling’s main page is being displayed.” Institution, at 19. The Board goes on to explain that “we do not, on the present record, determine that Hotelling limits its disclosed recognition of touch gestures ... only to the music player ... rather than to all user input GUIs.” *Id.* (emphasis added). This preliminary finding directly contradicts Hotelling’s teachings described above and is far broader than how a POSITA would

understand Hotelling's disclosure. *See e.g.*, EX1004, [0151] ("a touch vocabulary associated with a music player is shown in FIGs. 27A-E.").

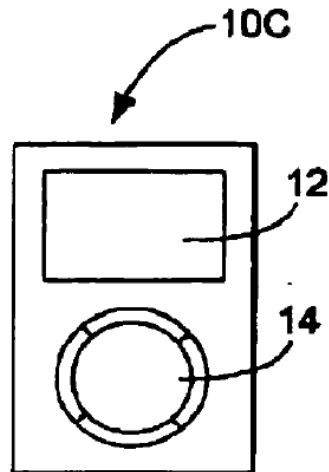
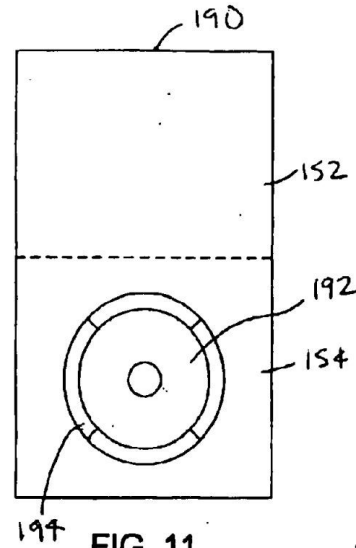
4. If a POSITA tried to apply Figure 27A to a main menu, it would be applied to Figure 9.

83. Even if one were to try to apply the teachings in Figure 27A to a main menu, it would result in a modification that does not match the claims because the specific portions of Figure 27A upon which Petitioner relies assume a specific type of GUI that does not match Figure 18.

84. In addition to the specification's repeated statements describing Figure 27A as "associated with a music player," Figure 27A describes itself as a "List Nav" "UI Mode" (as opposed to other music player UI modes such as Figure 27C's "Now Playing" "UI Mode"). EX1004, FIGs. 27A, 27C. And, Figure 27A's "touch vocabulary" includes entries specifying the required location of the touch for various behaviors, specifying for rows 1-4, respectively, "anywhere," "virtual button / list item," "PLAY / PAUSE virtual button," and "virtual button." By including on Row 2 both "virtual button" and "list item" and including only "virtual button" in Row 4 (the row Petitioner's mapping relies upon), Hotelling: (1) makes clear that Figure 27A requires a UI that distinguishes between a "virtual button" and "list item," and (2) teaches away from applying a long touch to a "list item" to call up a pop up menu. The long touch row could, but does not, name a "list item" as a candidate for a pop

up menu. A POSITA would have understood this to teach that Hotelling did not consider list items to be candidates for pop up menus.

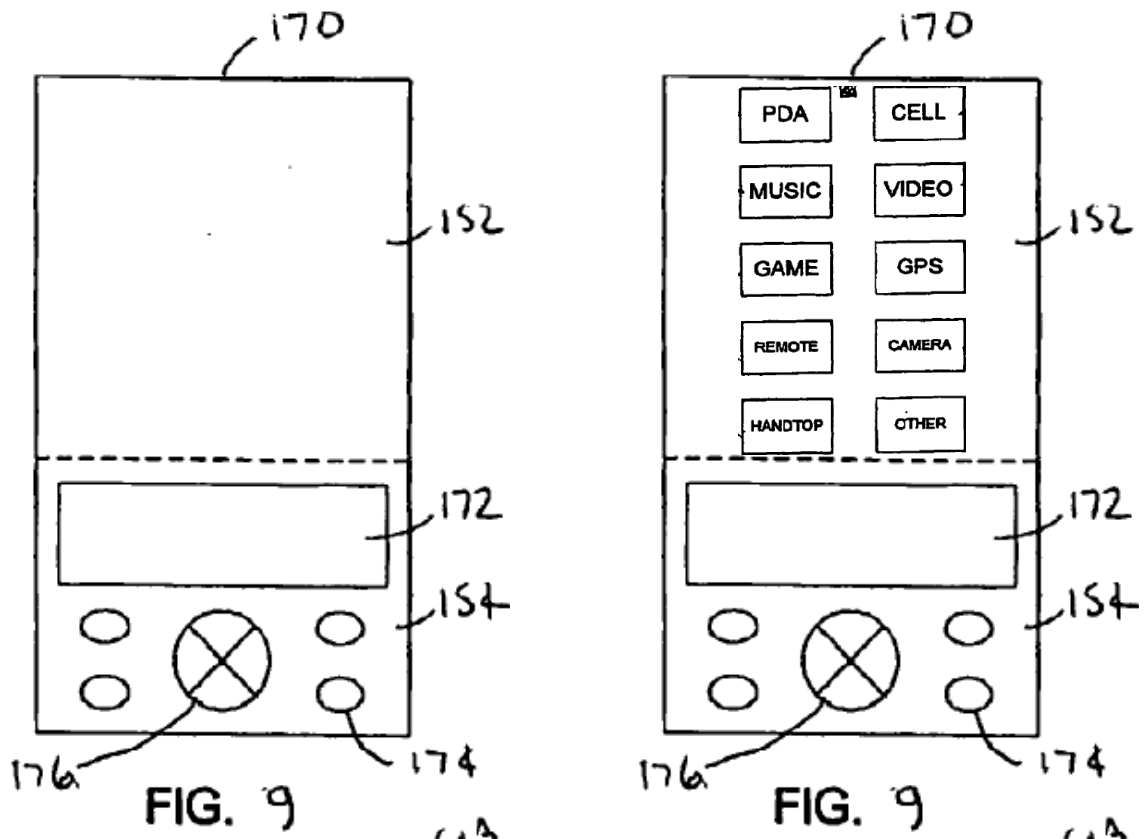
85. As discussed above, a POSITA can easily apply Figure 27A's teachings to their intended target—the music player GUI of Figure 11. Dr. Cockburn agreed that Figure 27A's reference to "list items" would be understood to refer to a list of items such as songs that would be "presented in the display region 152." EX2006, 47:2-18. I agree that a POSITA would understand a music player to operate in this way. Following Figure 11's labels, the "virtual buttons," including the "PLAY / PAUSE virtual button," referenced in Figure 27A corresponds to "five virtual buttons 194" "[l]ocated inside the control region 154." EX1004, [0077]. Thus, in Figure 11, "virtual buttons" refer to the items in the "control region" as opposed to "list items" in the "display region" that are also selectable via touch. Here, Figure 11's "exemplary GUI for a media player" replicates Figure 1C's "media player 10C" that includes a "display 12" and "one or more [physical] input devices 14." EX1004, [0022], [0004]. Figure 1C is one example of a separate device that was known in the art and Hotelling sought to combine into a single multi-function device that merged the functionality of all the separate devices.

**FIG. 1C****FIG. 11**

Id., FIGs. 1C, 11. The “virtual scroll wheel” and “virtual buttons” in “control region 154” are “virtual controls that mimic the physical controls,” similar to the kinds of buttons discussed earlier with respect to Hotelling’s tactile feedback teachings. EX1004, [0070], [0077].

86. Consistent with Figures 27A and 11 and Hotelling’s overall disclosure, even if a POSITA were to seek to apply Figure 27A to a non-music player UI, and, specifically a main menu UI, a POSITA would be motivated to start from a main menu UI that implements the “control region” / “standard region” UI. Hotelling discloses a compatible embodiment in the form of “GUI 70 that is used in a PDA mode” as shown in Figure 9 that “is divided into a standard region 152 and control region 154” with control region 154 containing “four virtual buttons 174 and a virtual navigation pad 176.” EX1004, [0075], FIG. 9. In the Figure 9 UI “a main menu (window with set of icons)” may be “displayed in the standard region 152.”

EX1004, [0070]. Dr. Cockburn confirmed it “would be fair” to call items 262A-262H in Figure 18’s main menu GUI “icons.” EX2006, 92:4-8. Thus, to the extent a POSITA desired to use the “touch vocabulary” of Figure 27A on a “main menu GUI” having Figure 18’s items 262A-262H, a POSITA would do so by including items 262A-262H in Figure 9’s “standard region” alongside Figure 9’s virtual controls in a control region.



EX1004, FIG. 9; *id.* (modified).

87. This modification is also consistent with Martyn. Martyn discloses calling up the “App Snapshot” via a “press and hold of the select function when an application name is highlighted.” EX1005, [0017]. This reference to the “select

function” refers to press and hold of a physical button—and to the extent Martyn is extrapolated to touch screens, it would be a press and hold on a virtual representation of the select button, not on an application icon. *Id.* Hotelling teach such virtual representations and it would have been obvious to a POSITA to apply Martyn’s teaching to this virtual representation because it would require no modification.

88. Dr. Cockburn agreed that touch screen and non-touch screen devices differ in their selection techniques, with a non-touch screen device like Martyn’s capable only of selecting using a physical button. EX2006, 79:12-19. Thus, while Petitioner points to Martyn’s disclosure as “analogous to Hotelling’s ‘long’ touch” to support its combination’s use of a long touch on an application icon (Pet., 27), both Hotelling’s Figure 27A and Martyn disclose a long touch on a physical/virtual control button, not the application icon.

89. Applying Figure 27A’s disclosure to a compatible main menu GUI, if a user desired to call a “context sensitive pop up menu,” the user would perform a long touch on virtual buttons 174, not the list of applications included in standard region 152.

Figure 27A: Long touch on list item in standard region does not call context menu

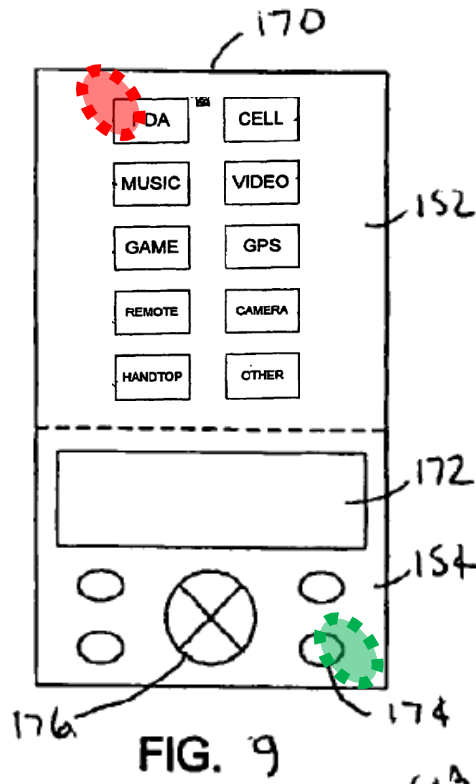


Figure 27A: Long touch on virtual button in control region calls context menu

EX1004, FIG. 9; *id.* (modified). This modification, which follows Hotelling and Martyn's actual disclosures, does not meet Limitations [1.d], [16.i], [84.e] because, to meet other limitations, Petitioner already mapped "*the* touch" as a touch at the location of an application icon (the mapped "indicia") (Pet., 22, 24) and, therefore, a touch on a virtual button in the control region rather than an application icon in the standard region cannot be "*the* touch."

90. In summary, the Petition's mapping rests upon a combination of a specific touch vocabulary (i.e., FIGs. 27A-E) with a specific GUI (i.e., Figure 18). Nowhere does the Petition offer any explanation or citation to Hotelling that suggests that the disclosure in Figures 27A-E is applicable to GUIs other than a music player

GUI. The Petition simply presumes that the features in Figures 27A-E apply equally to the main menu GUI. *See* Pet., at 24-29. In doing so, the Petition does not acknowledge that Figures 27A-E are not a touch vocabulary for a main menu and does not grapple with the contrary teachings of Hotelling that inputs are GUI specific, rather than generally applicable. *See* EX1004, [0069], [0074]-[0083], [0091], [0151]. Accordingly, the Petition does not show and cannot show how Hotelling renders this Limitation obvious.

XI. Petitioner Does Not Provide a Reasoned Explanation for How Any of the Cited Disclosures Would Result in a Modification that Matches the Action and Condition of Limitations [1.f], [16.k], [84.g]

A. Limitations [1.f], [16.k], [84.g]: “[when] / [based on] a slide or swipe gesture ... [is] / [being] detected after the second duration ... [change] / [changing] at least one aspect of the display of the at least one menu”

91. In my opinion, none of the cited references disclose this Limitation, alone or in combination. The Petition points to a variety of different teachings from Hotelling, Martyn, and Cho that, in combination, allegedly teach this Limitation with respect to Martyn’s App Snapshot. *See* Pet., 33-40. However, each of the Petition’s examples do not withstand scrutiny because they point to disparate teachings across the three references—cherry-picking as needed—to create proposed functionality that is not taught in the references themselves, inconsistent with related teachings in the references, lacks an articulated motivation to combine, or all of the above.

1. First Theory: Martyn and Hotelling

92. The Petition first points to two combinations of Martyn's menu functionality with touch screen gestures from Hotelling. As explained below, neither would lead a POSITA to the specific logic described in Limitation [1.f].

a) First Example: Martyn's highlighting to indicate the currently selected item

93. The Petition's first mapping based on Hotelling and Martyn relies on "teachings in Martyn about moving a highlight throughout items in a menu." *See* Pet., 51, *see also id.*, 34-35. However, the highlighting functionality taught in Martyn is a feature unique to non-touch screen devices that required scrolling through a list of options, of which only one could be selected at a time. *See* EX1005, [0018]. Specifically, Martyn teaches that:

"A highlight is available in the App Snapshot dropdown which may be scrolled in order to select a required item. When an item in the App Snapshot is selected (*e.g. by being highlighted and then selected using a conventional selection technique such as pressing a right cursor*), the device displays the relevant data in the application details view."

Id., [0018]. Martyn adds that "the 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.*, [0016].

94. Contrary to what is asserted in the Petition, a POSITA would have understood Martyn's highlighting to facilitate selection of options on a non-touch screen where a cursor must be scrolled to an item before the item can be selected.

See also EX1005, [0016]-[0018], FIG. 1. Martyn’s disclosure makes clear that highlighting is used to allow “an item in the App Snapshot [to be] selected.” *See* EX1005, [0018]. A POSITA would have understood that such highlighting or other emphasis is required on non-touch screen devices because only one item may be selected at a time using the scroll wheel. *See* EX1005, FIG. 1. This is consistent with the common operation of non-touch screen devices like the one described in Martyn and those that were ubiquitous at the time of Martyn’s filing. By contrast, a touch screen device enables any item on the screen to be selected without scrolling using “a conventional selection technique,” as is required in Martyn. *Compare* EX1005, [0018] *with* EX1004, FIG. 27A (teaching that “touchdown” on a “list item” “execute[s] the item clicked”). In his deposition, Dr. Cockburn agreed that “it’s not necessary to highlight” an item prior to selecting it on a touch screen device. EX2006, 80:11-21.

95. The Petition does not address the incongruity between the highlighting/scrolling on Martyn’s non-touch screen device to facilitate item selection and the manner in which item selection is possible on touch screen devices like Hotelling, thus obviating the need for highlighting to indicate the current selection. For this reason, a POSITA would have understood Martyn’s highlighting as an unnecessary feature for Hotelling’s touch screen device, which enables item selection without scrolling, . *See* EX1004, FIG. 27A. Therefore, this is not a feature

of Martyn that a POSITA would have adopted in the proposed combination with Hotelling and the Petition has not explained why it would be.

b) Second Example: Hotelling’s swipe gesture to “back out a folder” of a music player

96. The Petition’s second mapping based on Hotelling and Martyn—to dismiss Martyn’s App Snapshot using Hotelling’s teaching of a slide or swipe to “back out a folder”—relies on the Petition’s unsupported assertion that “back out a folder” as taught in Figures 27A and 27B of Hotelling is “an action analogous to Martyn’s menu dismissal.” *See* Pet., 36. The Petition cites paragraphs [0151], [0087], and [0148], as well as Figures 27A and 27B in support of this assertion. *Id.* None of these portions of Hotelling (nor any other portion of Hotelling) supports the Petition’s assertion that these two teachings are analogous, or even discuss facts relevant to such a comparison. Hotelling does not compare folders to menus and a POSITA would not understand these contexts to be obviously comparable. Hotelling does not compare “back[ing] out” of a folder to dismissing a menu and a POSITA would understand these to be two distinct features. Hotelling also does not teach or suggest that the gestures disclosed in Figures 27A and 27B would be useful to dismiss a menu. In addition, as discussed at length above, Hotelling does not teach that the gestures disclosed in Figures 27A-E are applicable outside of the context of a music player GUI.

97. Instead, a POSITA would affirmatively consider Row 7 of Figure 27A of Hotelling (i.e., the “back[ing] out a folder” gesture) **not** to be applicable to Martyn’s App Snapshot. For example, Figure 27A teaches that the device “animate[s] screen sliding RIGHT” as the corresponding “Feedback” when this gesture is executed. EX1004, FIG. 27A. This response allows users to easily navigate layers of a folder system, which is fundamentally hierarchical. Users must have a way to efficiently navigate between multiple layers of a folder structure. To support navigation of a folder hierarchy, Hotelling teaches that the screen may be swiped left to navigate to a lower layer of the folder hierarchy, *see* EX1004, FIG. 27A (“On left motion, open highlighted folder”), and may be swiped right to navigate to a higher layer of the folder hierarchy, *see id.* (“On right motion, go back out a folder”). While this set of gestures makes sense in the folder context, it does not make sense to swipe left and right to navigate between layers of Martyn’s App Snapshot menu because Martyn’s App Snapshot **has no layers**. There is only a single menu and it is displayed in one screen (i.e., screen sliding feedback is not applicable). EX1005, Figures 2-3. The menu is not hierarchical in nature and, therefore, the functionality enabled by the gestures in Figure 27A is simply not relevant to Martyn’s App Snapshot. Neither the Petition nor Dr. Cockburn even attempts to explain why a POSITA would understand these two contexts to be

“analogous” when considering Hotelling’s teaching *in context*. A POSITA would not understand this to be the case.

2. *Second Theory: Cho*

98. Next, the Petition points to several features in Cho related to touch screen gestures, but fails to explain why a POSITA would be motivated to combine Cho’s gestures with the Hotelling-Martyn App Snapshot, specifically.

a) **First Example: Cho’s scrolling**

99. The Petition first points to Cho’s “teach[ing] that ‘[t]he contents of the information window 620 may be scrolled ... in response to a flick [(swipe)] on the information window.” Pet., 38 (citing EX1006, [0127]). However, as discussed above with respect to Martyn’s highlighting, this again conflates the meaning and function of “scrolling” in Martyn with “scrolling” on a touch screen device. *See* EX1005, [0016] (“the 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.”) (emphasis added); EX1006, [0127] (“*The contents of the information window 620 may be scrolled*”) (emphasis added). A POSITA would not have understood these specific contexts of scrolling to be comparable. They are different features that serve different functions.

100. A POSITA would not have been motivated to combine Cho’s particular scrolling with Martyn’s App Snapshot menu because the contents of Martyn’s App

Snapshot are all visible when the App Snapshot is first displayed (i.e., there are no list items that must be brought into view via scrolling). *See* EX1005 [0017], (“The App Snapshot ... includes the number of new messages (‘0’) and links to the two most common functions”), [0021] (“Scrolling down through the App snapshot and *off the end moves the highlight to the next application in the list (i.e., to ‘Contacts’)*”); Figures 2-3. The only examples that Martyn provides for the contents of its App Snapshot window are “the number of new messages,” “the two most common functions,” that a user has “2 new SMS,” and that the user has “1 Chat ongoing.” EX1005, [0017]. *All* of these features are visible in Figure 3 of Martyn. *See id.*, Figure 3. Martyn does not teach or suggest that there are additional features associated with the Messages application that are available from the App Snapshot menu, but are not shown in Figure 3. Further, such a design would conflict with Martyn’s express teaching that the App Snapshot is designed for “ease and speed of navigation, particularly on small screen devices” and that it displays “a *limited* list of common functions and commonly accessed stored data.” *See* EX1005, [0015] (emphasis added).

101. Martyn does teach that the App Snapshot may accommodate more than the three options depicted in Figure 2, but Martyn teaches that this is accomplished by making the App Snapshot “longer,” not by scrolling. *See* EX1005, [0017]; *compare id.* Figure 2 *with id.* Figure 3. This teaching is consistent with Martyn’s

goals of quick, easy navigation, which would be harmed by the inclusion of a long list of unseen options, defeating a primary goal of this “*summary* [App Snapshot] window.” *See* EX1005, [0015] (emphasis added). This express teaching is evidence that the inventors of Martyn were aware that the App Snapshot window could contain a variable number of options and deliberately chose to include only as many options as may fit on the device’s screen at one time. Interpreting Martyn’s App Snapshot in context, Cho’s content scrolling is simply not needed. *See* EX1006, [0127].

102. When pressed on this point in his deposition, Dr. Cockburn could not point to any express teaching from Martyn that supports the existence of nonvisible menu items in Martyn’s App Snapshot list. *See* EX2006, 82:5-90:17. Instead, Dr. Cockburn asserted that a POSITA would understand Martyn’s teaching that “[s]crolling down through the App Snapshot and off the end moves the highlight to the next application in the list” discloses “*both* moving the highlight through the displayed items *and* moving the highlight such that it brings previously nondisplayed items in the App Snapshot into the App Snapshot’s view.” *Id.*, 89:18-90:13. While Dr. Cockburn is entitled to his opinion, such an interpretation is inconsistent with the teachings of Martyn described above and reads a second meaning into this sentence that is neither taught nor suggested by Martyn, but is critical to the Petition’s proposed combination with Cho’s scrolling. Martyn speaks

for itself and it is improper for Dr. Cockburn to read in a teaching that is not there in order to arrive at the tenuous mapping advanced in the Petition. To interpret Martyn's scrolling feature in this way is pure hindsight bias in light of the '212 Patent's claims. There is no indication in Martyn that there are other options on the App Snapshot and inclusion of extra options would defeat the purpose of of the App Snapshot as a summary feature.

b) Second Example: Cho's window re-sizing

103. Next, the Petition points to window "re-sizing" from Cho, which teaches that "the information window 620 may be enlarged or reduced" in response to a "touch-and-drag" gesture. Pet., 38-39. While Cho does disclose window re-sizing, the Petition provides no explanation or any analysis as to why a POSITA would be motivated to incorporate Cho's window re-sizing, specifically, into Hotelling, Martyn, Martyn's App Snapshot, or any aspect of the Petition's proposed combination. See Pet., 17-20, 38-39. In place of a specific motivation to combine window re-sizing with Hotelling and Martyn (e.g., an expected benefit or improvement), the Petition merely asserts that a POSITA would look to "tertiary references like Cho to obtain supplemental information about using swipe/slide touch gestures," and similar, generic motivations. See Pet., 17-20. The Petition's generic motivations are particularly problematic with respect to this mapping because it is not at all clear why Hotelling or Martyn would benefit from a gesture

that enables menu windows to be re-sized. Neither reference provides any reason to believe window re-sizing would be beneficial and neither the Petition nor Dr. Cockburn points to a teaching in Cho that would provide such a reason. There is not one. A POSITA would not have looked to Cho's scrolling to supplement the Petition's proposed App Snapshot based on the teachings of Martyn and Hotelling.

c) Third Example: Cho's information window dismissal

104. Finally, the Petition points to Cho's teaching that "a touch-and-drag on the information window may be used ... to end display of the information window." Pet., 39 (citing EX1006, [0109]). As with the previous mappings based on Cho, the Petition does not provide a specific motivation to combine Cho's "touch-and-drag" gesture with Hotelling and Martyn to "end display" of the App Snapshot menu in combination with Hotelling's main menu GUI and a POSITA would not find it obvious to combine these features.

105. A POSITA would not have been motivated to combine Cho's teaching with Hotelling and Martyn because Martyn already teaches multiple techniques for ending the display of its App Snapshot. *See* EX1005, [0021] ("If a timeout is used to call the App Snapshot, scrolling the highlight back to the relevant application name ... removes the App Snapshot."), [0022] ("If scroll functions ... call the App Snapshot the opposite scroll function removes the snapshot."); [0023] ("When a user scrolls off the end of the App Snapshot, the main list from which the App Snapshot

was opened de-compresses ... (i.e., the screen reverts to that shown FIG. 1)"). None of the cited references suggest that Martyn's disclosed methods for closing its App Snapshot are inadequate, nor does the Petition cite any evidence that would explain why the addition of Cho's "touch-and-drag" gesture would be an improvement to the functioning of Hotelling's main menu GUI or Martyn's App Snapshot. Without "the glue to combine these references," what remains is the tempting notion—tainted by hindsight—that this specific combination of prior art elements is obvious because similar elements are so combined in the Challenged Claims. This is hindsight bias that is not relevant to a POSITA's understanding as of the priority date of the '212 Patent.

XII. Petitioner Fails to Demonstrate Multiple Dependent Claims

A. Limitation 14: "The non-transitory computer-readable media of claim 13, further including instructions that, when executed by the at least one processor, cause the mobile device to operate such that the slide or swipe gesture is capable of being part of the same gesture."

106. In my opinion, none of the cited references disclose this Limitation. The Petition points to Hotelling's alleged teaching that "motion of the user's finger (e.g., a slide/swipe) can be part of a short or long touch." Pet., 43. According to the Petition, this is taught by Hotelling's disclosure that its device can recognize "touch gestures," which "comprise a contact chord e.g., one or more fingers and a motion associated with the chord." *Id.*, 43-44. The Petition also points to Hotelling's disclosure that "'movement during the touch' and 'the duration of the touch' are

variables ‘which can be combined’” and generic teachings about possible gestures in a related patent application that Petitioner has not included in its proposed combination. *Id.*, 44.

107. What Petitioner does not (and cannot) point to is a teaching in Hotelling of an actual gesture that combines a slide or swipe gesture with a short or long touch into the same gesture, as required by the claim. The music player touch vocabulary that Petitioner claims renders obvious the short and long touch features described in the '212 Patent teaches only gestures that respond to short or long touches, not short or long touches with a slide or swipe as part of the same gesture. *See* EX1004, FIGs. 27A-E; Pet., 24-29 (citing EX1004, FIGs. 27A-B throughout). In fact, Hotelling teaches the opposite: that the gesture that displays the music player’s “context sensitive menu pop-up” has *no* motion associated with the gesture. EX1004, FIG. 27A (showing “Movement during touch or click” is “NONE” for the row that includes the “Context sensitive menu pop-up” feedback). The Petition does not address the fact that Hotelling directly contradicts the Petition’s mapping for this Limitation.

108. This problematic lack of explicit disclosure in Hotelling is exacerbated by the fact that the examples of slide and swipe gestures that Petitioner relies on come from Martyn and Cho, not Hotelling. *See id.*, 33-40. Not only does the Petition not explain why a POSITA would read multi-part gestures into Hotelling that are not

disclosed, but the Petition also does not explain why a POSITA would have been motivated to combine the alleged slide and swipes gestures from Martyn and Cho with Hotelling in a way that is not taught in Hotelling. Thus, the Petition's proposed combination fails at two, necessary logical steps.

109. In place of reasoned analysis, the Petition advances a generalized assertion that multiple variables “can be combined” to form a gesture, which would have rendered this claim obvious to a POSITA. Pet., 44. In doing so, the Petition presents Hotelling's disclosure as if it teaches that “movement during the touch” and “the duration of the touch” are a closed universe of variables that a POSITA would have experimented with to reach the gestures claimed in the '212 Patent. *Id.* (citing EX1004, [0145]). In reality, these are two of a “variety of variables” (6 are disclosed, but a POSITA would understand that more are available) that Hotelling teaches can be combined to form a touch vocabulary. EX1004, [0145]. Six independent variables and multiple parts of a gesture quickly results in dozens, if not hundreds, of possible combinations. This generic disclosure simply cannot be enough to render this Limitation obvious to a POSITA without a substantial amount of experimentation. There is no explicit teaching in the cited references and too many variables with which a POSITA must experiment to arrive at this Limitation without guidance from the prior art.

110. For these reasons, a POSITA would not understand this Limitation to be rendered obvious by the proposed Hotelling/Martyn/Cho combination.

B. Limitation 15: “The non-transitory computer-readable media of claim 1, further including instructions that, when executed by the at least one processor, cause the mobile device to operate such that the at least one aspect of the display of the at least one menu is changed by ceasing display of the at least one menu.”

111. In my opinion, none of the cited references disclose this Limitation for reasons discussed in Limitation [1.f]. *See* Pet., 45 (citing back to Limitation [1.f]).

C. Limitation 61: “The mobile device of claim 16, wherein the mobile device is configured such that the at least one aspect of the display of the at least one menu includes a visibility of the at least one menu.”

112. In my opinion, none of the cited references disclose this Limitation for reasons discussed in Limitation [1.f]. First, the Petition points to a subset of the same features of Hotelling, Martyn, and Cho as for Limitation [1.f]. Pet., 50. For reasons described above with respect to Limitation [1.f], these mappings are unsupported by the references.

113. Alternatively, the Petition points to Hotelling’s “‘sliding’ gesture for flipping through pages of a GUI” as disclosing this Limitation. Pet., 50. The Petition argues that Hotelling “teaches that the ‘transition between pages’ involves ‘fading in and out.’” *Id.* Then, the Petition argues that a POSITA “would have been motivated to apply Hotelling’s ‘fading’ transition to the Hotelling-Martyn menu dismissal operation.” *Id.* (citing EX1004, [0086]). However, Petitioner does not

explain why a POSITA would look to a gesture for “*flipping through pages* of a GUI” as applicable to dismissing a menu that does not have pages. *See* Pet., 50. Neither Martyn nor Hotelling discloses a menu with separate pages and the Petition does not point to a reference that does. Instead, the Petition explains that a POSITA would understand this as “applying a well-known technique in a slightly different setting.” Pet., 50. This is a fatal understatement. Hotelling teaches that “fading in and out” may be used as part of a “transition between pages.” EX1004, [0086]. But, the proposed combination does not include a transition between pages, and neither Hotelling nor the Petition explain why Martyn’s App Snapshot menu is a similar context. All that the Petition provides in explanation is a conclusory statement that the contexts are similar. *See* Pet., 50. However, neither the Petition nor Dr. Cockburn explain why this would be the case. A POSITA would not have understood a gesture for flipping through pages to be obviously applicable to a menu that lacks pages.

D. Limitation 62: “The mobile device of claim 16, wherein the mobile device is configured such that the at least one aspect of the display of the at least one menu includes a highlighting on the at least one menu.”

114. In my opinion, none of the cited references disclose this Limitation for reasons discussed in Limitation [1.f]. *See* Pet., 51 (citing back to Limitation [1.f]).

E. Limitation 63: “The mobile device of claim 16, wherein the mobile device is configured such that the at least one aspect of the display of the at least one menu is changed by moving the at least one menu.”

115. In my opinion, none of the cited references disclose this Limitation for reasons discussed in Limitation [1.f]. *See* Pet., 51 (citing back to Limitation [1.f]).

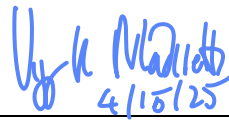
F. Limitation 64: “The mobile device of claim 16, wherein the mobile device is configured such that the at least one aspect of the display of the at least one menu is changed by ceasing display of the at least one menu.”

116. In my opinion, none of the cited references disclose this Limitation for reasons discussed in Limitation [1.f]. *See* Pet., 51 (citing back to Limitation [1.f]).

XIII. CONCLUSION

117. All statements made herein of my own knowledge are true, all statements made herein on information and belief are believed to be true, and these statements were made with the knowledge that willful false statement and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

Respectfully submitted,



Dated: April 15, 2025

Dr. Vijay Madiseti