

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Michael S. Smith
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Title: GESTURE-EQUIPPED TOUCH SCREEN SYSTEM,
METHOD, AND COMPUTER PROGRAM PRODUCT

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**PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT
NO. 10,642,413 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42**

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LIST OF EXHIBITS

EX1001	U.S. Patent No. 10,642,413
EX1002	U.S. Patent No. 10,642,413 File History
EX1003	Declaration of Dr. Loren Terveen
EX1004	U.S. Publication No. 2008/0207188 to Hye Sang Ahn <i>et al.</i> ("Ahn")
EX1005	U.S. Publication No. 2007/0150842 to Imran Chaudhri <i>et al.</i> ("Chaudhri-842")
EX1006	U.S. Publication No. 2011/0209093 to Kenneth P. Hinckley and Koji Yatani ("Hinkley")
EX1007	U.S. Publication No. 2006/0015818 to Imran A. Chaudhri <i>et al.</i> ("Chaudhri '818")
EX1008	Robert Kosara <i>et al.</i> , "Semantic Depth of Field," IEEE Symposium on Information Visualization 2001, pp. 97-104 (2001)
EX1009	New Oxford American Dictionary (3 rd Ed. 2010)
EX1010	U.S. Publication No. No. 2012/0304133 to Jennifer Nan <i>et al.</i> ("Nan")
EX1011	Certified translation of JP Published Patent Application No. 2002-55750 ("Hisatomi"), published February 20, 2002
EX1012 – EX1019	RESERVED
EX1020	United States District Courts — National Judicial Caseload Profile (Dec. 31, 2023) United States Courts (uscourts.gov), https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf (last visited June 25, 2024)

- EX1021 Memorandum, Interim Procedure for Discretionary Denials in
 AIA Post-Grant Proceedings with Parallel District Court
 Litigation (USPTO June 21, 2022) (“Guidance”)
- EX1022 Case Management Order, *Smith Interface Technologies, LLC v.*
 Apple Inc., 3-23-cv-01187, S.D. Cal. (June 20, 2024)

LISTING OF CLAIMS

Claim 1	
[1.a]	An electronic device, comprising: a display; a touch interface; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors
[1.b]	the one or more programs including instructions for: displaying, utilizing the display, a graphical user interface
[1.c]	when the graphical user interface is displayed, detecting, utilizing the touch interface, a first gesture that begins in connection with a first edge of the display and moves inward;
[1.d.i]	in response to the detection of the first gesture that begins in connection with the first edge and moves inward, displaying, utilizing the display, a first menu as sliding in and including one or more first menu items, and
[1.d.ii]	blurring at least a portion of the graphical user interface such that a magnitude of the blurring of the at least portion of the graphical user

	interface progressively increases as a function of an increase in a magnitude of the first gesture being detected;
[1.e.i]	when the first menu is displayed including the one or more first menu items: detecting, utilizing the touch interface, a first duration of contact on at least one of the one or more first menu items,
[1.e.ii]	in response to the first duration of contact on the at least one of the one or more first menu items being detected to not surpass a threshold, performing a first operation, and
[1.e.iii]	in response to the first duration of contact on the at least one of the one or more first menu items being detected to surpass the threshold, performing a second operation;
[1.f]	when the graphical user interface is displayed, detecting, utilizing the touch interface, a second gesture that begins in connection with a second edge of the display and moves inward;
[1.g]	in response to the detection of the second gesture that begins in connection with the second edge and moves inward, displaying, utilizing the display, a second menu including one or more second

	menu items;
[1.h.i]	when the second menu is displayed including the one or more second menu items: detecting, utilizing the touch interface, a selection contact on at least one of the one or more second menu items, and
[1.h.ii]	in response to the selection contact being detected on the at least one of the one or more second menu items, performing a third operation;
[1.i]	wherein the electronic device is configured such that the graphical user interface is displayed in at least one virtual display layer, and at least one of the first menu or the second menu is displayed in at least one other virtual display layer.
Claim 2	
[2]	The electronic device of claim 1, wherein the electronic device is configured such that at least a portion of the at least one other virtual display layer is at least partially translucent such that at least a portion of the at least one virtual display layer is visible through the at least one other virtual display layer.

Claim 3	
[3]	The electronic device of claim 2, wherein the electronic device is configured such that the at least portion of the at least one virtual display layer that is visible through the at least one other virtual display layer, includes at least a portion of a background image.
Claim 7	
[7]	The electronic device of claim 1, wherein the electronic device is configured such that hardware status indicia is displayed adjacent to the first edge.
Claim 9	
[9]	The electronic device of claim 1, wherein the electronic device is configured such that at least one of the first menu or the second menu substantially fills the display.
Claim 10	
[10]	The electronic device of claim 1, wherein the electronic device is configured such that indicia is displayed via the graphical user

	interface for prompting a user as to an accessibility of at least one of the first menu or the second menu.
Claim 101	
[101.a]	An electronic device, comprising: a display; a touch interface; one or more processors; memory; and one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors
[101.b]	the one or more programs including instructions for: displaying, utilizing the display, a graphical user interface;
[101.c]	when the graphical user interface is displayed, detecting, utilizing the touch interface, a first gesture that begins in connection with a first edge of the display and moves inward;
[101.d]	in response to the detection of the first gesture that begins in connection with the first edge and moves inward, displaying, utilizing the display, a first menu as sliding in and including one or more first menu items including a particular application icon;
[101.e.i]	when the first menu is displayed including the one or more first menu

	items: detecting, utilizing the touch interface, a first duration of contact on at least one of the one or more first menu items,
[101.e.ii]	in response to the first duration of contact on the at least one of the one or more first menu items being detected to not surpass a threshold, performing a first operation, and
[101.e.iii]	in response to the first duration of contact on the at least one of the one or more first menu items being detected to surpass the threshold, performing a second operation,
[101.e.iv]	where the second operation is performed in response to the first duration of contact on the particular application icon being detected to surpass the threshold, and the first duration of contact being detected to include a slide gesture component after the first duration of contact on the particular application icon is detected to surpass the threshold;
[101.f]	when the graphical user interface is displayed, detecting, utilizing the touch interface, a second gesture that begins in connection with a second edge of the display and moves inward;

[101.g]	in response to the detection of the second gesture that begins in connection with the second edge and moves inward, displaying, utilizing the display, a second menu including one or more second menu items;
[101.h.i]	when the second menu is displayed including the one or more second menu items: detecting, utilizing the touch interface, a selection contact on at least one of the one or more second menu items, and
[101.h.ii]	in response to the selection contact being detected on the at least one of the one or more second menu items, performing a third operation;
[101.i]	wherein the electronic device is configured such that the graphical user interface is displayed in at least one virtual display layer, and at least one of the first menu or the second menu is displayed in at least one other virtual display layer.

Apple Inc. (“Petitioner”) petitions for IPR of claims 1-3, 7, 9, 10, and 101 (“Challenged Claims”) of U.S. Patent No. 10,642,413 (“the ’413 patent”).

I. CONVENTIONS OF THE PETITION

- All emphasis is added unless noted otherwise;
- Bold-italic emphasis correlates to claim language;
- Quotations are generally from exhibits, not claim language; and
- The phrases “as discussed,” “*see*,” and equivalent phrases incorporate fully the analysis of the cross-cited portion of the Petition.

II. REQUIREMENTS FOR IPR—37 C.F.R. §42.104

A. Grounds for Standing—37 C.F.R. §42.104(a)

Petitioner certifies that the ’413 patent is available for IPR, and that Petitioner is not barred or estopped from requesting IPR.

B. Challenge and Relief Requested—37 C.F.R. §42.104(b)

Petitioner requests IPR on Ground 1 below. A declaration from Dr. Loren Terveen supports Ground 1. EX1003, ¶¶[1]-[169].

Ground	Claims	Basis for Rejection
1	1-3, 7, 9, 10, and 101	§103–Ahn, Chaudhri-842, Hinkley

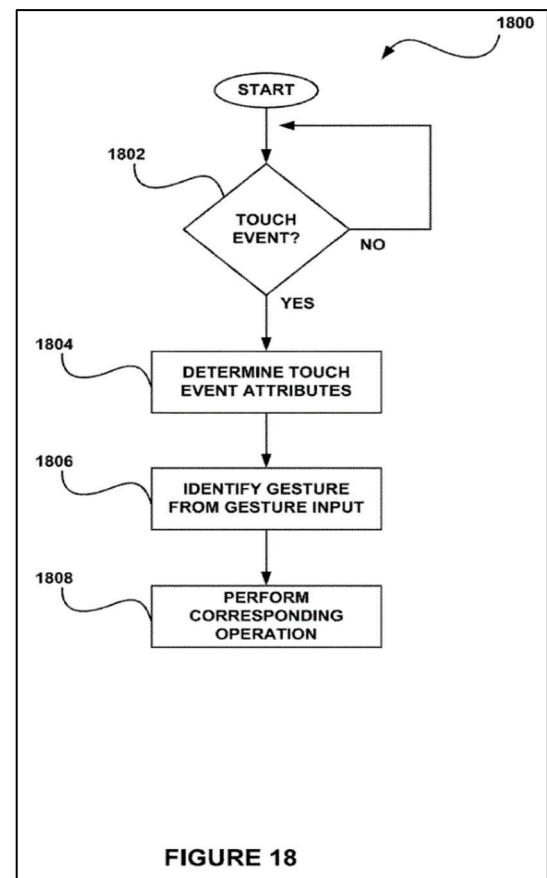
The ’413 patent is not entitled to its earliest claimed priority date of August 5, 2011. Still, every art reference advanced in Grounds 1 precedes that date.

Reference	Prior Art Date	Status
Ahn (EX1004)	Published Aug. 28, 2008	§102(b)
Chaudhri-842 (EX1005)	Published Jun. 28, 2007	§102(b)
Hinkley (EX1006)	Filed Feb. 19, 2010	§102(e)

III. THE '413 PATENT

A. Pertinent Disclosure

The '413 patent “generally relate[s] to touch screens” and its claims relate to opening menus based on gestures detected in connection with edges of the touch screen (*see, e.g.*, [1.c], [1.d.i], [1.f], [1.g], [101.c], [101.d], [101.f], [101.g]), blurring a portion of a user interface as a function of gesture input used to open a menu (*see* [1.d.ii]), and performing one of two operations based on a duration of contact with a menu item (*see* [1.e.ii], [1.e.iii], [101.e.ii], [101.e.iii]).



According to the '413 Patent, “gesture input refers to the collection of inputs, flags, and signals by which a gesture is identified and parameterized,” and is thus broadly defined. EX1001, 57:1-7. “Once the gesture has been identified, the corresponding operation is performed.” EX1001, 57:38-39. “For example, in

one embodiment, a pinch slide gesture which begins near an edge of a display and then moves inward may cause a menu or window to slide in from that edge of the display.” EX1001, 67:30-42. Separately, the ’413 Patent describes utilizing “virtual display layers [that give] the appearance of depth through the use of 3D depth cues.” EX1001, 69:25-27; *see also* 68:33-44. 69:4-9; EX1003, ¶¶[21-25]. “For example, in one embodiment, a 3D depth cue may be a blur operation, such that layers located at successively greater depths may appear blurrier than those closer to the user.” EX1001, 69:27-30.

Notably, the ’413 Patent does not describe the aforementioned edge menus with respect to the virtual display layers, nor the manner in which such menus would operate with respect to the virtual display layers.

B. Prosecution History

On October 24, 2018, the Applicant filed the ’413 patent as U.S. Appl. No. 16/169,961. EX1002, 1668. On February 7, 2020, the Examiner issued a Notice of Allowance, deeming the Challenged Claims distinguishable from the prior art while emphasizing the following features.

1. Increasing blur as a function of a “magnitude” of a gesture on a touch-screen, as reflected in issued independent claim 1: and

2. Using an edge gesture to bring up a menu and performing two different menu operations as a function of gestures on the touch-screen, as reflected in issued independent claim 101.

EX1002, 217, 307-310; EX1003, ¶¶[26-29] (detailing prosecution). These features, and the Challenged Claims as a whole, are demonstrated obvious by the prior art combinations advanced in this Petition.

IV. LEVEL OF ORDINARY SKILL

The range of qualifications for a POSITA would have included a Bachelor of Science degree in computer science, computer engineering, electrical engineering, human-computer interaction, or a comparable field and at least two years of professional experience in the design and development of graphical user interfaces (GUIs), human-computer interfaces, or equivalents thereof. EX1003, ¶¶[30]-[31]. Additional years of experience could substitute for an advanced-level degree (and vice versa). *Id.*

V. CLAIM CONSTRUCTION—37 C.F.R. §42.104(b)(3)

The claim interpretations on which this Petition depends are incorporated in and apparent from the prior art mapping analysis below. *See* §VI. While, presently, no claim terms need be construed to resolve issues of controversy raised by this Petition, *see Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361

(Fed. Cir. 2011), Petitioner reserves the right to address and respond to any construction advanced by Patent Owner or the Board.

VI. CHALLENGES

A. GROUND 1 Claims 1-3, 7, 9, 10, and 101, Obviousness Over Ahn, Chaudhri-842 and Hinkley

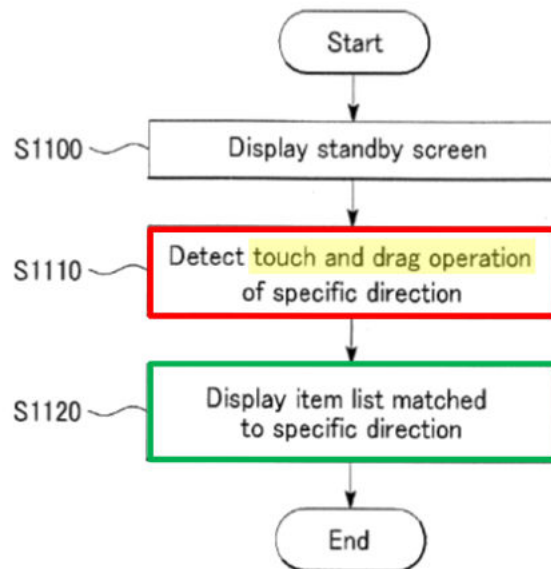
1. Ahn (EX1004)

Ahn describes menus on a mobile communication terminal displayed based on a “selected direction” of user input. EX1004, [0032]-[0033]; EX1003, ¶[33]. Ahn’s mobile communication terminal 100 (FIG. 1) includes touch input device 10 (e.g., a “touch screen”) through which “a user inputs various information or instruction with a touch method.” EX1004, [0027]-[0028]. Ahn also describes various methods for displaying menus on the mobile communication terminal and using a touch screen 10 as an input (e.g., to select a direction). EX1004, FIGS. 3A-10, [0072], [0027]-[0028], [0095]-[0119]; EX1003, ¶[34].

In FIGS. 11-18, Ahn describes “a method of displaying a menu in a mobile communication terminal having a touch input device,” in which a menu is displayed in response to a “touch and drag operation.” EX1004, [0095]-[0099]. Initially, a controller 50 of the mobile communication terminal “detects a touch and drag operation of a specific direction on the touch screen 10 (S1110).” EX1004, [0098]. “As the touch and drag operation is detected, the controller 50 controls to display an item list matched to the specific direction in the display 40

(S1120).” EX1004, [0099]. The “item list” may be for example, a menu list or a file list. EX1004, [0099]. Each different direction of a touch and drag operation may be associated with a different menu or file list. EX1004, [0099]; EX1003, ¶[35].

FIG. 11

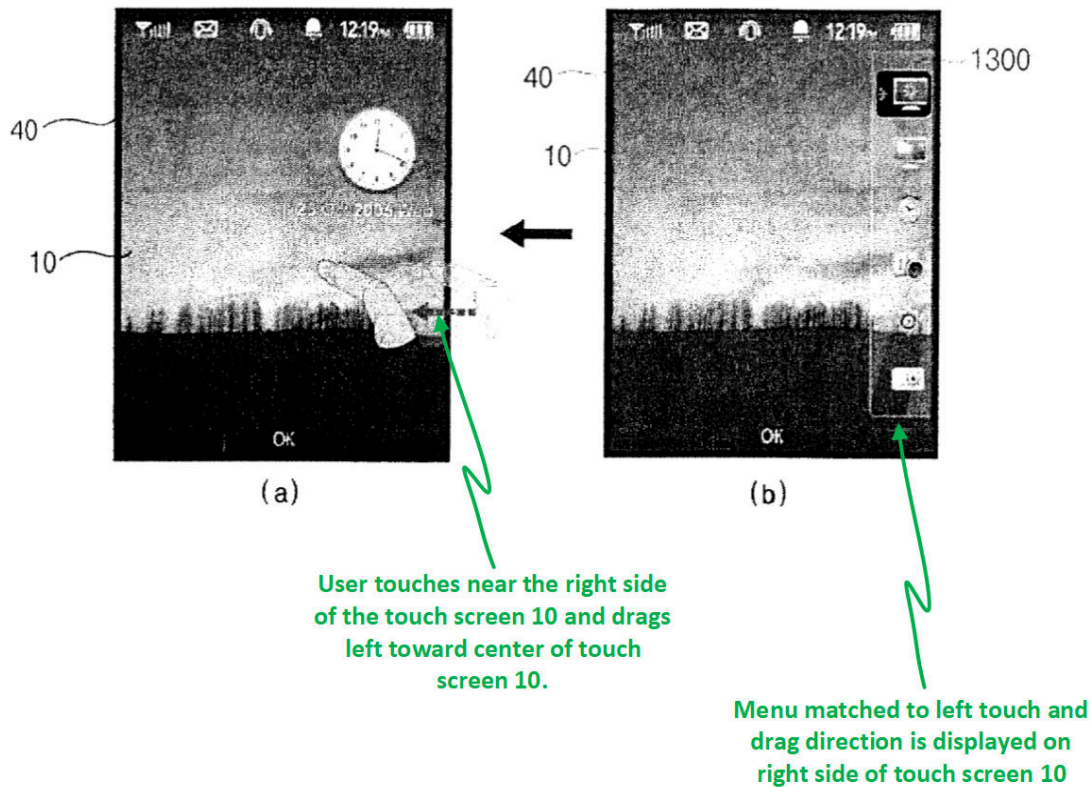


EX1004, FIG. 11

In one example illustrated in FIGS. 13a and 13b, “if the user touches a specific position of the touch screen 10 and drags the touch in a left direction a menu list 1300 matched to a left direction is displayed in the display 40.” EX1004, [0102]. A user initially touches near the right side or edge of the touch screen 10 and initiates the drag gesture to open the menu. EX1004, FIG. 13a, [0102]; EX1003, ¶[36]. As a result of controller 50 detecting the gesture, “a menu list

matched to a left direction is set to be displayed at the right side of the display 40 (FIG. 13(b)).” EX1004, [0104].

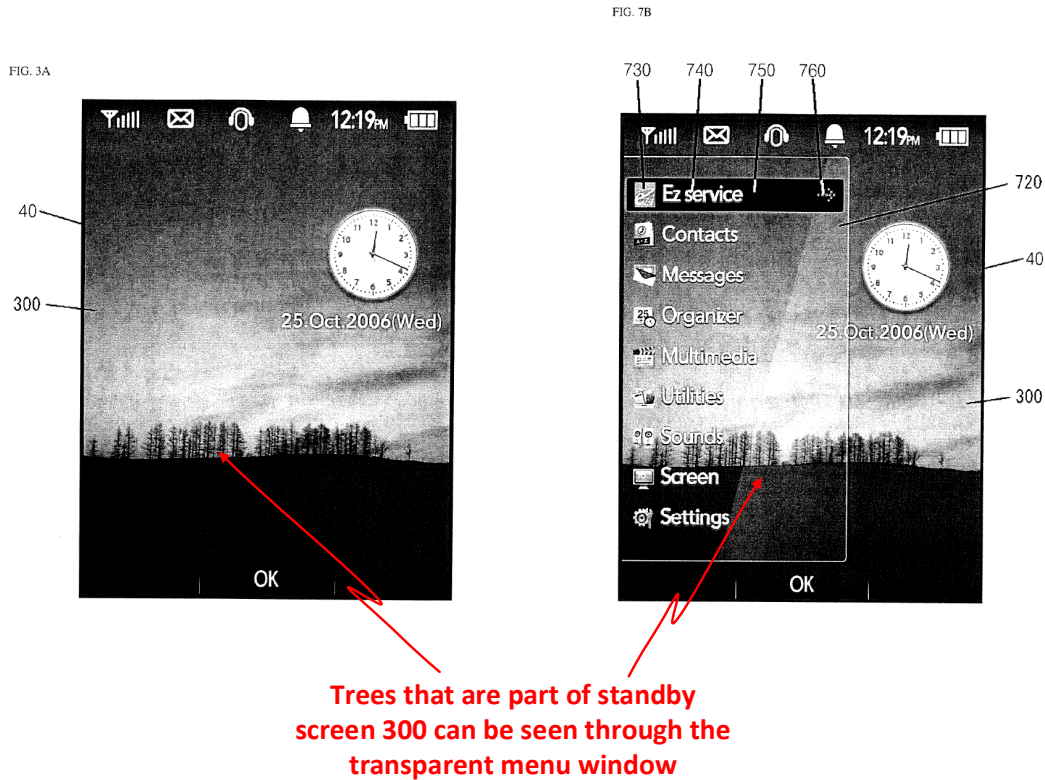
FIG. 13



EX1004, FIGS 13a-13b

The displayed menus in Ahn may be “transparently displayed on the standby screen 300.” EX1004, [0070]. This can be seen, for example, by comparing FIG. 3A, which shows standby screen 300 without any menus, and FIG. 7B, which shows the basic setting menu list 720 “displayed in a transparent window form in a left area of the standby screen 300.” EX1004, [0064]; EX1003, ¶[37]. Ahn’s transparent menu windows ensure that “the preset standby screen 300 is not hidden

by the pop-up menu window 340.” EX1004, [0039]. However, Ahn is not limited to these transparent menu windows. EX1003, ¶[37].



EX1004, FIGS. 3A and 7B

Ahn’s menu windows provide at least two ways that its user interface may utilize blur. First, Ahn teaches that, instead of a transparent form, its menus “can be embodied in a translucent form or an opaque form, depending on implementation.” EX1004, [0070]. A POSITA would have found it obvious that, when differentiated from “transparent” and “opaque” in the manner they are used by Ahn, the word “translucent” means “allowing light, but not detailed images, to pass through; semitransparent.” EX1009, 6. A POSITA also would have

understood or found obvious the concept of blurring from this disclosure of not transmitting detail; as the word “blur” means to “make or become unclear or less distinct.” EX1009, 3. In other words, a POSITA would have known and found it obvious that Ahn’s translucent menus would have blurred at least a portion of the background standby screen. EX1003, ¶[38].

Second, Ahn shows that opening a menu can blur at least a portion of the standby screen 300. EX1003, ¶[39]. In FIG. 3A “a standby screen 300 set by a user is displayed in the display 40 of the mobile communication terminal 100.” EX1004, [0036]. Ahn illustrates that a clock widget is part of the background standby screen 300. EX1004, [0036], FIG. 3A; EX1003, ¶[39]. A similar clock widget is shown as part of the background standby screen 300 in FIGS. 12 and 13a. EX1004, [0097], [0102], FIGS.12, 13a; EX1003, ¶[39]. As can be seen in FIG. 4B, when the user menu 420 is opened, Ahn illustrates that the clock widget is blurred, which is pointed out with red arrows in the above annotation of FIGS. 3A and 4B. EX1004, [0102], FIG. 13a; EX1003, ¶[39]. A similar blurring effect of the clock widget can also be seen in FIGS. 10 and 13B. EX1004, FIGS. 10, 13B; EX1003, ¶[39].

FIG. 3A

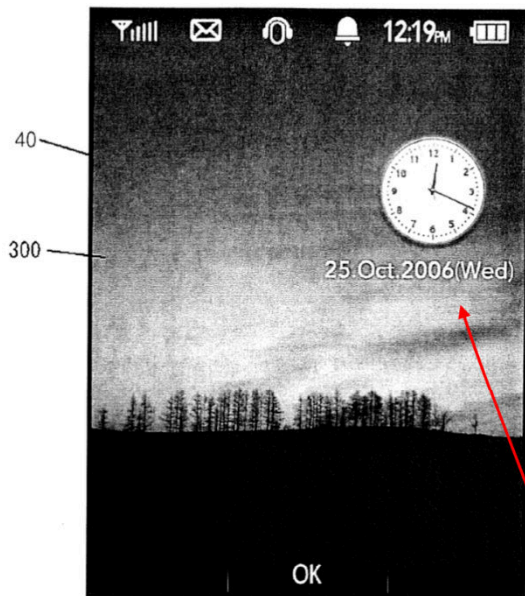
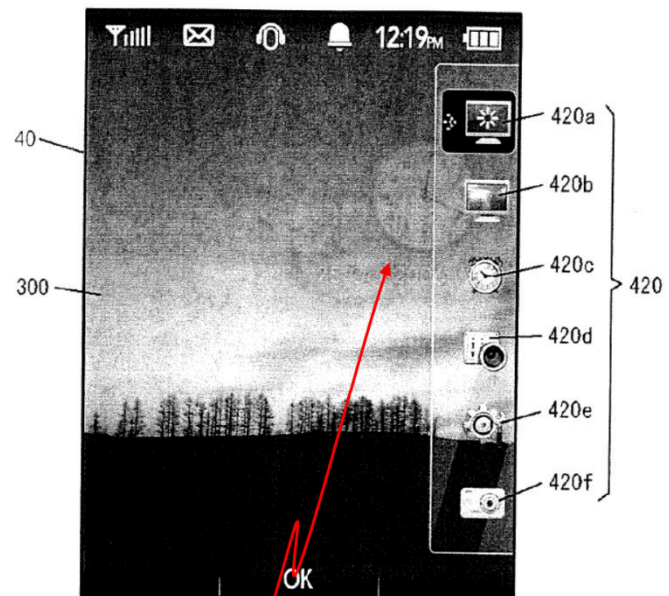


FIG. 4B



**Clock widget is blurred when user
menu 420 is opened**

EX1004, FIGS. 3A and 4B

Ahn offers limited explanation or detail regarding the purpose of blurring the clock widget. EX1003, ¶[39]. Thus, a POSITA would have naturally turned to teachings like those provided by Chaudhri-842 when developing the blurring shown in FIGS. 4B, 10, and 13B. EX1003, ¶[40].

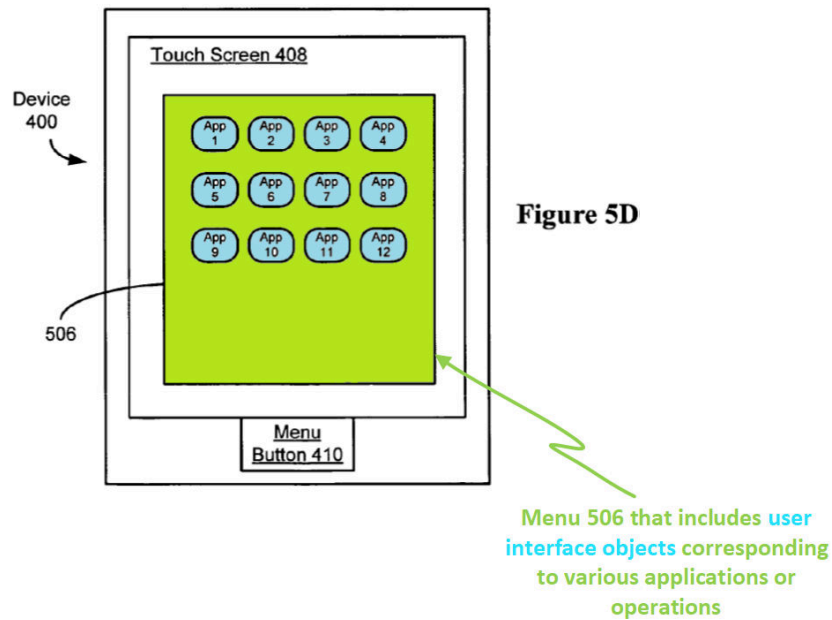
2. Chaudhri-842 (EX1005)

Chaudhri-842 describes supplying visual feedback to a user transitioning between user interface states on a touch screen by providing “visual differentiation between the user-interface object and the background,” based on color, hue, color

saturation, brightness, contrast, transparency, and any combination thereof.” EX1005, [0085]. Through this embodiment, Chaudhri-842 provides at least one possible set of implementation details particularly relevant to the blurring shown in Ahn. EX1003, ¶[41].

Chaudhri-842 describes a portable electronic device 100 that includes a plurality of computer components such as a touch screen 126, one or more processors 106, contact/motion module 138, graphics module 140, and related software components. EX1005, [0026]-[0028], [0033]-[0043]; EX1003, ¶¶[42]-[43].

“The device 100 may have a plurality of user interface states.” EX1005, [0048]. While many of the figures in Chaudhri-842 focus on a transition between a locked and unlocked state, Chaudhri-842’s disclosure applies more generally to transitions between user interface states, such as states of a plurality of applications. EX1005, [0006], [0048], [0079], [0081]. In one example, a user interface state transition involves the display of a menu that “includes interactive user-interface objects corresponding to various applications or operations.” EX1005, [0076], FIG. 5D; EX1003, ¶[44].



EX1005, FIGS 5D

Chaudhri-842's FIG. 6 (below) describes "a process 600 for indicating progress towards satisfaction of a user input condition." EX1005, [0080]. "While an electronic device is in a first user-interface state, progress is detected (602) towards satisfaction of a user input condition needed to transition to a second user-interface state." EX1005, [0081]. "While the device is in the first user-interface state, progress is indicated (604) towards satisfaction of the condition by transitioning an optical intensity of one or more user interface objects associated with the second user-interface state." EX1005, [0082]; EX1003, ¶[45].

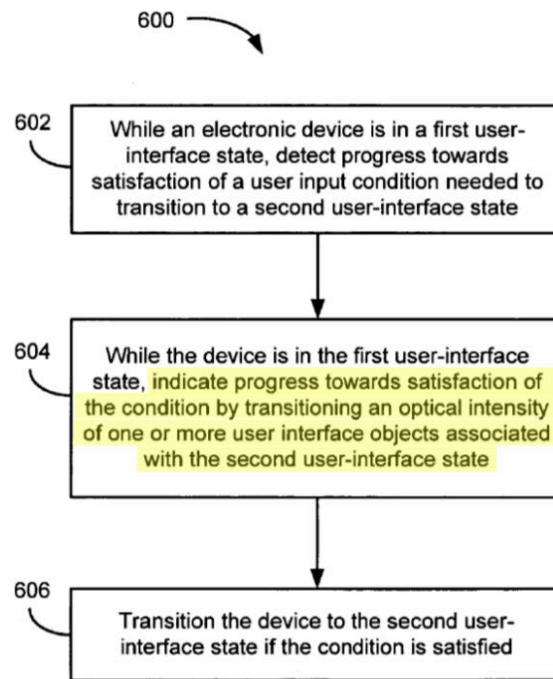


Figure 6

EX1005, FIGS 6

Chaudhri-842 describes that “the optical intensity may be the visual differentiation between the *user-interface object* and the *background*, based on color, hue, color saturation, brightness, contrast, transparency, and any combination thereof.” EX1005, [0085]. Among the various types of user-interface objects contemplated by Chaudhri-842 are, “without limitation, text, images, icons, soft keys (or ‘virtual button’), pull-down menus, radio buttons, check boxes, selectable lists, and so forth.” EX1005, [0060]. Accordingly, Chaudhri-842 describes differentiating between a menu and a background displayed on the touch screen during its user interface state transition process. EX1003, ¶[46]

The changes “in optical intensity of the user-interface objects provide[] a user with sensory feedback of the progress in transitioning between user interface states.” EX1005, [0082]. As shown above in FIG. 6, the transition between user interface states is dictated by “satisfaction” of a “user input condition.” EX1005, [0081], [0047]. Chaudhri-842 describes that this user input condition may include “a predefined gesture” and that “progress of the gesture may be defined in terms of how much of the gesture is completed.” EX1005, [0088]. The predefined gesture may include, for example, the user “dragging an image to a predefined location.” EX1005, [0089]. In these examples, as the user completes the predefined gesture (e.g., dragging an image), Chaudhri-842 teaches that changing the optical intensity of user interface objects helps the user see and understand that their gesture is causing a transition in user interface states and the progress they are making. EX1005, [0082]; EX1003, ¶[47].

In one example, Chaudhri-842 describes that “the optical intensity may be perceived by users as a transparency effect (or lack thereof) applied to the user-interface object,” such that the object transitions from “not perceptible to the user” to being “completely materialized visually and [] perceptible to the user.” EX1005, [0085]. In other words, the transition may appear to a user as though objects associated with the second user interface state “fade in” while objects

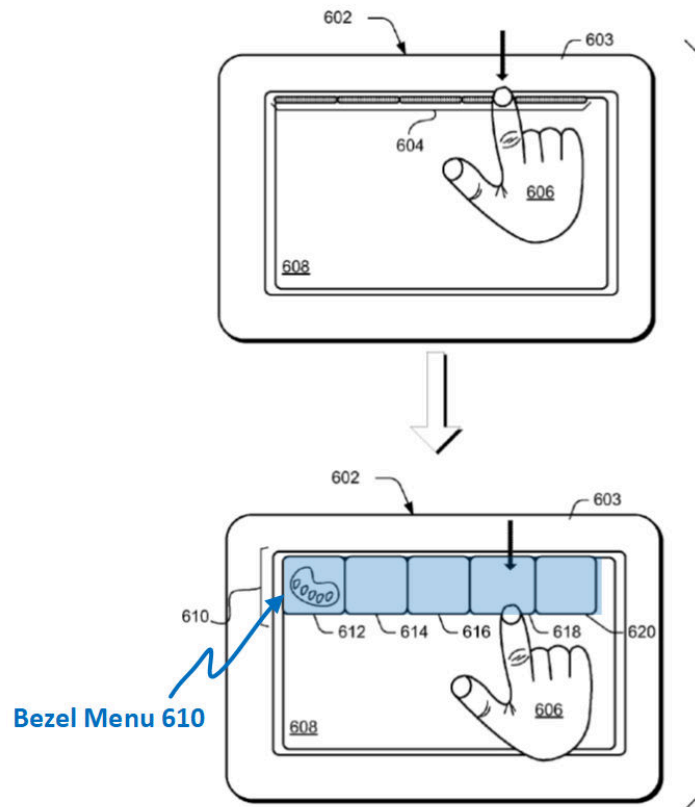
associated with the first user interface state “fade out.” EX1005, [0079], [0087]; EX1003, ¶[48].

3. Hinkley (EX1006)

Hinkley describes “bezel gestures for touch displays.” EX1006, [0003], [0039]; *see also* [0001], [0043]-[0051], [0061]; EX1003, ¶¶[49-51]. Hinkley utilizes these bezel gestures to “provid[e] enhanced functionality for users, without necessarily permanently manifesting functionality as part of the ‘chrome’¹ of a device’s user interface.” EX1006, [0001], [0003].

Referencing FIG. 6 (below), Hinkley describes a user engaging a bezel gesture to access a bezel menu—a menu displayed along the side/edge/bezel of the display like menus described in Ahn. EX1006, [0072]-[0081]; EX1003, ¶[52].

¹ Here, “chrome” accounts for visible graphical interface features and/or overall visible and usable display space. EX1003, footnote 2.

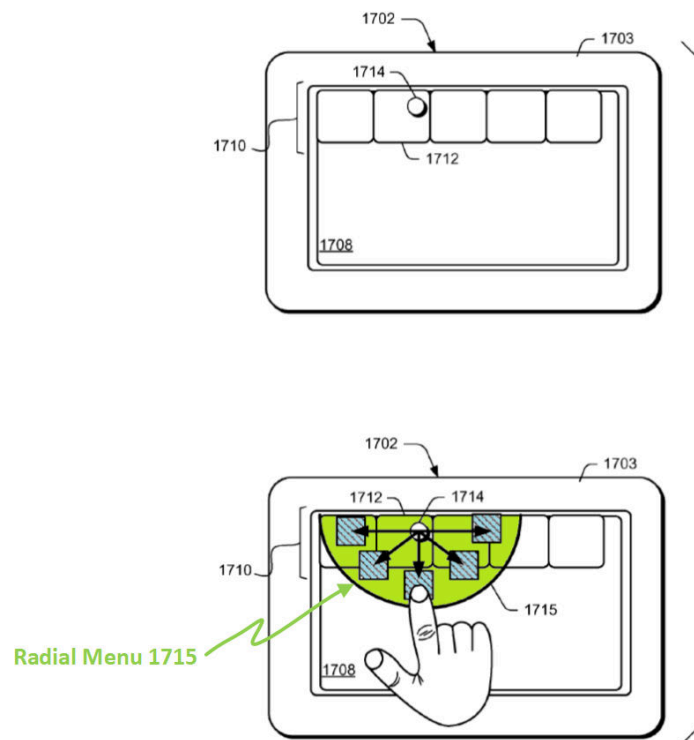


EX1006, FIG. 6

Specifically, “the bezel menu can be accessed through a bezel gesture in which a finger of user’s hand 606 touches the bezel and then moves across the bezel and onto the display device 608 in the direction of the illustrated arrow.” EX1006, [0073]. The “bezel menu 610 includes multiple selectable icons or slots 612, 614, 616, 618, and 620,” each of which is “associated with a different functionality.” EX1006, [0074]. “In the novice mode, after the user gestures to reveal the bezel menu 610, the user can lift their finger, whereupon the bezel menu can remain open for a configurable interval (or indefinitely).” EX1006, [0077]. “The user may then tap on a desired item associated with one of the icons or slots

612, 614, 616, 618, and 620,” which causes “the functionality associated with a particular icon or slot can be accessed.” EX1006, [0077]; EX1003, ¶[53].

“In at least some embodiments, so-called radial menus can be utilized in connection with menus such as bezel menus.” EX1006, [0105]. An example of a bezel menu is shown in FIG. 17. EX1006, [0105], FIG. 17. In this example, “bezel menu 1710 includes multiple selectable icons or slots,” and “[e]ach of the icons or slots is associated with a different functionality.” EX1006, [0106]; EX1003, ¶[54].



EX1006, FIG. 17

“[I]con or slot 1712 includes a radial menu icon 1714 that gives a clue to the user that one or more radial menus, for example radial menu 1715, is associated

with this particular icon or slot.” EX1006, [0107]. In some implementations, “[t]he radial menus 1715 can be accessed through a tap-and-hold of the pen or finger on or near the radial menu icon 1714.” EX1006, [0107]. “In some embodiments, tapping on the radial menu icon triggers a default action which may or may not be different than the action associated with tapping on the bezel menu slot.” EX1006, [0107]. Thus, in at least one implementation, tapping the icon 1712 will trigger one action, while a tap-and-hold on the radial menu icon 1714 portion of icon 1712 will trigger a different action (i.e., opening the radial menu 1715). EX1003, ¶[55].

4. The Combination, Reasons to Combine, & Expectation of Success

The Ahn-Chaudhri-Hinkley combination represents the predictable and expected result of applying in the context of Ahn’s touch screen mobile device: [a] the user interface state transition techniques described by Chaudhri-842; and [b] Hinkley’s bezel gestures and associated user interface elements, including the bezel menus and radial menus. EX1003, ¶[56]. The fundamental aspects of Ahn’s disclosure would remain intact in this predictable combination of known elements, bolstered by the well-known and beneficial teachings of Chaudhri-842 and Hinkley to successfully arrive at the ’413 patent’s claimed invention. *Id.*

(a) **Applying Chaudhri-842's teachings about user interface state transition in the context of Ahn's touch screen mobile device**

A POSITA would have been motivated to use interface state transition techniques described by Chaudhri-842 in the context of Ahn's touch screen mobile device. EX1003, ¶[57]. The predictable result of this Ahn-Chaudhri combination is a mobile device that changes an optical intensity of one or more user interface objects as a function of progress towards satisfaction of a user's gesture input that transitions the mobile device from one user interface state to another. *Id.* The following independent reasons support the Ahn-Chaudhri combination.

First, Chaudhri-842 provides one example of implementation details that are lacking for a feature otherwise disclosed in Ahn. EX1003, ¶[58]. Ahn already illustrates in FIGS. 3A and 4B that the process of opening the edge menus may cause user interface objects that are displayed as part of the standby screen 300 (e.g., a clock widget) to be blurred when the edge menu is opened and displayed on the screen. EX1003, ¶[58]; §VI.A.1. However, Ahn does not provide further details about this blurring process and leaves the implementation details to POSITAs. *Id.*

Chaudhri-842 provides one example of implementation details a POSITA would have found obvious to utilize when implementing the blurring already specifically taught in Ahn. EX1003, ¶[59]. Specifically, Chaudhri-842 provides

details for utilizing transitions in optical intensity during transitions in user interface state. EX1003, ¶[59]; §VI.A.2. A POSITA would have found obvious that the opening of the edge menus described in Ahn are a form of transition in user interface state. *Id.* Furthermore, a POSITA would have recognized that the touch and drag gesture described in Ahn for opening the edge menus is akin to the dragging gestures described in Chaudhri-842 for transitioning between user interface states. *See, e.g.*, EX1004, [0099]; EX1005, [0075]; EX1003, ¶[59]. In the context of these related gestures and transitions, Chaudhri-842 provides additional details about the use of varying optical intensity for user interface objects that a POSITA would have found helpful to implement the optical effects shown but not otherwise described in Ahn (e.g., with respect to the clock widget in FIGS. 3A and 4B). *Id.*

Second, Chaudhri-842 teaches that the “change in optical intensity of the user-interface objects provides a user with sensory feedback of the progress in transitioning between user interface states.” EX1005, [0082]. Based on these teachings a POSITA would have found obvious that, as a user is performing a predefined gesture, for example, the changes in optical intensity provide the user a visual indication that they are performing a particular operation (e.g., the optical intensity changes help the user see more clearly that the user interface state is changing), what the operation is doing (e.g., the optical intensity changes help the

user visualize what is changing as a result of the gesture), and how far the user is in completing the gesture that will effectuate the change in user interface states. EX1005, [0006], [0082], [0088]-[0089], [0108]; EX1003, ¶[60]. To help direct a user with respect to successfully performing the predefined gesture, Chaudhri-842 teaches that the user interface may additionally include “cues” to help the user know what gesture to utilize and whether they are correctly performing the gesture (*e.g.*, graphics such as movable images that, when combined with the transition in optical intensity, help the user visualize the correct gesture and how to complete it successfully). EX1005, Abstract, [0054], [0062], [0073]; EX1003, ¶[60]. Furthermore, Chaudhri-842 teaches that changes in optical intensity help to create “visual differentiation between the user-interface object and the background,” which would have been visually helpful to a user both during the predefined gesture and after it is complete. EX1005, [0085]; EX1003, ¶[60]. A POSITA would have found obvious that these explicit benefits of Chaudhri-842’s techniques would have been directly applicable to Ahn’s mobile terminal and the opening of its edge menus. *Id.*

Third, a POSITA would have known that transparency, translucency/blurring, and other “focus and context” techniques may be utilized in user interfaces to help draw a user’s attention to the most relevant part of a user interface. EX1008, 1-2; EX1003, ¶[61]. Focus and context “techniques enable the

user to investigate specific details of the data while at the same time also providing an overview over the embedding of the data under investigation within the entire dataset.” EX1008, 1. One type of focus and context technique (called “cue methods”) allows a “user to select objects in terms of their features, not their spatial relations; usually by assigning a certain visual cue to them,” which “make it possible to query the data for information which is not immediately visible in the initial visualization, while keeping the original layout, and thus not destroying the user’s mental map.” EX1008, 1. These focus and context techniques utilize, for example, blur, transparency, and/or color saturation to help a user navigate through complex and multi-layer user interfaces by drawing the user’s attention to the most relevant layers. EX1008, 1-2; EX1003, ¶[61]. A POSITA would have found obvious that this focusing technique is at least one reason for blurring the clock widget in Ahn’s standby screen 300, so as to focus the user’s attention on (and not distract from) the open edge menu (e.g., menu 1300 in FIG. 13b). *Id.* By utilizing the optical intensity variation described in Chaudhri-842, a POSITA would have recognized that a user’s attention is more focused on the most relevant object (i.e., the now opened menu). *Id.*

Fourth, a POSITA would have known that varying optical intensity for a user interface object (e.g., the blurring of Ahn’s clock widget) as a function of the magnitude of the user’s touch and drag gesture would have been one of a limited

number of ways of implementing the blurring effect shown in FIGS. 4B, 10, and 13B of Ahn. EX1003, ¶[62]; *Uber Technologies, Inc. v. X One, Inc.*, 957 F. 3d 1334, 1339-40 (Fed. Cir. 2020). Either a POSITA could have implemented the blurring effect in a binary fashion (e.g., toggling instantaneously between unblurred and blurred) or progressively varied the blur as a function of the user's gesture, as taught by Chaudhri-842. EX1003, ¶[62].

(b) Applying Hinkley's teachings about bezel gestures and associated user interface elements in the context of the Ahn-Chaudhri touch screen mobile device

A POSITA would have been motivated to integrate Hinkley's teachings about bezel gestures and associated user interface elements, including the bezel menus and radial menus, in conjunction with the Ahn-Chaudhri touch screen mobile device. EX1003, ¶[63]. The predictable result of this Ahn-Chaudhri-Hinkley combination is a mobile device that utilizes various gestures on a touchscreen and techniques for discerning between them to implement, among other user interface objects, bezel menus and radial menus. *Id.* A POSITA would have recognized and found obvious that Ahn's touch input device 100, memory 20, display 40, and controller 50 would have been capable of implementing the gesture functionality and user interface objects described by Hinkley, because Hinkley describes its gestures in the context of a similar computing device 102 (EX1006,

[0043]), and describes that the functionality can be embodied in software stored in memory (EX1006, [0044]) using a touchscreen display that does not require special hardware under the bezel (EX1006, [0046]). EX1003, ¶[63]. However, a POSITA would have found it equally obvious to integrate into Ahn's mobile communication terminal 100 any of the hardware or software described by Hinkley that better or more fully supports the gesture functionality and user interface objects described by Hinkley (*e.g.*, sensing elements that extend underneath bezel). EX1006, [0045]; EX1003, ¶[63]. The following independent reasons support the Ahn-Chaudhri-Hinkley combination.

First, a POSITA would have recognized that the side menus described in Ahn and the bezel menus described in Hinkley are similar user interface objects, and therefore that the techniques described in Hinkley with respect to its bezel menus would have been equally beneficial in the context of Ahn's side menus, and would have provided beneficial implementation details otherwise left unspecified in Ahn. EX1003, ¶[64]. For example, Hinkley describes "different gestural modes can be utilized to access functionality associated with the bezel menu." EX1006, [0076]. In a novice mode, the gestures are "visually guided...based on direct manipulation of a widget." EX1006, [0077]-[0080], [0110]. In an expert mode, as the user becomes more familiar with the interface, the same or a similar gesture can be performed "based on ballistic motion driven by procedural memory" to

allow the user to more quickly perform actions on the user interface without waiting for the visual guides to appear. EX1006, [0077]-[0080], [0110]. “The concept succeeds because the novice way of using it helps to learn and encourage the expert way of working with it.” EX1006, [0079]. A POSITA would have recognized that implementing Hinkley’s different user interaction modes in the context of Ahn’s mobile communication terminal would have created a user interface that adapts to a user’s experience level and created a more intuitive, efficient, and pleasing experience for a user. EX1003, ¶[64].

Furthermore, Hinkley describes that its techniques for identifying a user’s input relative to the bezel of the computing device “are usable to differentiate the touch input from other touch inputs recognized by the gesture modules 104, 105.” EX1006, [0046]. “This yields the general benefit that gestures that start from the bezel and enter onto the screen are, in general, distinguishable from other ostensibly similar gestures that access on-screen content.” EX1006, [0046]. “Hence, normal direct manipulative gestures, even for objects near the screen boundaries, are still possible and do not interfere with bezel gestures and vice versa.” EX1006, [0046]. A POSITA would have recognized that implementing Hinkley’s specific gesture recognition techniques in the context of Ahn’s mobile communication terminal would have yielded these same general benefits in gesture distinction described by Hinkley. EX1003, ¶[65].

Additionally, Hinkley describes that its bezel gestures allow a user to “readily access enhanced functions of a computing device in an efficient and intuitive manner.” EX1006, [0040]. One efficiency gained through the use of such bezel gestures and associated menus is that a user gains access to enhanced functions “without necessarily permanently manifesting the functionality as part of the ‘chrome’ of a device’s user interface.” EX1006, [0001]. In other words, Hinkley’s techniques allow for the conservation of valuable screen real estate, particularly on mobile devices. EX1003, ¶[66]. Again, a POSITA would have recognized that these benefits would have been equally applicable to the similar context of Ahn’s mobile communication terminal. *Id.*

Second, given the similarity of context and the problems being solved in each of Ahn and Hinkley (*e.g.*, intuitively and efficiently displaying user interface elements such as menus on a touch screen computing device), and the similar manner in which each of Ahn and Hinkley describe solving that problem (*e.g.*, touching and dragging/swiping a finger on the touch screen in a particular direction and/or from a particular location), a POSITA would have understood that utilizing the techniques described in Hinkley with respect to the gesture module 104 and bezel gesture module 105 (*e.g.*, the implementation and operation of the bezel menus and radial menus) would have been a simple substitution of one known element for another to obtain predictable results. EX1003, ¶[67]; *In re ICON*

Health & Fitness, Inc., 496 F.3d 1374, 1380-81 (Fed. Cir. 2007) (“Indeed, while perhaps not dispositive of the issue, the finding that Teague, by addressing a similar problem, provides analogous art to ICON’s application goes a long way towards demonstrating a reason to combine the two references.”).

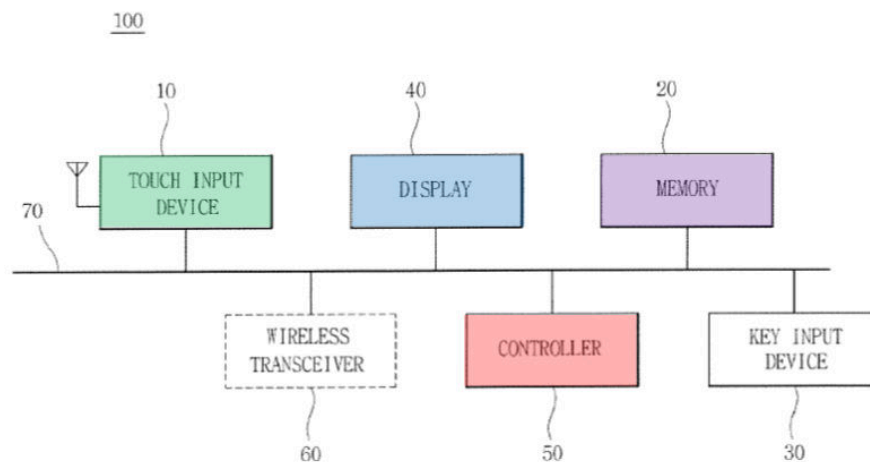
5. Claims Analysis

(a) Claim 1

Element [1.a]:

Ahn describes a mobile communication terminal 100 that comprises “a touch input device 10, a memory 20, a key input device 30, a display 40, a controller 50, and a wireless transceiver 60.” EX1004, [0027], FIG. 1; EX1003, ¶[68].

FIG. 1



EX1004, FIG. 1 (highlighted)

“The display 40 may provide outputs various display information and various menu screens 100[.]” EX1004, [0031]. A POSITA would have

understood or found obvious that Ahn's **display 40** is a *display*, as in [1.a]. EX1003, ¶[69].

“The **touch input device 100** is a device in which a user inputs various information or instruction with a touch method.” EX1004, [0028] (“touch screen”). A POSITA would have understood or found obvious that Ahn's **touch input device 100** is a *touch interface*, as in [1.a]. EX1003, ¶[70].

“The **controller 50** controls a general operation of the mobile communication terminal 100.” EX1004, [0032]. Controller 50 interfaces with memory 20 (EX1004, [0099]-[0100]), controls the display 40 (EX1004, [0099], [0106]. [0108]), and detects a touch and drag operation (EX1004, [0099], [0107], [0109]). A POSITA would have found obvious that Ahn's description of **controller 50** is indicative that at least one known hardware implementation provides *one or more processors*, as in [1.a]. EX1003, ¶[71]; *see also* EX1005, [0026]; EX1006, [0150].

“The **memory 20** comprises a program memory and a data memory. Programs for controlling a general operation of the mobile communication terminal 100 are stored in the program memory.” EX1004, [0029]. A POSITA would have understood or found obvious that Ahn's **memory 20** is a *memory*, as in [1.a]. EX1003, ¶[72]. Furthermore, a POSITA would have understood or found obvious that Ahn's “programs” provide *one or more programs, wherein the one*

or more programs are stored in the memory and configured to be executed by the one or more processors, as in [1.a]. *Id.*; see also EX1005, [0028]; EX1006, [0152].

Element [1.b]:

First, Ahn describes that *the one or more programs including instructions for: displaying, utilizing the display*, as in [1.b]. EX1004, [0029], [0031]-[0032], [0096], [0099], [0106], [0108]; EX1003, ¶¶[73]-[74]. A POSITA would have understood that Ahn's controller 50 utilizes programs stored in program memory to control, for example, the display 40. EX1004, [0029], [0031]-[0032], [0096], [0099], [0106], [0108]; EX1003, ¶[74]; *supra* [1.a].

Ahn further describes that “[t]he display 40...outputs various display information and various menu screens 100.” EX1004, [0031]. The “controller 50 determines when a standby screen is displayed in the display 40, if a specific direction is selected by the touch input device 10 or the key input device 30, to display a menu corresponding to the selected direction on the standby screen.” EX1004, [0032]; EX1003, ¶[75].

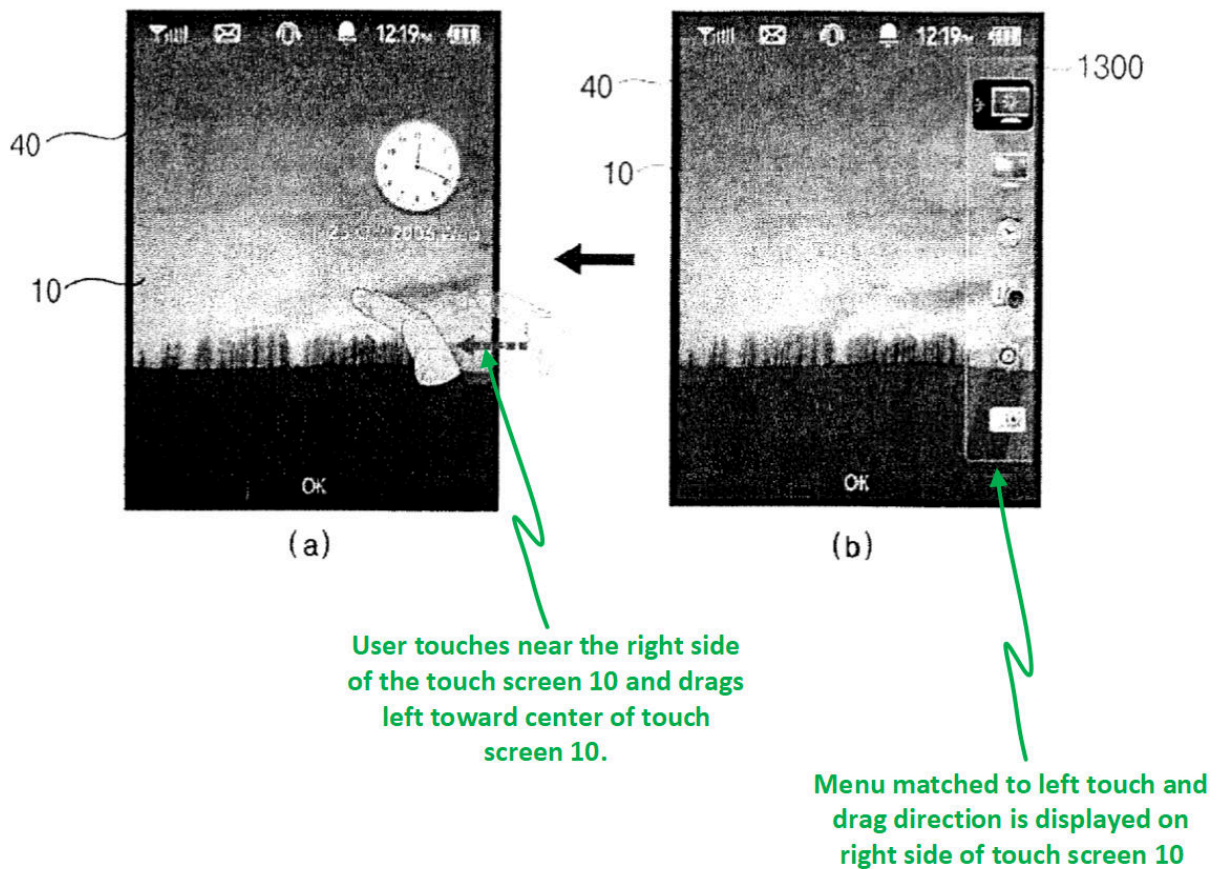
Second, a POSITA would have found obvious that the standby screen and menus displayed on display 40 of Ahn's mobile communication terminal 100 are elements of *a graphical user interface*, as in [1.b], because these elements are at

least a part of “a visual way of interacting with a computer using items such as windows, icons, and menus.” EX1009, 4. Ahn describes its menus as “a menu interface [] provided to the user.” EX1004, [0085], [0089]; EX1003, ¶[76]; *see also* EX1005, [0003], [0076]; EX1006, [0056].

Element [1.c]:

As discussed, Ahn describes “a method of displaying a menu in a mobile communication terminal having a touch input device,” in which a menu is displayed in response to a “touch and drag operation.” EX1004, [0095]-[0099]; §VI.A.1. Initially, a controller 50 of the mobile communication terminal “detects a touch and drag operation of a specific direction on the touch screen 10 (S1110).” EX1004, [0098]; EX1003, ¶[77].

FIG. 13



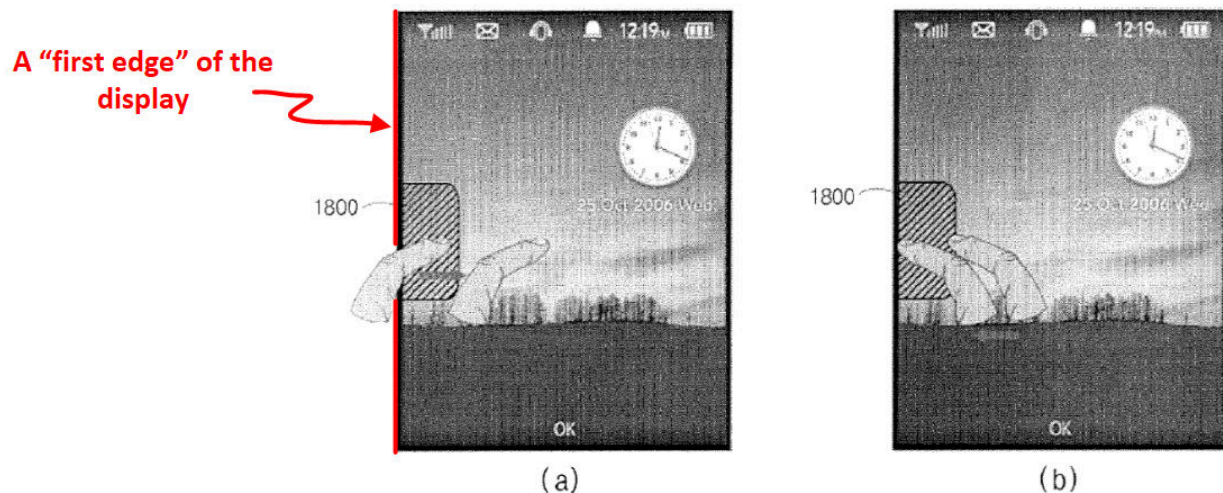
EX1004, FIGS. 13a-13b

As illustrated in FIGS. 13a and 13b (above), “if the user touches a specific position of the touch screen 10 and drags the touch in a left direction a menu list 1300 matched to a left direction is displayed in the display 40.” EX1004, [0102]. Per FIG. 13a, a user initially touches near the right side or edge of the touch screen 10 and initiates the drag gesture that moves inward toward the center of the display. EX1004, FIG. 13a, [0102]; EX1003, ¶[78]. Thus, Ahn teaches, *when the graphical user interface is displayed, detecting, utilizing the touch interface, a*

first gesture that begins in connection with a first edge of the display and moves inward, as in [1.c]. Id.

Referring to FIG. 18, Ahn describes that the display 40 may utilize “a graphical display for notifying a start position of a touch and drag operation to a user,” and clearly shows “a graphical shadow 1800” displayed at a first edge of the display (e.g., the left edge in this example) that indicates the start position of the touch is along the first edge. EX1004, [0118]-[0119]. A POSITA would have at least found it obvious in light of these teachings that Ahn’s mobile communication terminal 100, *when the graphical user interface is displayed, detect[s], utilizing the touch interface, a first gesture that begins in connection with a first edge of the display and moves inward*, as in [1.c]. EX1003, ¶[79].

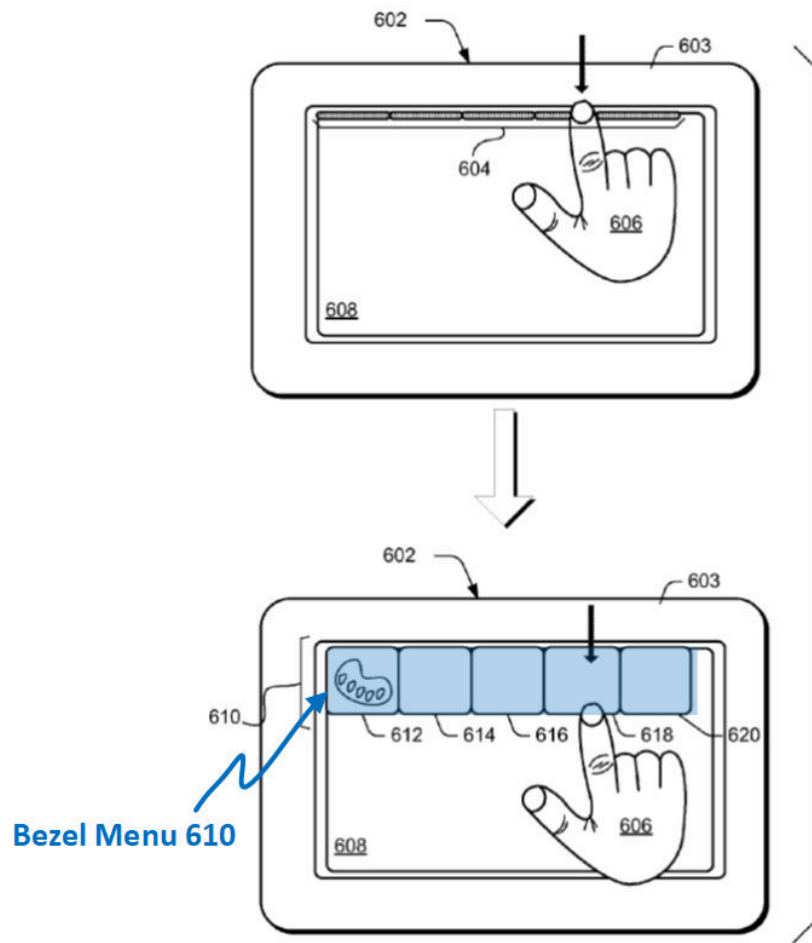
FIG. 18



EX1004, FIGS. 18a-18b

Alternatively, a POSITA would have found it obvious to apply Hinkley's bezel gestures and associated user interface elements, including the bezel menus and radial menus, in the context of Ahn's mobile communication terminal 100. EX1003, ¶[80]; *see* §IV.A.4 . Hinkley describes that software in the computing device “can be configured to recognize a touch input, such as a finger of a user's hand 106b, that initiates a gesture on or adjacent bezel 103 and proceeds onto display device 108.” EX1006, [0045]. Because the “bezel is made up of the frame structure adjacent the device's display” (EX1006, [0044]) and therefore frames an edge of the display, a POSITA would have found obvious that gestures initiated “on or adjacent bezel 103 and proceed[ing] onto display device 108” are ***begun in connection with a first edge of the display and moves inward***, as in [1.c]. EX1003, ¶[80].

Hinkley's FIG. 6 describes an embodiment in which a user utilizes a bezel gesture to access a bezel menu—a menu displayed along the side/edge/bezel of the display like the menus described in Ahn. EX1006, [0072]-[0081]. The top portion of FIG. 6 shows that the user's bezel gesture ***begins in connection with a first edge of the display*** and the bottom portion of FIG. 6 clearly shows that the user's bezel gesture then ***moves inward***, as in [1.c]. EX1006, [0072]-[0081], FIG. 6; EX1003, ¶[81].



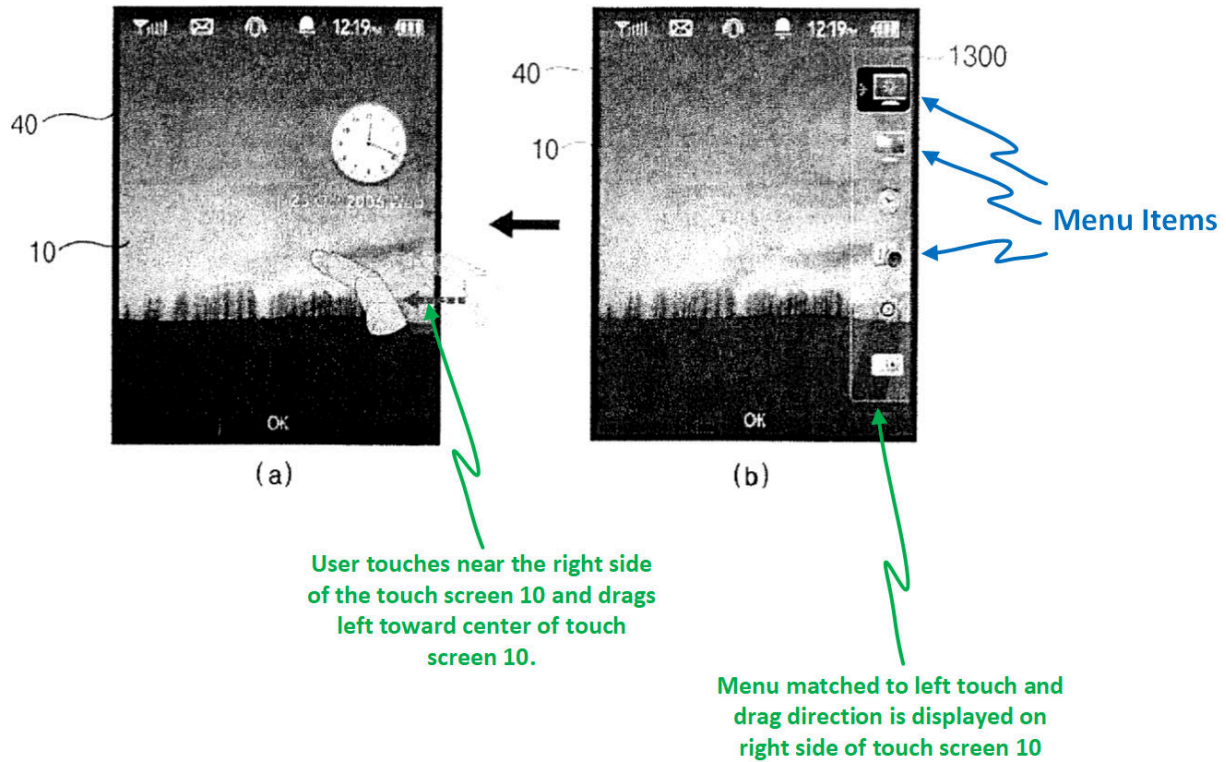
EX1006, FIG. 6

Based on at least these teachings, a POSITA would have at least found it obvious in the context of the Ahn-Chaudhri-Hinkley combination that, *when the graphical user interface is displayed, detect[s], utilizing the touch interface, a first gesture that begins in connection with a first edge of the display and moves inward*, as in [1.c]. EX1003, ¶[82].

Element [1.d.i]:

As discussed, Ahn describes “a method of displaying a menu in a mobile communication terminal having a touch input device,” in which a menu is triggered by a “touch and drag operation.” EX1004, [0095]-[0099]; EX1003, ¶[83]; §VI.A.1, [1.c]. “As the touch and drag operation is detected, the controller 50 controls to display an item list matched to the specific direction in the display 40 (S1120).” EX1004, [0099]. “The item list comprises, for example, a menu list or a file list.” EX1004, [0102]. As illustrated in FIGS. 13a and 13b (below), “if the user touches a specific position of the touch screen 10 and drags the touch in a left direction a menu list 1300 matched to a left direction is displayed in the display 40.” EX1004, [0102]. “A position in which the item list is displayed in the display 40 can be preset.” EX1004, [0104]. “For example, referring to FIGS. 13 to 15, a menu list matched to a left direction is set to be displayed at the right side of the display 40 (FIG. 13(b)) [.].” EX1004, [0104].

FIG. 13



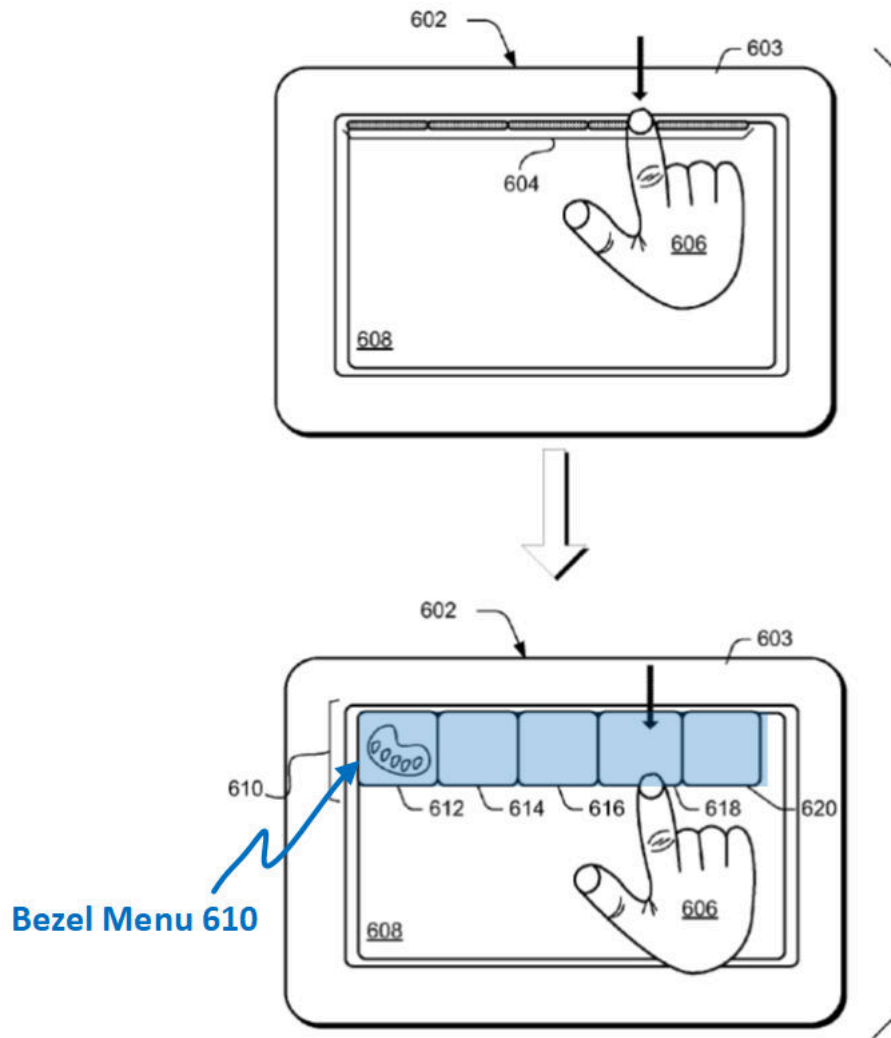
EX1004, FIGS. 13a-13b

In this way, per the annotated figures above, a menu on the right side of the display slides in to the left to match a sliding drag gesture of the left. Thus, a POSITA would have found obvious that Ahn's mobile communication terminal 100, *in response to the detection of the first gesture that begins in connection with the first edge and moves inward, display[s], utilizing the display, a first menu as sliding in and including one or more first menu items*, as in [1.d.i].

EX1003, ¶¶[84]-[85].

Moreover, Ahn's FIG. 18 describes that the display 40 may utilize "a graphical display for notifying a start position of a touch and drag operation to a user," and clearly shows "a graphical shadow 1800" displayed at a first edge of the display (e.g., the left edge in this example) that indicates the start position of the touch is along the first edge. EX1004, [0118]-[0119]. Ahn explains that "as the user drags the graphic shadow 1800, the menu list 1500 can be displayed along the dragged graphic 1800." EX1004, EX1004, [0118]. A POSITA would have found obvious from these teachings that, in at least some implementations (e.g., FIG. 18), the menu list 1500 is displayed *as sliding in*, as in [1.d.i]. EX1003, ¶[86].

Alternatively, a POSITA would have found it obvious to apply Hinkley's bezel gestures and associated user interface elements, including the bezel menus and radial menus, in the context of Ahn's mobile communication terminal 100. EX1003, ¶[87]; *see* §VI.A.4. Hinkley describes that "the bezel menu can be accessed through a bezel gesture in which a finger of user's hand 606 touches the bezel and then moves across the bezel and onto the display device 608 in the direction of the illustrated arrow." EX1006, [0073]; *see* §VI.A.3, [1.c].



EX1006, FIG. 6

The bezel gesture “can allow bezel menu 610 to be dropped down,” which a POSITA would have found obvious could be implemented by ***displaying, utilizing the display, a first menu as sliding in***, as in [1.d.i]. EX1006, [0073]; EX1003, ¶[88]. Indeed, Hinkley teaches that the “user may close the bezel menu by sliding it back off of the screen (an on-screen-to-offscreen gesture),” which a POSITA would have found obvious to mean that the bezel menus are displayed as both

sliding on and sliding “back off” the display. EX1006, [0073], [0080]; EX1003, ¶[88].

Accordingly, based on the combined teachings of the prior art, a POSITA would have at least found it obvious that the mobile device of the Ahn-Chaudhri-Hinkley combination, *in response to the detection of the first gesture that begins in connection with the first edge and moves inward, display[s], utilizing the display, a first menu as sliding in and including one or more first menu items*, as in [1.d.i]. EX1003, ¶[89].

Element [1.d.ii]:

Ahn describes *blurring at least a portion of the graphical user interface*, as in [1.d.ii]. As discussed, Ahn describes the use of blurring in at least two ways. First, Ahn describes that the displayed menus may be “displayed on the standby screen 300...in a translucent form[.]” EX1004, [0070]; §VI.A.1. A POSITA would have known and found it obvious that, when differentiated from “transparent” and “opaque” in the manner they are used by Ahn, the word “translucent” means “allowing light, but not detailed images, to pass through; semitransparent.” EX1009, 6; EX1003, ¶¶[90]-[91]. A POSITA would have understood not transmitting detail as a type of blurring, because the word “blur” means to “make or become unclear or less distinct.” EX1009, 3; EX1003, ¶[91].

This is consistent with the '413 Patent's use of the word "blur" in its claims, because dependent claim 49, for example, recites that "the blurring includes at least one of: dimming, displaying as indistinct, displaying as vague, displaying as cloudy, displaying as obscured, or displaying as smeared." EX1001, 103:57-59. In other words, a POSITA would have known and found it obvious that Ahn contemplates that, when embodied in translucent form, its menus would have blurred at least a portion of the background standby screen (*e.g.*, shown in FIG. 12) by rendering the portion under which it is displayed as vague or less distinct. EX1003, ¶[91].

A POSITA would have found obvious that, as a user utilizes the dragging gesture to open a given translucent menu, the translucent menu would progressively slide onto the display as a function of the magnitude of the user's dragging gesture (*see* [1.d.i]), and the translucent menu would correspondingly progressively blur the portion of the background over which the menu is displayed as it slides onto the screen. EX1003, ¶[92]. More, as the translucent menu slides in, the menu would progressively overlap more of the standby screen and, thus, progressively blur more over the standby screen. Accordingly, when displayed as a translucent window (as opposed to a transparent window), Ahn's menu would have *blurr[ed] at least a portion of the graphical user interface such that a magnitude of the blurring of the at least portion of the graphical user interface*

progressively increases as a function of an increase in a magnitude of the first gesture being detected, as in [1.d.ii].

Second, Ahn additionally illustrates blurring at least a portion of background standby screen 300 (e.g., a clock widget) as a result of a user opening one of the menus. EX1004, FIGS. 4B, 10, 13B; EX1003, ¶[93]. In FIG. 3A, Ahn illustrates that a clock widget is part of the background standby screen 300. EX1004, [0036], FIG. 3A. A similar clock widget is shown as part of the background standby screen 300 in FIGS. 12 and 13a. EX1004, [0097], [0102], FIGS. 12, 13a. As can be seen in FIG. 4B, when the user menu 420 is opened, Ahn illustrates that the clock widget becomes blurred, which is pointed out with red arrows in the below annotation of FIGS. 3A and 4B. EX1004, [0036], FIGS. 3A, 4B. A similar blurring effect of the clock widget can also be seen in FIGS. 10 and 13B. EX1004, FIGS. 4B, 10. As above, a POSITA would have understood the illustration of the clock widget in FIGS. 4B, 10, and 13B as “blurred,” consistent with the usage of that word in the ’413 Patent, because it is displayed as “indistinct,” “vague,” “cloudy,” and/or “obscured,” consistent with dependent claim 49. EX1001, 103:57-59; EX1003, ¶[93].

FIG. 3A

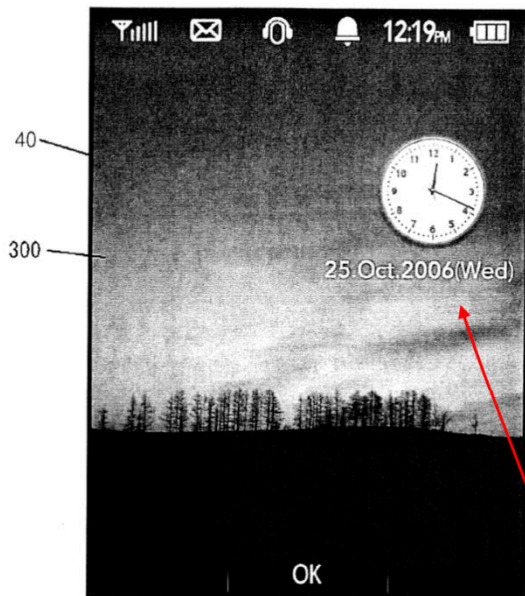
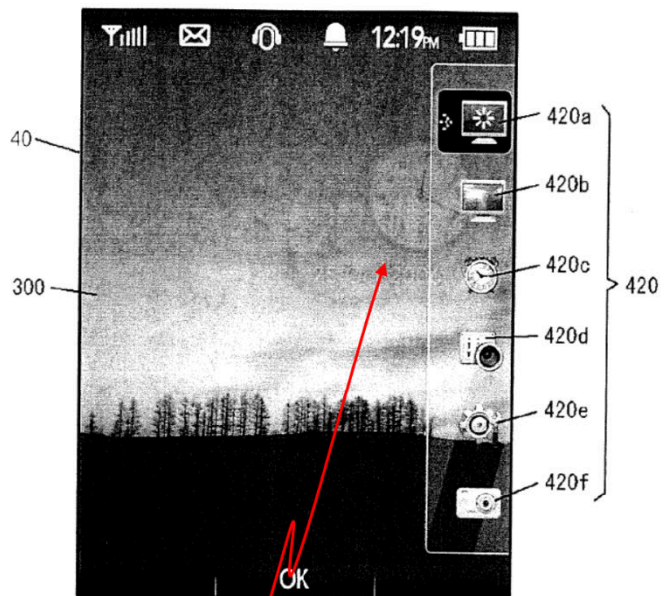


FIG. 4B



**Clock widget is blurred when user
menu 420 is opened**

EX1004, FIGS. 3A and 4B

For the reasons described in §VI.A.4, a POSITA would have found it obvious to apply Chaudhri-842's user interface state transition techniques—particularly the use of transitioning optical intensity to provide visual feedback regarding the progress of a transition between user interface states as a result of detecting a user's input of a predefined gesture—in the context of Ahn's mobile communication terminal 100. EX1003, ¶[94].

Chaudhri-842 describes “a process 600 for indicating progress towards satisfaction of a user input condition.” EX1005, [0080]; §VI.A.2. “While an

electronic device is in a first user-interface state, progress is detected (602) towards satisfaction of a user input condition needed to transition to a second user-interface state,” and “progress is indicated (604) towards satisfaction of the condition by transitioning an optical intensity of one or more user interface objects associated with the second user-interface state.” EX1005, [0081]-[0082]; EX1003, ¶[95].

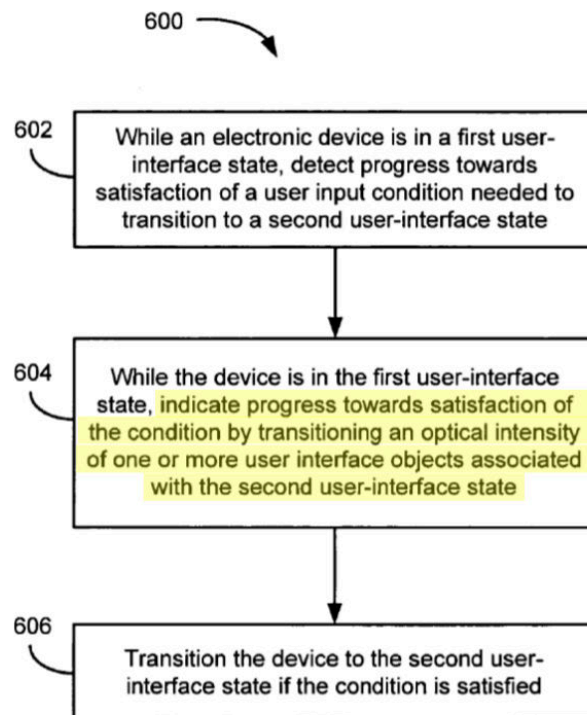


Figure 6

EX1005, FIG. 6

Chaudhri-842 describes that “the optical intensity may be the visual differentiation between the *user-interface object* and the *background*, based on color, hue, color saturation, brightness, contrast, transparency, and any

combination thereof.” EX1005, [0085]. Among the various types of user-interface objects contemplated by Chaudhri-842 are, “without limitation, text, images, icons, soft keys (or ‘virtual button’), pull-down menus, radio buttons, check boxes, selectable lists, and so forth.” EX1005, [0060]. Accordingly, Chaudhri-842 describes differentiating between a menu and a background displayed on the touch screen during its user interface state transition process. EX1003, ¶[96].

Chaudhri-842 describes that the optical intensity, and thus “the indication of progress towards completion of the user input condition[,] is a function of the user's satisfaction of the condition.” EX1005, [0087]. “If the user input condition includes a predefined gesture then the indication of progress of the gesture may be defined in terms of how much of the gesture is completed and how much of the gesture is remaining.” EX1005, [0088]. As the user input condition (e.g., a gesture) progresses, the optical intensity can correspondingly vary in magnitude based on the magnitude of the progress toward gesture completion according to both linear and non-linear functions, such as those illustrated in FIGS. 8A-8C. EX1005, [0087]-[0088]; EX1003, ¶[97].

Applying at least the above teachings of Chaudhri-842 in the context of Ahn’s “touch and drag” gesture and Ahn’s corresponding transition between a user interface state where the standby screen is displayed (*see, e.g.*, EX1004, FIG. 13a) and a user interface state where a menu list 1300 is displayed above or on top of

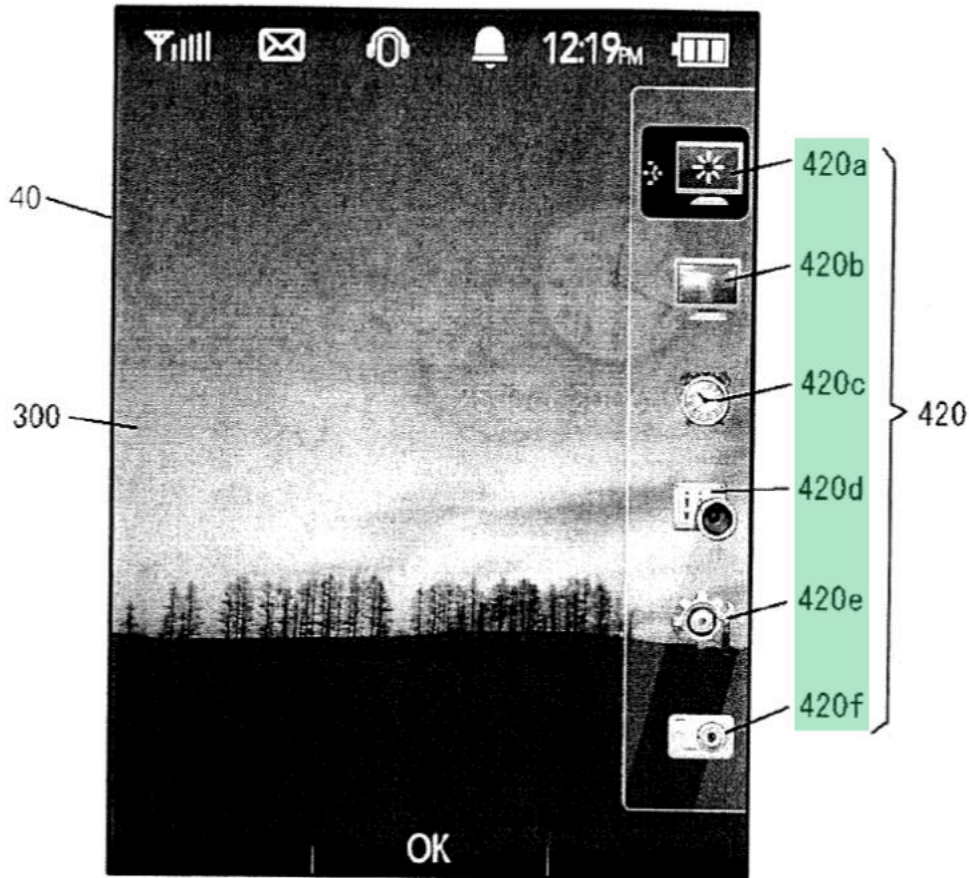
the standby screen (*see, e.g.*, EX1004, FIG. 4B, 10, and 13b), a POSITA would have at least found it obvious to vary, according to the teachings of Chaudhri-842, the optical intensity of the standby screen or at least portions thereof (*e.g.*, the blurring of the clock widget, as shown in FIGS. 4B, 10, and 13b) as a visual indication of a user's progress in completing Ahn's "touch and drag" gesture. EX1005, [0080]-[0089]; EX1003, ¶[98]. In addition to providing a visual indication to the user of their progress in completing the gesture, utilizing this progressive translucency or blurring effect would have helped differentiate between the user-interface object (*e.g.*, the menu list 1300) and the background (*e.g.*, the standby screen and/or clock widget). EX1005, [0085]; EX1003, ¶[98].

Implemented in this or a similarly obvious way, a POSITA would have thus found it obvious based on these combined teachings that the mobile device of the Ahn-Chaudhri-Hinkley combination would have *blurr[ed] at least a portion of the graphical user interface such that a magnitude of the blurring of the at least portion of the graphical user interface progressively increases as a function of an increase in a magnitude of the first gesture being detected*, as in [1.d.ii]. EX1003, ¶[99].

Element [1.e.i]

Ahn describes that the menu lists displayed as a result of the “touch and drag operation” may include various sub-menus (*e.g.*, 420a-420f in FIG. 4B) that, when selected by a user, provide access to various functions. EX1004, [0051], [0052]-[0057]. A POSITA would have found obvious that each of these sub-menus is a ***menu item*** of the user menu 420. EX1003, ¶[100].

FIG. 4B



EX1004, FIG. 4B (highlighted)

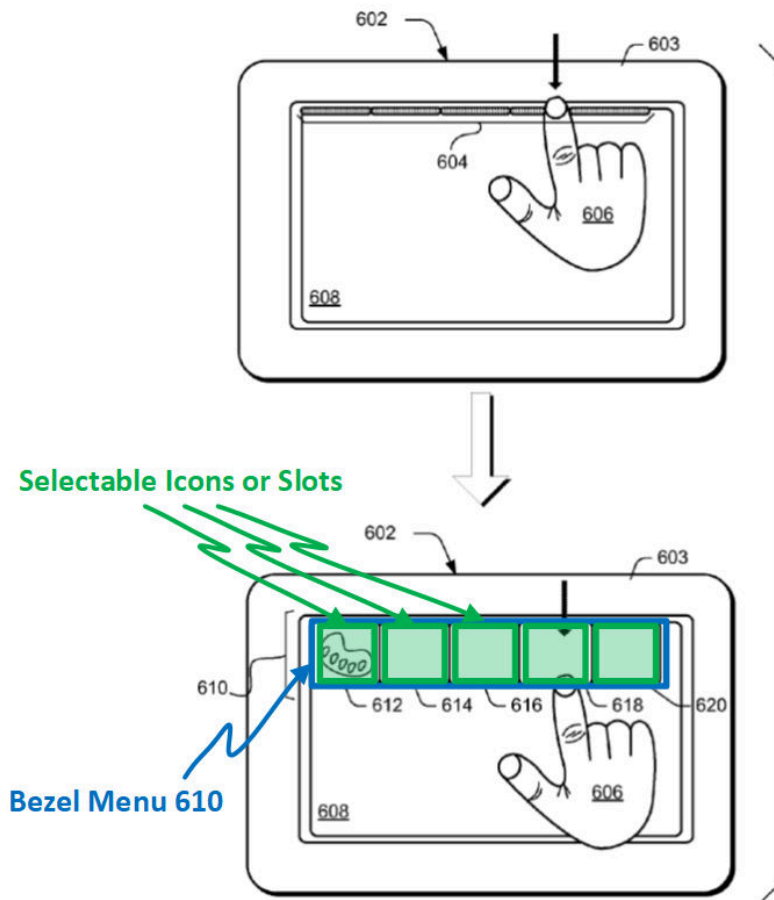
Ahn describes how the sub-menus of FIG. 4B are selected by a user with respect to FIGS. 5A-5D. EX1004, [0052]. For example, referring to FIG. 5D, “when the user selects the alarm setting menu 420c, an alarm setting window 540 for setting an alarm is displayed in a transparent window, for example, at the left side of the alarm setting menu 420c.” EX1004, [0057]. By opening a window through which a user may perform a function (*e.g.*, alarm setting window 540 for setting an alarm), each of the sub-menus would have been understood to act as an application, program, or widget launching icon. EX1003, ¶[101].

Ahn also discloses that selection of one or more of the sub-menus may result in the display of a further list of functions from which to select. EX1004, [0081]-[0087], [0105]-[0116]; FIGS. 9B, 16, 17. For example, in FIG. 9B, selection of icon 830 in menu list 820 results in menu list 820 being reduced in size and sub-menu 870 being displayed with a further list of functions from which a user may select. EX1004, [0081]-[0087]; FIGS. 9B; EX1003, ¶[102].

For the reasons described in §VI.A.4, a POSITA would have found it obvious to utilize Hinkley’s bezel gestures and associated user interface elements in the context of Ahn’s mobile communication terminal 100. EX1003, ¶[103]. In this regard, Hinkley would provide at least one possible set of implementation details not otherwise specified in Ahn. *Id.*; *Intel Corp. v. PACT XPP Schweiz AG*,

61 F. 4th 1373, 1380 (Fed. Cir. 2023) (finding obviousness under *KSR* where two prior art references “address the same problem”).

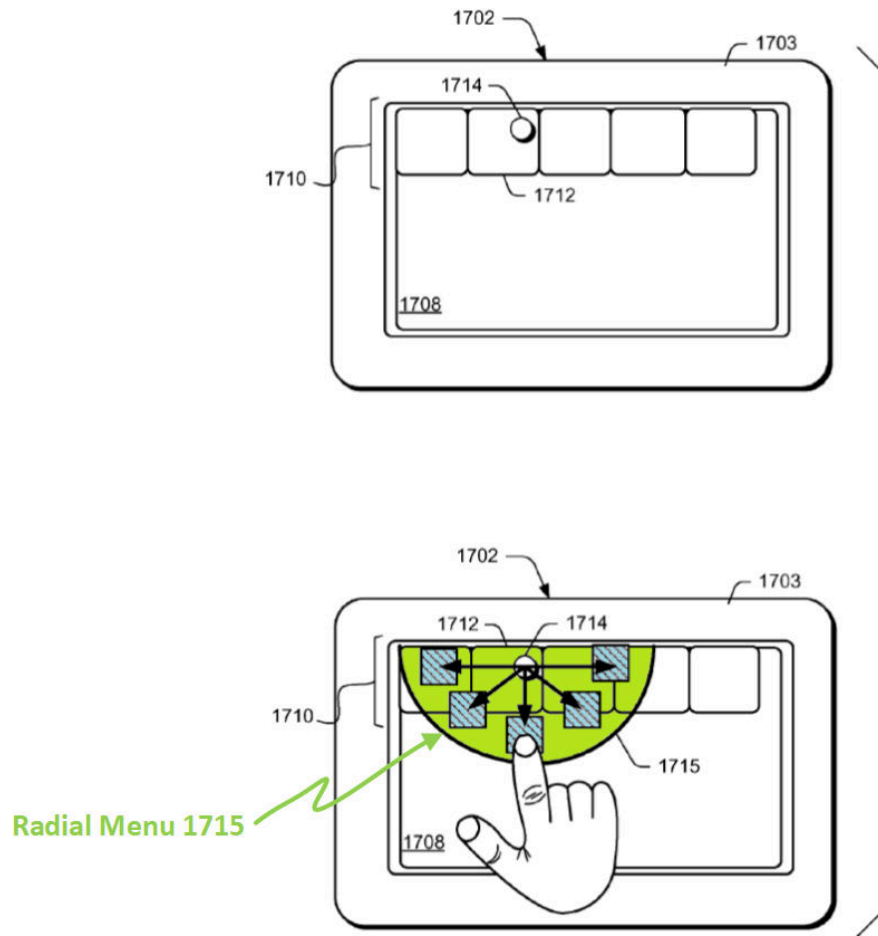
Hinkley describes that “the bezel menu can be accessed through a bezel gesture in which a finger of user’s hand 606 touches the bezel and then moves across the bezel and onto the display device 608 in the direction of the illustrated arrow.” EX1006, [0073]; §VI.A.3, [1.c], [1.d.i]. The “bezel menu 610 includes multiple selectable icons or slots 612, 614, 616, 618, and 620,” each of which is “associated with a different functionality.” EX1006, [0074]; EX1003, ¶[104].



EX1006, FIG. 6

“In the novice mode, after the user gestures to reveal the bezel menu 610, the user can lift their finger, whereupon the bezel menu can remain open for a configurable interval (or indefinitely).” EX1006, [0077]. “The user may then tap on a desired item associated with one of the icons or slots 612, 614, 616, 618, and 620,” which causes “the functionality associated with a particular icon or slot can be accessed.” EX1006, [0077]. Through its teaching of this tap, Hinkley describes, *when the first menu is displayed including the one or more first menu items: detecting, utilizing the touch interface, a first duration of contact on at least one of the one or more first menu items*, as in [1.e.i]. EX1003, ¶[105].

“In at least some embodiments, so-called radial menus can be utilized in connection with menus such as bezel menus.” EX1006, [0105]. An example of a bezel menu is shown in FIG. 17. EX1006, [0105], FIG. 17. In this example, “bezel menu 1710 includes multiple selectable icons or slots,” and “[e]ach of the icons or slots is associated with a different functionality,” like in FIG. 6. EX1006, [0106]; EX1003, ¶[106].



EX1006, FIG. 17

“[I]con or slot 1712 includes a radial menu icon 1714 that gives a clue to the user that one or more radial menus, for example radial menu 1715, is associated with this particular icon or slot.” EX1006, [0107]. In some implementations, “[t]he radial menus 1715 can be accessed through a tap-and-hold of the pen or finger on or near the radial menu icon 1714.” EX1006, [0107]. Additionally, selecting “the radial menu icon [1714] triggers a default action which may...be different than the action associated with tapping on the bezel menu slot [1712].”

EX1006, [0107]. From at least these teachings, a POSITA would have found obvious that, in at least one implementation of Hinkley's menus and gestures, tapping² the icon 1712 would have triggered one action, while a tap-and-hold gesture on the radial menu icon 1714 portion of icon 1712 would have triggered a different action (i.e., opening the radial menu 1715). EX1006, [0107]; EX1003, ¶[107].

Hinkley explains that, “[b]y virtue of providing a variety of different types of recognizable inputs (*e.g.*, taps, tap combinations, tap/hold combinations, slides, etc.), and mapping those recognizable inputs to different types of functionalities, a robust collection of user input mechanisms can be provided.” EX1006, [0066]. And Hinkley describes details of gesture module 104 and bezel gesture module 105 that allow these modules to recognize a “variety of different types of gestures.” EX1006, [0045]-[0051]; EX1003, ¶[108]. Thus, Hinkley provides

² In the context of Hinkley, where a “tap” is distinguished clearly from a “tap and hold,” a POSITA would have understood that a “tap” is relatively quick engagement and disengagement of the touchscreen, whereas a “tap and hold” is an engagement of the touchscreen that lasts beyond a particular threshold amount of time set by the designer of the user interface. EX1003, footnote 3.

implementation details for a POSITA to implement these functionalities with a reasonable expectation of success. *Id.*

Moreover, Hinkley's teachings about bezel menus and radial sub-menus are largely consistent with the menus and sub-menus described by Ahn. EX1003, ¶[109]. That is, a POSITA would have recognized the parallel between the first menu list 1700 and second menu list 1710 described by Ahn's FIG. 17, and the bezel menu 1710 and radial menu 1715 described by Hinkley's FIG. 17. *Id.*; *see also* EX1004, [0085]; EX1006, [0107]. To the extent the techniques for accessing these sub-menus diverge between the teachings of Ahn and Hinkley, a POSITA would have recognized that either Hinkley's techniques could be utilized as a known alternative to Ahn's techniques or both techniques could be implemented together through the use of multiple modes, like Hinkley's novice and expert modes. EX1006, [0110]; EX1003, ¶[109].

Applying these teachings to the context of Ahn discussed above, a POSITA would have at least found it obvious to implement Ahn's mobile communication terminal 100 such that Ahn's menus would include the multiple selectable icons or slots described by Hinkley and that at least one of the selectable icons or slots would be associated with a radial menu icon as described by Hinkley. EX1006, [0105]-[0107]; EX1003, ¶[110]. Further, it would have at least been obvious to implement Ahn's mobile communication terminal 100 such that tapping the icon

would have triggered one action, while tapping and holding the radial menu icon portion of that same icon would have triggered a different action (*i.e.*, opening the radial menu 1715). EX1006, [0107]; EX1003, ¶[110]. Implemented as such, it would have been obvious to the POSITA that the mobile device of the Ahn-Chaudhri-Hinkley combination would have, *when the first menu* (*e.g.*, bezel menu 1710) *is displayed including the one or more first menu items: detect[ed], utilizing the touch interface, a first duration of contact* (*e.g.*, either the tap or the tap and hold described by Hinkley) *on at least one of the one or more first menu items* (*e.g.*, the icon 1712 with the radial menu icon 1714), as in [1.e.i]. *Id.*; *see also* [1.e.ii], [1.e.iii] (providing additional explanation regarding the first duration of contact).

Element [1.e.ii]

As discussed, a POSITA would have at least found it obvious to implement Ahn's mobile communication terminal 100 such that Ahn's menus would include the multiple selectable icons or slots described by Hinkley and that at least one of the selectable icons or slots would be associated with a radial menu icon as described by Hinkley. EX1006, [0105]-[0107]; EX1003, ¶[111]; *see* [1.e.i]. Further, it would have at least been obvious to implement Ahn's mobile communication terminal 100 such that tapping the icon would have triggered one

action, while a tap-and-hold on the radial menu icon portion of that same icon would have triggered a different action (i.e., opening the radial menu 1715). EX1006, [0107]; EX1003, ¶[111].

Implemented as such, it would have been obvious to the POSITA that the mobile device of the Ahn-Chaudhri-Hinkley combination would have, *in response to the first duration of contact on the at least one of the one or more first menu items being detected to not surpass a threshold* (e.g., Hinkley’s software distinguishing between a tap and a tap and hold), *performing a first operation* (e.g., performing a function associated with icon 1712 that is “different” than opening the radial menu 1715 that results from tapping and holding the radial menu icon 1714), as in [1.e.ii]. EX1003, ¶[112].

A POSITA would have found obvious that, one way to distinguish between a tap and tap-and-hold per the teachings of Hinkley (EX1006, [0066], [0107]) would have been to utilize thresholds associated with the duration of the user’s contact. EX1006, [0080]; EX1010, [0052]-[0057]; EX1003, ¶[113].

Element [1.e.iii]

As discussed, a POSITA would have at least found it obvious to implement Ahn’s mobile communication terminal 100 such that Ahn’s menus would include the multiple selectable icons or slots described by Hinkley and that at least one of

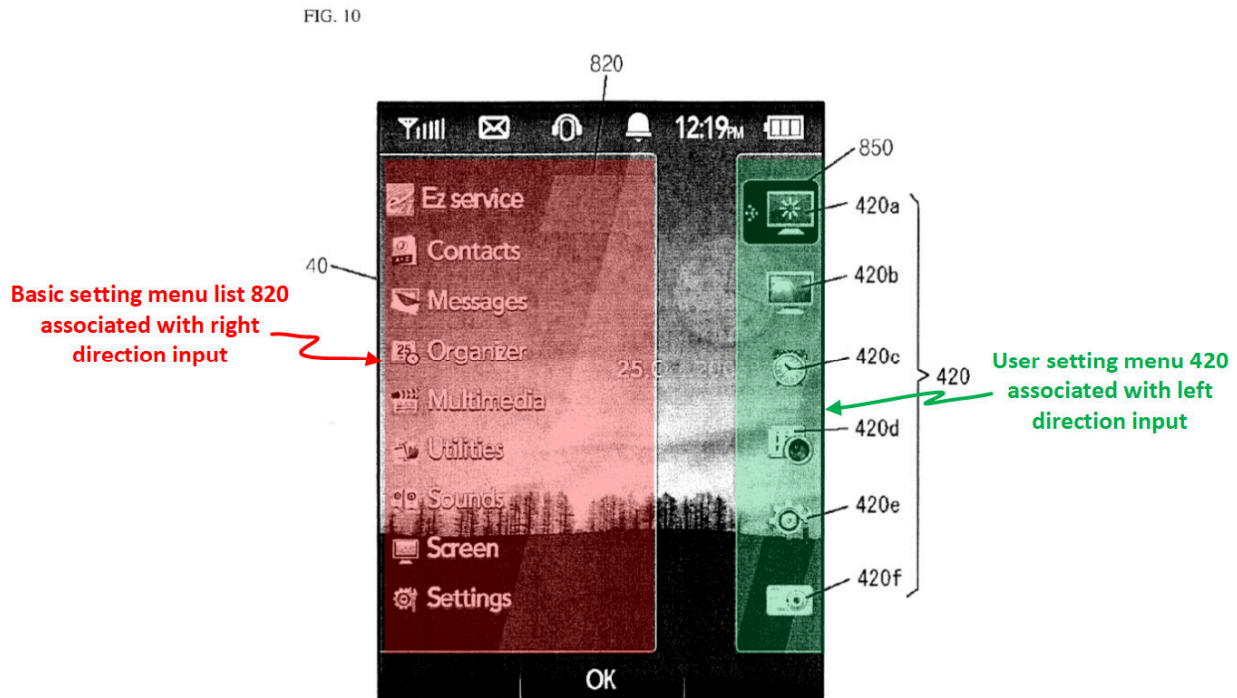
the selectable icons or slots would be associated with a radial menu icon as described by Hinkley. EX1006, [0105]-[0107]; *see* [1.e.i]; EX1003, ¶[114]. Further, it would have at least been obvious to implement Ahn's mobile communication terminal 100 such that tapping the icon would have triggered one action, while a tap-and-hold on the radial menu icon portion of that same icon would have triggered a different action (i.e., opening the radial menu 1715). EX1006, [0107]; EX1003, ¶[114].

Implemented as such, it would have been obvious to the POSITA that the mobile device of the Ahn-Chaudhri-Hinkley combination would have, *in response to the first duration of contact on the at least one of the one or more first menu items being detected to surpass the threshold* (e.g., Hinkley's software distinguishing between a tap and a tap and hold), *performing a second operation* (e.g., opening the radial menu 1715 that results from tapping and holding the radial menu icon 1714), as in [1.e.i]. EX1003, ¶[115].

Element [1.f]

As discussed, Ahn describes "a method of displaying a menu in a mobile communication terminal having a touch input device," in which a menu is displayed in response to a "touch and drag operation." EX1004, [0095]-[0099]; §VI.A.1, [1.c]. Ahn's controller 50 of the mobile communication terminal 100

“detects a touch and drag operation of a specific direction on the touch screen 10 (S1110),” and various different possible menus associated with different edges of the display 40 are associated with different directions of the touch and drag input. EX1004, [0098]-[0099]; EX1003, ¶[116].



EX1004, FIG. 10

For example, “if the user touches a specific position of the touch screen 10 and drags the touch in a left direction a menu list 1300 matched to a left direction is displayed in the display 40.” EX1004, [0102]. Per FIG. 13a, a user initially touches near the right side/edge of touch screen 10 and initiates the drag gesture that moves inward toward the center of the display. EX1004, FIG. 13a, [0102]. In another example, at FIGS. 15a-15b, “if the user touches screen 10 and drags the

touch in a rightward direction, a menu list 1500 matched to a right direction is displayed in the display 40.” EX1004, [0103]. At FIG. 15a, a user initially touches near the left side or edge of the touch screen 10 and initiates the drag gesture that moves inward toward the center of the display. EX1004, FIG. 15a, [0103]. And, at FIG. 10 (above), Ahn describes that multiple menus can be opened in serial and displayed at the same time. EX1004, [0090]-[0094], FIG. 10; EX1003, ¶[117].

Thus, in FIGS. 15a-15b, Ahn teaches, *when the graphical user interface is displayed, detecting, utilizing the touch interface, a second gesture that begins in connection with a second edge of the display and moves inward*, as in [1.f]. EX1003, ¶[118].

Alternatively, a POSITA would have found it obvious to utilize Hinkley’s bezel gestures and associated user interface elements, including the bezel menus and radial menus, in the context of Ahn’s mobile communication terminal 100. EX1003, ¶[119]; see §VI.A.4, [1.c]. Hinkley describes that its mobile device “can be configured to recognize a touch input, such as a finger of a user’s hand 106b, that initiates a gesture on or adjacent bezel 103 and proceeds onto display device 108.” EX1006, [0045]. Because the “bezel is made up of the frame structure adjacent the device’s display” (EX1006, [0044]) and therefore frames an edge of the display, a POSITA would have found obvious that gestures initiated “on or

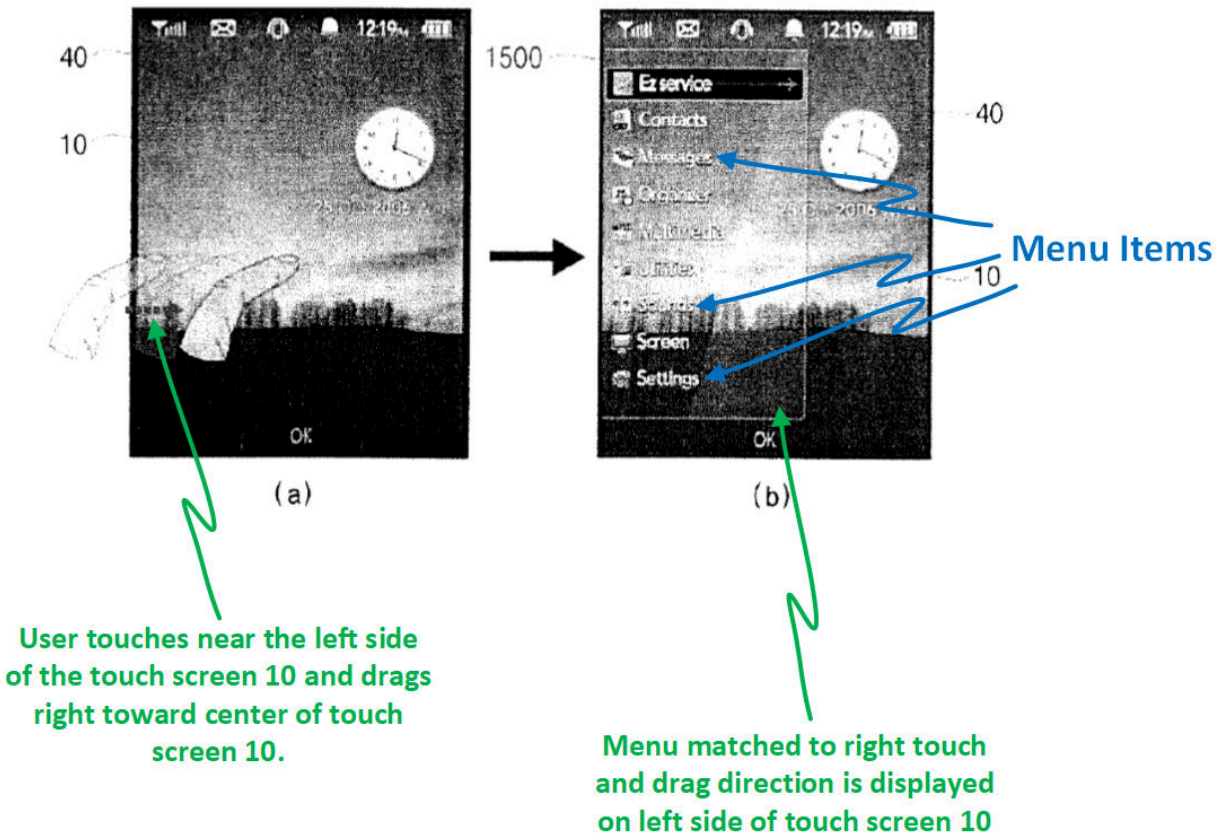
adjacent bezel 103 and proceed[ing] onto display device 108” are *begun in connection with a second edge of the display and moves inward*, as in [1.c]. EX1003, ¶[119].

Like Ahn, Hinkley suggests that bezel menus may be associated with multiple bezels and associated edges of the device’s display. EX1006, [0113]-[0114]; EX1003, ¶[120]. A POSITA would have found obvious that the bezel gesture Hinkley describes in FIG. 6 could be applied to more than one bezel edge and allow for the opening of multiple bezel menus. EX1003, ¶[120]. Considering the combined teachings of Ahn and Hinkley, a POSITA would have at least found it obvious in the context of the Ahn-Chaudhri-Hinkley combination that, *when the graphical user interface is displayed, detecting, utilizing the touch interface, a second gesture that begins in connection with a second edge of the display and moves inward*, as in [1.f]. *Id.*

Element [1.g]

As discussed, Ahn describes “a method of displaying a menu in a mobile communication terminal having a touch input device,” in which a menu is displayed in response to a “touch and drag operation.” EX1004, [0095]-[0099]; EX1003, ¶[121]; §VI.A.1, [1.c].

FIG. 15



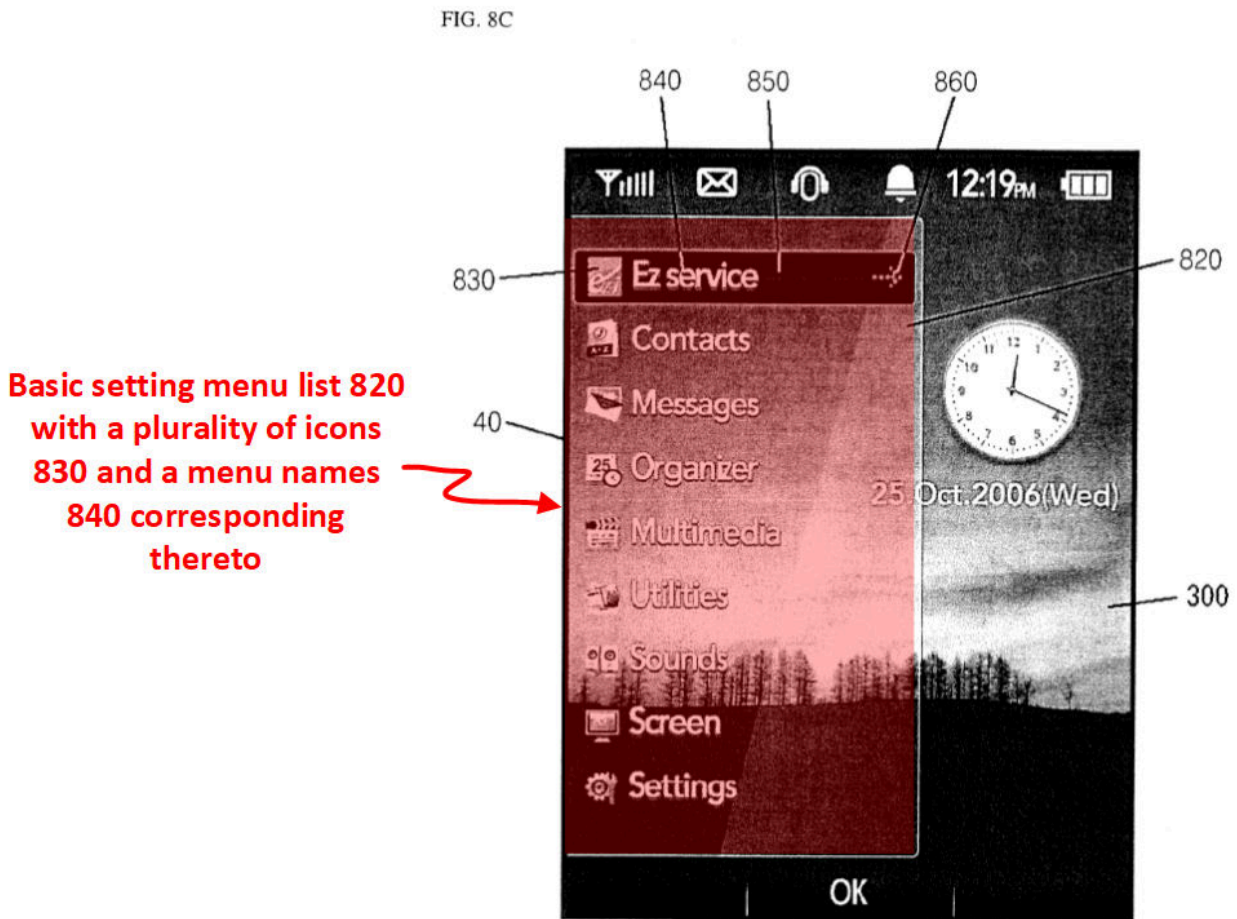
EX1004, FIGS. 15a and 15b

“As the touch and drag operation is detected, the controller 50 controls to display an item list matched to the specific direction in the display 40 (S1120).” EX1004, [0099]. “The item list comprises, for example, a menu list or a file list.” EX1004, [0102]. In one example illustrated in FIGS. 15a and 15b, “if the user touches screen 10 and drags the touch in a rightward direction, a menu list 1500 matched to a right direction is displayed in the display 40.” EX1004, [0103]. “A position in which the item list is displayed in the display 40 can be preset.”

EX1004, [0104]. “For example, referring to FIGS. 13 to 15,...a menu list matched to a right direction is set to be displayed at the left side of the display 40 (FIG. 15(b)).” EX1004, [0104]. Thus, a POSITA would have found obvious that Ahn’s mobile communication terminal 100, *in response to the detection of the second gesture that begins in connection with the second edge and moves inward, displaying, utilizing the display, a second menu including one or more second menu items*, as in [1.g]. EX1003, ¶[122].

Element [1.h.i]:

Ahn describes that the menu lists displayed as a result of the “touch and drag operation” may include various icons and menu names (*e.g.*, “an icon 830 and a menu name 840 corresponding thereto” in FIG. 9A) that, when selected by a user, provide access to various functions. EX1004, [0073]-[0078]. A POSITA would have found obvious that each of these icons and menu names is a *menu item* of the user menu 420. EX1003, ¶[123].

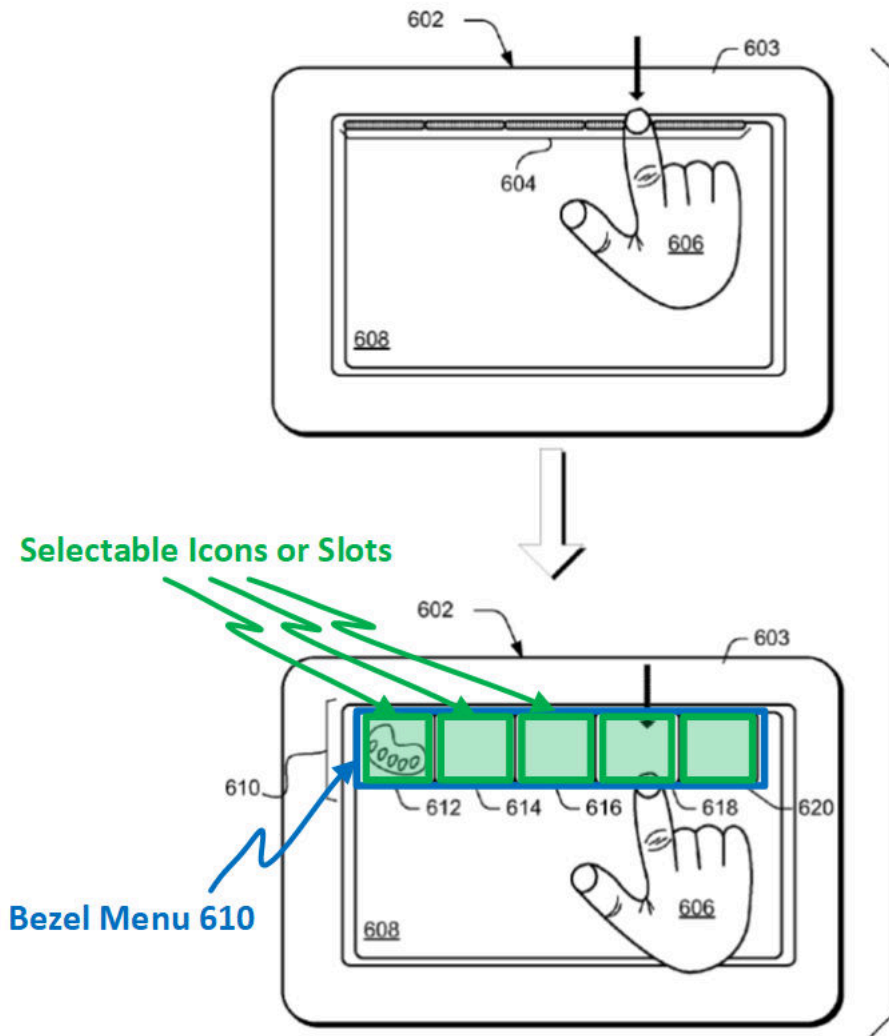


EX1004, FIG. 9A

Ahn describes how the menus/sub-menus of FIG. 8C are selected by a user with respect to FIGS. 9A and 9B. EX1004, [0052]. For example, referring to FIG. 9A, “when the rightward direction key 34 corresponding to a direction of the arrow 860 is pressed, a specific menu is selected and a sub-menu [870] of the selected menu is displayed, whereby a menu interface is provided to the user.” EX1004, [0085]; EX1003, ¶[124].

While Ahn describes that the mobile communication terminal 100 may rely on key input device 30 for selection of menus and sub-menus in those implementations where the user provides input through physical keys, Ahn does not limit how a POSITA would implement the selection of functions (*i.e.*, those sub-menus that are not themselves associated with further menu lists) in the context of using the touch input device described with respect to FIGS. 11-18. EX1003, ¶[125]. For the reasons described in §VI.A.4, a POSITA would have found it obvious to utilize Hinkley’s bezel gestures and associated user interface elements in the context of Ahn’s mobile communication terminal 100. EX1003, ¶[125]. In this regard, Hinkley would provide at least one possible set of implementation details not otherwise specified in Ahn. *Id.*

As discussed, Hinkley describes that “the bezel menu can be accessed through a bezel gesture in which a finger of user’s hand 606 touches the bezel and then moves across the bezel and onto the display device 608 in the direction of the illustrated arrow.” EX1006, [0073]; §VI.A.3, [1.c], [1.d.i], [1.e.i]. The “bezel menu 610 includes multiple selectable icons or slots 612, 614, 616, 618, and 620,” each of which is “associated with a different functionality.” EX1006, [0074]; EX1003, ¶[126].



EX1006, FIG. 6

“In the novice mode, after the user gestures to reveal the bezel menu 610, the user can lift their finger, whereupon the bezel menu can remain open for a configurable interval (or indefinitely).” EX1006, [0077]. “The user may then tap on a desired item associated with one of the icons or slots 612, 614, 616, 618, and 620,” which causes “the functionality associated with a particular icon or slot can be accessed.” EX1006, [0077]. A POSITA would have found obvious that the

“tap” described by Hinkley is a *selection contact on at least one of the one or more menu items*, as in [1.h.i]. EX1003, ¶[127].

Applying these teachings to the context of Ahn discussed above, a POSITA would have at least found it obvious to implement Ahn’s mobile communication terminal 100 such that Ahn’s menus would include the multiple selectable icons or slots described by Hinkley. EX1003, ¶[128]. Implemented as such, it would have been obvious to the POSITA that the mobile device of the Ahn-Chaudhri-Hinkley combination would have, *when the second menu is displayed including the one or more second menu items: detecting, utilizing the touch interface, a selection contact on at least one of the one or more second menu items*, as in [1.h.i]. *Id.*

Element [1.h.ii]

As discussed, a POSITA would have at least found it obvious to implement Ahn’s mobile communication terminal 100 such that Ahn’s menus would include the multiple selectable icons or slots described by Hinkley and that these icons and slots could be selected based on at least a tap gesture, as described by Hinkley. EX1006, [0072]-[0077]; [1.e.i], [1.e.ii], [1.h.i]; EX1003, ¶[129]. Indeed, Hinkley’s “gesture modules 104, 105 may support a variety of different gestures.” EX1006, [0051]. According to Hinkley, “[a]ny suitable type of input can be received” and “[a]ny suitable type of functionality can be accessed” in association with the received input. EX1006, [0066].

Implemented as such, it would have been obvious to the POSITA that the mobile device of the Ahn-Chaudhri-Hinkley combination would have, *in response to the selection contact being detected on the at least one of the one or more second menu items* (e.g., the icons and icon names listed with respect to menu 820 or 1500), *performing a third operation* (e.g., performing a function associated with selection of one of the distinct icons and icon names listed with respect to menu 820 or 1500, such as displaying a sub-menu 870 of the setting menu or invoking the functionality of the Messages icon shown in menu 820), as in [1.h.ii]. EX1003, ¶[130].

Element [1.i]:

The '413 Patent describes that “virtual display layer refers to a collection of display elements which have all been assigned the same apparent depth within the 3D layered user interface.” EX1001, 69:6-9; *see* §III.A. “For example, in one embodiment, a 3D layered user interface may have a virtual foreground display layer and a virtual background display layer.” EX1001, 69:11-14. In some embodiments, “virtual display layers may be given the appearance of depth through the use of 3D depth cues.” EX1001, 69:25-30. However, the '413 Patent does not teach specific software and or hardware implementation details for achieving these “apparent” visual effects, and instead acknowledges that they “may

be implemented in any desired environment.” EX1001, 68:33-70:44. In light of these teachings, a POSITA would have understood a “virtual display layer” to be present whenever one or more display elements appear at “the same apparent depth” of display, regardless of the software and/or hardware mechanisms used to achieve this visual appearance. EX1003, ¶¶[131]-[132].

Ahn describes that the various menus may be “transparently displayed on the standby screen 300,” such that preset standby screen 300 is not completely “hidden” by the menus. EX1004, [0039]; *see also* EX1004, [0070]. Similarly, Ahn describes menus “displayed in a transparent window form” in various areas “of the standby screen 300.” EX1004, [0064]. In order to display the menus “on” the standby screen 300 using “window forms,” a POSITA would have found obvious that the menu window is and would be displayed in a “virtual display layer,” as that term is broadly used in the ’413 Patent, and that the virtual display layer containing the menu is displayed “on” at least one other virtual display layer that contain(s) the various elements of the standby screen 300. EX1004, FIGS. 3A, 4B, [0064], [0070]; EX1003, ¶[133].

Indeed, it was known that, “[w]hen several 2D layers of information are put on top of each other, it is possible to provide the user with an intuitive way of choosing how much and which information to display crisply.” EX1008, 3-4. Indeed, user interface systems as early as 1991 had “up to 26 layers of information

...displayed at the same time” with “[e]ach layer haing an interest level associated with it that the user can change,” “[visualized as] a combination of blur and transparency.” EX1008, 2, 8. When displaying an object in a layer atop another layer with other objects, the top layer could be made transparent and therefore not necessarily visible beyond its constituent objects, so that components on the lower layer (e.g., a desktop) can still be seen. EX1007, [0082]; EX1003, ¶[134].

Accordingly, based on the teachings of Ahn and his/her own knowledge of the user interface art, a POSITA would have at least found it obvious to implement the mobile device of the Ahn-Chaudhri-Hinkley combination such that *the electronic device is configured such that the graphical user interface* (e.g., Ahn’s standby screen 300 with the clock widget) *is displayed in at least one virtual display layer, and at least one of the first menu or the second menu* (e.g., Ahn’s menus 1300 and 1500) *is displayed in at least one other virtual display layer*, as in [1.i]. EX1003, ¶¶[133]-[137].

(b) **Claim 2**

A POSITA would have at least found it obvious to implement the mobile device of the Ahn-Chaudhri-Hinkley combination such that *the electronic device is configured such that the graphical user interface* (e.g., Ahn’s standby screen 300 with the clock widget) *is displayed in at least one virtual display layer, and at least one of the first menu or the second menu* (e.g., Ahn’s menus 1300 and

1500) *is displayed in at least one other virtual display layer.* EX1003, ¶¶[138]-[139]; *see* [1.i].

And per Ahn’s §VI.A.1 and [1.d.ii], displayed menus may be “transparently displayed on the standby screen 300.” EX1004, [0070]. Indeed, compare FIG. 3A, which shows standby screen 300 without menus to FIG. 7B, which shows basic setting menu list 720 “displayed in a transparent window form in a left area of the standby screen 300.” EX1004, [0064]; EX1003, ¶[140]. Ahn describes that transparent menu windows ensure that “the preset standby screen 300 is not hidden by the pop-up menu window 340.” EX1004, [0039]. Based on these teachings, a POSITA would have found obvious that *the electronic device is configured such that at least a portion of the at least one other virtual display layer is at least partially translucent such that at least a portion of the at least one virtual display layer is visible through the at least one other virtual display layer*, as in claim 2. EX1003, ¶[140].

FIG. 3A

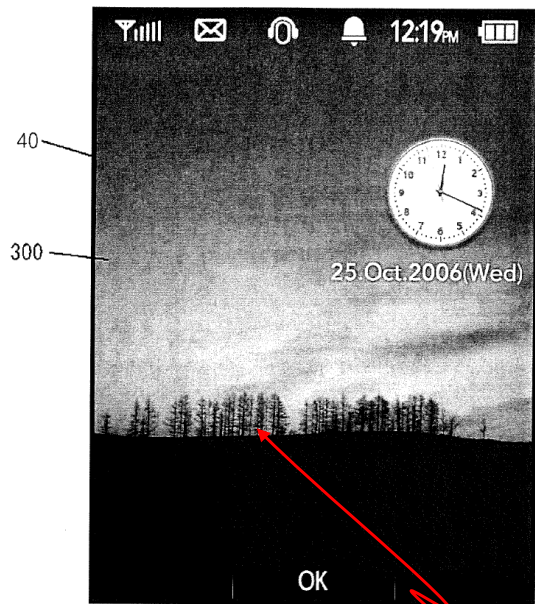
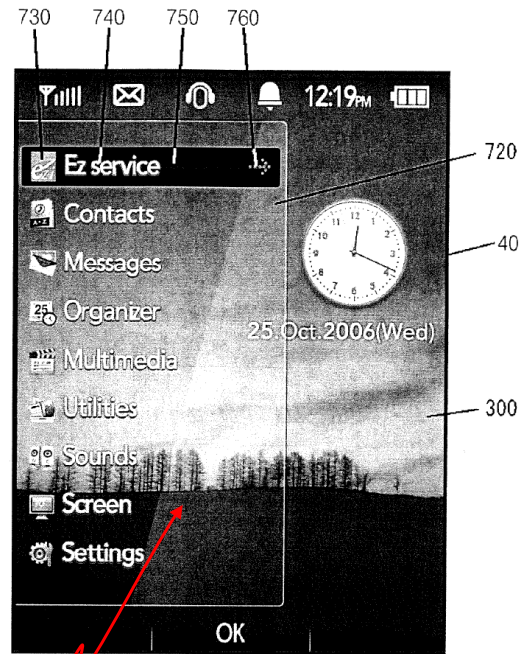


FIG. 7B



**Trees that are part of standby
screen 300 can be seen through the
transparent menu window**

EX1004, FIGS. 3A and 7B

Even where Ahn utilizes transparent windows to display the menus, Ahn illustrates that the clock widget that is part of the background is blurred. EX1004, FIGS. 4B, 10, 13B. Thus, even where Ahn utilizes a transparent menu instead of a translucent menu, Ahn teaches the blurring required for [1.d.ii]. EX1003, ¶[141].

**Clock widget is blurred when user
menu 420 is opened**

FIG. 3A

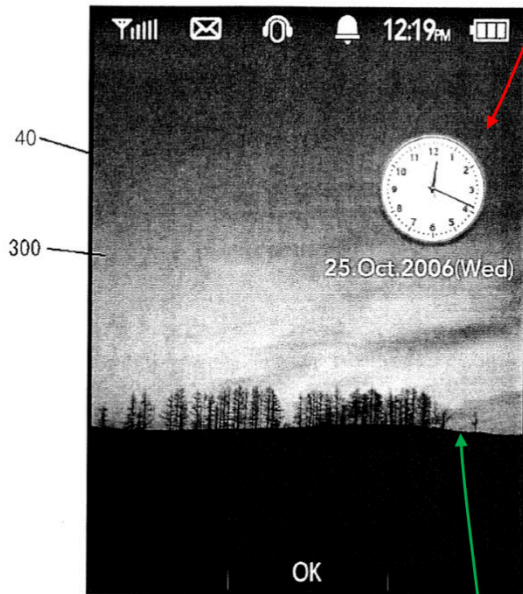
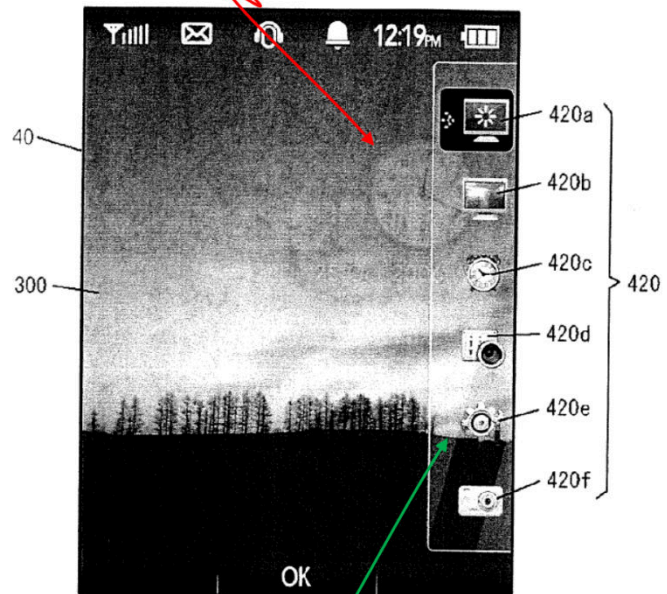


FIG. 4B



**Other features of background
standby screen clearly visible
through transparent menu**

EX1004, FIG. 3A and 4B

(c) Claim 3

Ahn describes that the displayed menus may be “transparently displayed on the standby screen 300.” EX1004, [0070]; *see* [2]. For example, compare FIG. 3A, which shows standby screen 300 (including a background image of sky/trees) without menus to FIG. 7B, which shows setting menu list 720 “displayed in a

transparent window form in a left area of the standby screen 300.” EX1004, [0064]. Ahn’s transparent menu windows ensure that “the preset standby screen 300 is not hidden by the pop-up menu window 340.” EX1004, [0039]. Thus, a POSITA would have found obvious that *the electronic device is configured such that the at least portion of the at least one virtual display layer that is visible through the at least one other virtual display layer, includes at least a portion of a background image*, as in claim 2. EX1003, ¶[142].

FIG. 3A

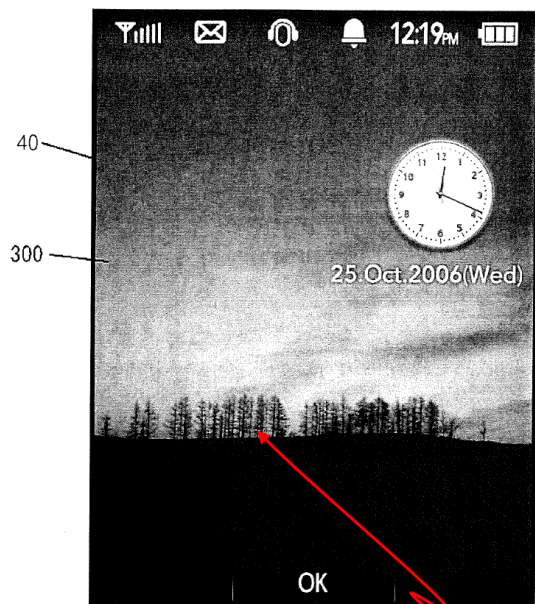
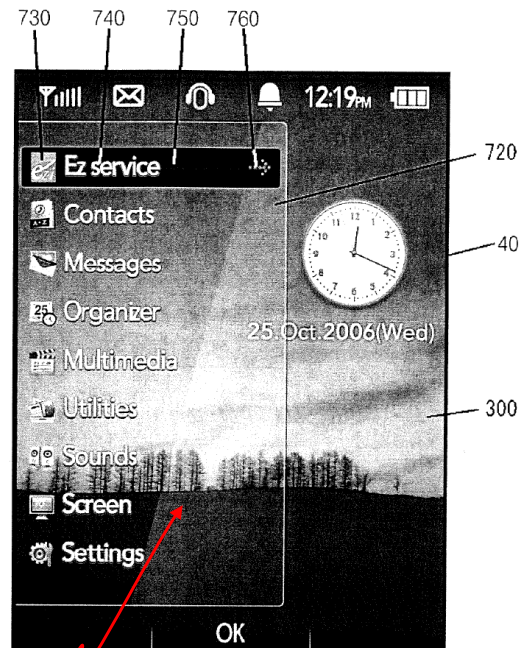


FIG. 7B

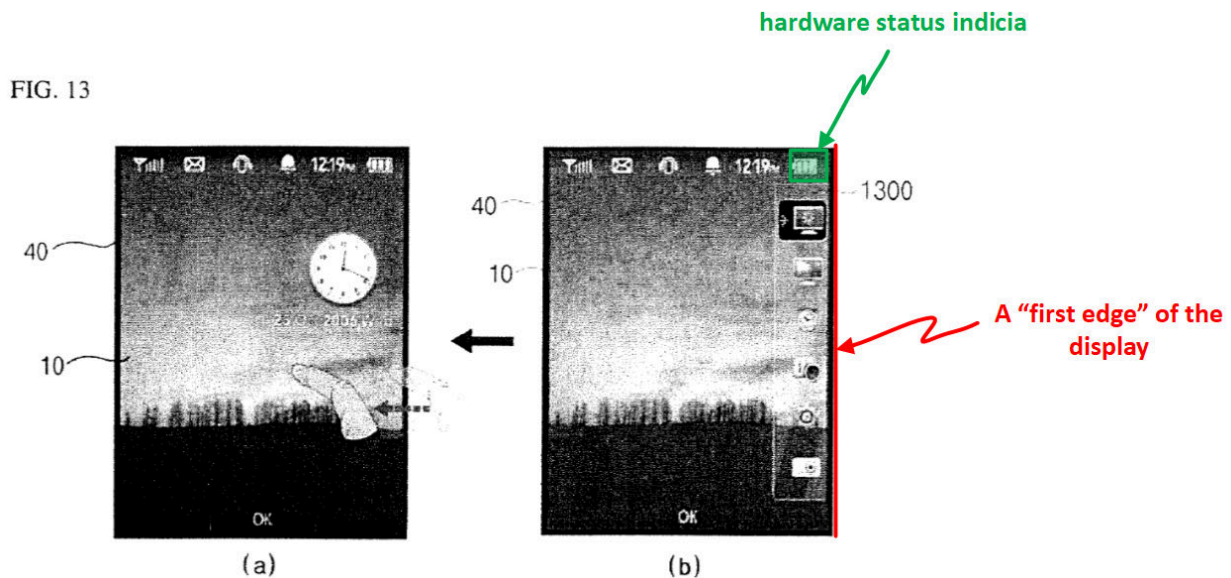


Trees that are part of standby
screen 300 can be seen through the
transparent menu window

EX1004, FIGS. 3A and 7B

(d) **Claim 7**

As discussed, a menu matched to the left touch direction is an example of a *first menu*, and the right side of the display with respect to which this menu is displayed is an example of a *first edge*. EX1004, [0101]-[0104]; EX1003, ¶[143]; *see* [1.c].

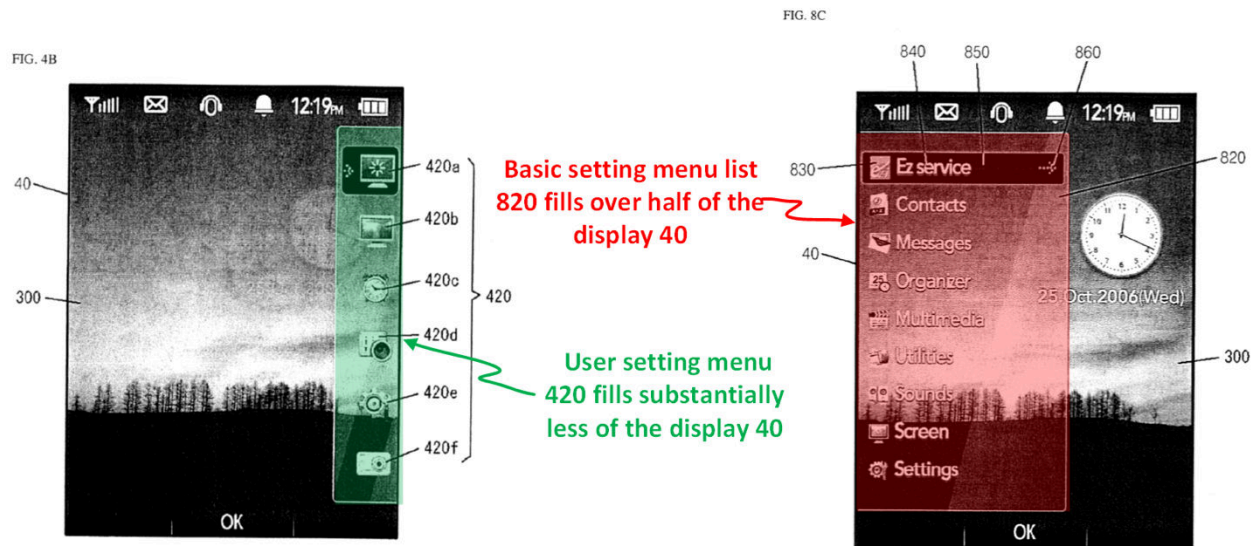


EX1004, FIGS. 13a-13b

In FIG. 13b, Ahn illustrates that a *hardware status indicia* is displayed in the upper right corner of display 40, which makes it adjacent to each of the top and right edges of the display. EX1004, FIG. 13b, [0040]; EX1003, ¶[144]. Based on at least these teachings a POSITA would have found obvious that, in Ahn-Chaudhri-Hinkley combination, *the electronic device is configured such that hardware status indicia is displayed adjacent to the first edge*, as in Claim 7. *Id.*

(e) **Claim 9**

Ahn illustrates that the various menus associated with the edges of the device can have different sizes. *See, e.g.,* EX1004, FIGS. 4B, 8C, and 9C; EX1003, ¶[145]. For example, in FIG. 8C, Ahn illustrates that basic setting menu list 820 fills over half of the display 40, whereas, in FIG. 4B, Ahn illustrates that user setting menu 420 fills far less of the display 40. *Id.* With respect to FIG. 10, Ahn illustrates the user setting menu 420 and basic setting menu list 820 displayed at the same time such that, together, the menus fill almost all of the display 40. EX1004, FIG. 10; EX1003, ¶[145].



EX1004, FIGS. 4B and 8C

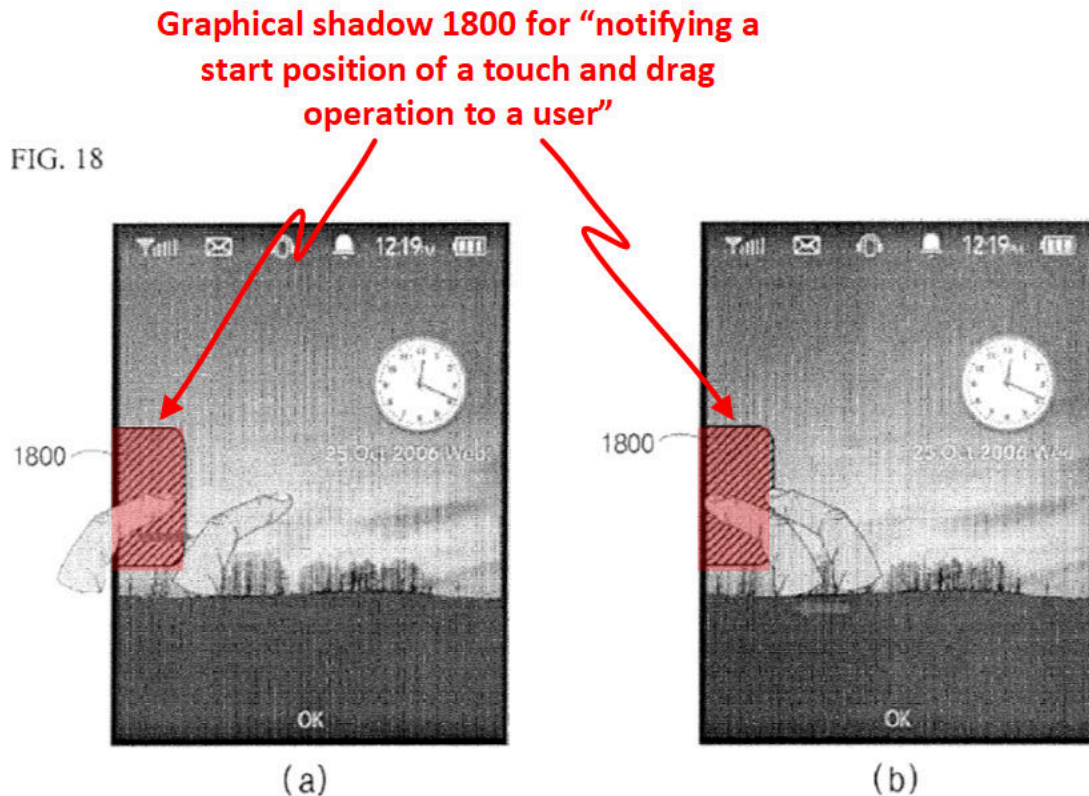
From at least these teachings, a POSITA would have found obvious that the size of the menus displayed on the display are an implementation choice of the user interface designer, and that the amount of the display that any given menu fills

is a design choice dependent on, for example, the type and amount of information being conveyed to the user. EX1003, ¶[146]. For example, there were known edge pull-out menu systems, like those described in Ahn and Hinkley, where a menu was configured to fill the entire display. *See, e.g.*, EX1011, FIG. 26, [0098]-[0108]. It was known that by utilizing more of the display for the pull-out menu, “more functional items will be displayed.” EX1011, [0099]; EX1003, ¶[146].

Based on these teachings and his/her knowledge of the art, a POSITA would have at least found it obvious that, in Ahn-Chaudhri-Hinkley combination, *the electronic device is configured such that at least one of the first menu or the second menu substantially fills the display*, as in Claim 9. EX1003, ¶[147].

(f) **Claim 10**

As discussed, Ahn describes that the display 40 may utilize “a graphical display for notifying a start position of a touch and drag operation to a user,” and clearly shows “a graphical shadow 1800” displayed at a first edge of the display (e.g., the left edge in this example) that indicates the start position of the touch is along the first edge. EX1004, [0118]-[0119]; EX1003, ¶[148]; *see* [1.c].



EX1004, FIGS. 18a-18b

“For example, referring to FIG. 18(a), if the user drags in a right direction after touching the screen, a graphical shadow 1800 is displayed in the display 40, and the menu list 1500 shown in FIG. 15(b) can be displayed in the display 40.” EX1004, [0118]. Similarly, Chaudhri-842 describes moving displayed graphics in correspondence with the magnitude of gestures associated with those graphics in order to provide the user who is performing the gesture a visual confirmation of the gesture and help direct them on how to complete the gesture. EX1005, [0054] (describing the display of “visual cue(s)” to provide “hints or reminders” regarding the action necessary to transition between user interface states), [0060] (describing

that the “user may interact with the user-interface objects by making contact with the touch screen at one or more touch screen locations corresponding to the interactive objects with which she wishes to interact” and the “device detects the contact and responds to the detected contact by performing the operation(s) corresponding to the interaction with the interactive object(s)”, [0062] (describing that a visual cue, such as an image, may move along with the gesture as the gesture is detected). And Hinkley describes the use of “visual affordance(s),” such as a semi-transparent strip, to “provide a hint or indication of accessible functionality associated with the bezel.” EX1006 [0062], [0068], [0072], [0079], [0088], [0092].

Based on at least these teachings a POSITA would have found obvious that, in Ahn-Chaudhri-Hinkley combination, *the electronic device is configured such that indicia is displayed via the graphical user interface* (e.g., graphical shadow 1800) *for prompting a user as to an accessibility of at least one of the first menu or the second menu*, as in Claim 7. EX1003, ¶¶[149]-[150].

(g) **Claim 101**

Element [101.a]:

See [1.a]; EX1003, ¶[151].

Element [101.b]:

See [1.b]; EX1003, ¶[152].

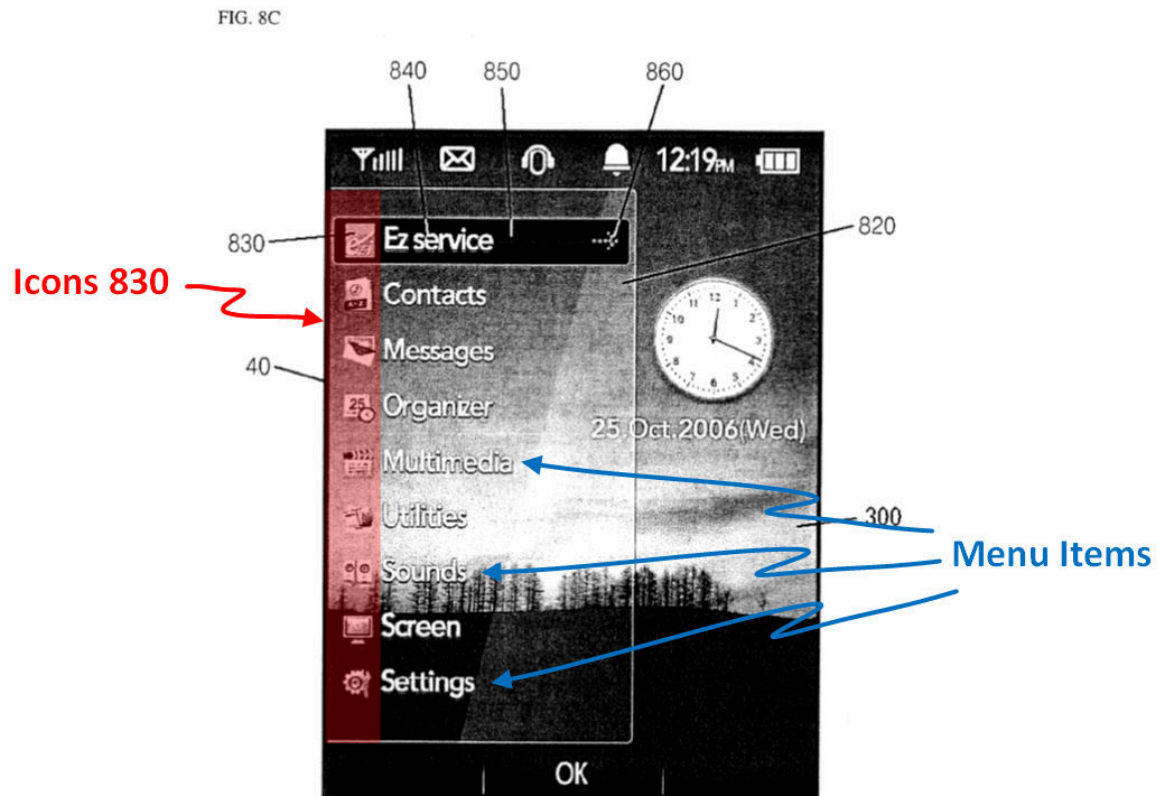
Element [101.c]:

See [1.c]; EX1003, ¶[153].

Element [101.d]:

See [1.d.i]; EX1003, ¶[154].

With respect to FIG. 8C, Ahn describes that the “basic setting menu list 820 comprises a plurality of menus, and each menu comprises an icon 830 and a menu name 840 corresponding thereto.” EX1004, [0076]. Ahn shows similar icons associated with the menus and sub-menus in at least FIGS. 4B, 5A-5D, 6B, 7B, 7C, 9A-9C, 10, 13-15, and 17. EX1003, ¶[155].



EX1004, FIG. 8C

While Ahn describes a “program memory” and “[p]rograms for controlling a general operation of the mobile communication terminal 100,” Ahn does not describe the “menus” and “sub-menus” with which it associates the icons as “applications.” *See, e.g.*, EX1004, [0051], [0064], [0067], [0076]. However, a POSITA would have found obvious that at least some of the functions that Ahn refers to as “menus” and/or “sub-menus” would have been implemented as applications. EX1003, ¶[156].

For example, in FIG. 8C, Ahn illustrates that the basic setting menu list 820 “comprises a plurality of menus,” which include a “menu” named “Contacts” and a “menu” named “Messages.” EX1004, [0076], FIG. 8C. A POSITA would have found obvious that selecting the “Contacts” and “Messages” menus would have launched an application associated with that functionality. EX1003, ¶[157]. For example, Chaudhri-842 describes that its device 100 includes software components such as “one or more applications (or set of instructions) 146,” which “include any applications installed on the device 100, including without limitation, a browser, address book, contact list, email, instant messaging, word processing, keyboard emulation, widgets, JAVA-enabled applications, encryption, digital rights management, voice recognition, voice replication, location determination capability (such as that provided by the global positioning system (GPS)), a music player (which plays back recorded music stored in one or more files, such as MP3

or AAC files), etc.” EX1005, [0037], [0044]. Similarly, Hinkley describes that “[c]omputer-readable media 3314 provides data storage mechanisms to store the device data 3304, as well as various device applications 3318 and any other types of information and/or data related to operational aspects of device 3300,” and describes various types of applications run on its device. EX1005, [0152]. Based at least on these teachings, a POSITA would have at least found it obvious that, in the Ahn-Chaudhri-Hinkley combination, the *one or more first menu items includ[e] a particular application icon*, as in [101.d]. EX1003, ¶[157].

Element [101.e.i]:

See [1.e.i]; EX1003, ¶[158].

Element [101.e.ii]:

See [1.e.ii]; EX1003, ¶[159].

Element [101.e.iii]:

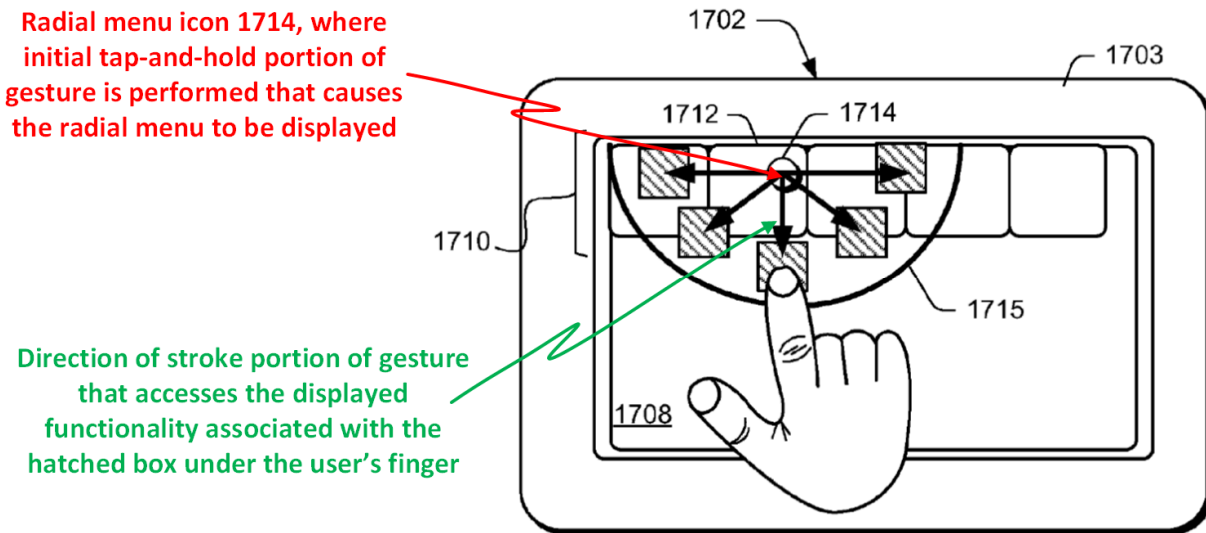
See [1.e.iii]; EX1003, ¶[160].

Element [101.e.iv]:

As discussed, a POSITA would have at least found it obvious to implement Ahn’s mobile communication terminal 100 such that Ahn’s menus would include the multiple selectable icons or slots described by Hinkley and that at least one of the selectable icons or slots would be associated with a radial menu icon as

described by Hinkley. EX1006, [0105]-[0107]; EX1003, ¶[161]; *see* [1.e.i], [1.e.iii]. Further, it would have at least been obvious to implement Ahn's mobile communication terminal 100 such that tapping the icon would have triggered one action, while a tap-and-hold on the radial menu icon portion of that same icon would have triggered a different action (i.e., opening the radial menu 1715). EX1006, [0107]; EX1003, ¶[161].

With respect to the radial menus, Hinkley describes that “[o]ne of the general ideas associated with radial menus is that a user can touch down at a certain location and stroke or slide their finger a certain direction to access and implement a particular functionality or menu command.” EX1006, [0105]. “Once the radial menu 1715 is exposed, the user can access various functionalities or commands by touching down on or near radial menu icon 1714 and stroking in a particular direction.” EX1006, [0108]. In other words, a POSITA would have at least found it obvious to implement Hinkley's computing device 102 such that, to access a functionality associated with a radial menu, a user would: (1) tap-and-hold on the radial menu icon portion of an icon within a bezel menu; and (2) after the radial menu is displayed and while his/her finger is still in contact with the display, slide the finger in the direction of a displayed functionality. EX1006, [0105]-[0110] [0066], [0078], [0110]; EX1003, ¶[162].



EX1006, FIG. 17

Based at least one these teachings, that, in the mobile device of the Ahn-Chaudhri-Hinkley combination, *the second operation is performed in response to the first duration of contact on the particular application icon being detected to surpass the threshold* (e.g., the tap-and-hold gesture being detected), *and the first duration of contact being detected to include a slide gesture component after the first duration of contact on the particular application icon is detected to surpass the threshold* (e.g., the “stroke” component that accesses one of the various functionalities that are included in the displayed radial menu), as in [101.e.iv]. EX1003, ¶[163].

Element [101.f]:

See [1.f]; EX1003, ¶[164].

Element [101.g]:

See [1.g]; EX1003, ¶[165].

Element [101.h.i]:

See [1.h.i]; EX1003, ¶[166].

Element [101.h.ii]:

See [1.h.ii]; EX1003, ¶[167].

Element [101.i]:

See [1.i]; EX1003, ¶[168].

VII. ANALYSIS ON DISCRETION

A. 35 U.S.C. §325(d)—*Advanced Bionics*

The *Advanced Bionics* framework strongly favors institution. Ahn was never cited in the hundreds of references disclosed by the Applicant and/or cited by the Examiner. Nor did either the Applicant or Examiner discuss or consider the combination of Ahn and Chaudhri-842. Further, the record shows that the Challenged Claims were allowed based on a material error. As discussed throughout this Petition, Ahn and Chaudhri-842 teach and render obvious the very “blurring” features that the Examiner erroneously thought were missing from the art. *See* §§III.B, VI; EX1003, ¶¶[26-29]; EX1002, 307-310.

B. 35 U.S.C. §314(a)—*Fintiv*

No *Fintiv* factor favors discretionary denial.

Factor 1 weighs against discretionary denial or is neutral. Apple intends to file a motion to stay the parallel litigation.

Factor 2 weighs against discretionary denial. According to the latest published district court statistics, the median time to trial in the Southern District of California (SDCal) is 40.2 months, predicting a trial in November 2027—significantly later than a Final Written Decision would be issued in this case. EX1020, 69; EX1021, 3, 8. Though a pre-trial conference of October 23, 2025 has been scheduled in the co-pending litigation, no trial date has been set, and it is uncertain whether the schedule will stick, particularly if Apple’s motion to stay is granted. EX1022, p. 6.

Factor 3 also weighs against discretionary denial because Petitioner diligently filed this Petition while the co-pending litigation is still in its early stages. Beyond serving preliminary infringement contentions, the parties and the District Court have yet to expend significant resources.

Factor 4 weighs against discretionary denial. As noted above, no trial date has been scheduled. Indeed, no stipulation has been offered given the lack of a trial date, and it otherwise remains too early to assess the suitability of a stipulation with invalidity contentions still not exchanged.

Factor 5 The parties in the parallel co-pending litigation are the same.

Factor 6 favors institution because the merits of this Petition are compelling.

VIII. PAYMENT OF FEES—37 C.F.R. §42.103

Petitioner authorizes the Patent and Trademark Office to charge any fees to Deposit Account No. 06-1050.

IX. MANDATORY NOTICES—37 C.F.R §42.8(a)(1)

A. Real Party-In-Interest—37 C.F.R. §42.8(b)(1)

Apple Inc. is the petitioner and the real party-in-interest.

B. Related Matters—37 C.F.R. §42.8(b)(2)

Petitioner is not aware of any disclaimers, reexamination certificates, or petitions for *inter partes* review for the '413 Patent. The '413 patent is the subject of a number of civil actions including: *Smith Interface Technologies, LLC v. Samsung Electronics Co., Ltd. et al.*, 2-22-cv-00290 (EDTX) (terminated), and *Smith Interface Technologies, LLC v. Apple Inc.*, 3-23-cv-01187 (SDCA) (pending).

C. Lead and Back-Up Counsel Under 37 C.F.R. §42.8(b)(3)

Petitioner provides the following designation of counsel.

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D. Service Information

Please address all correspondence and service to the address listed above.

Petitioner consents to electronic service by email at IPR50095-0163IP1@fr.com.

Respectfully submitted,

Dated: June 28, 2024

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CERTIFICATION UNDER 37 CFR §42.24

Under the provisions of 37 CFR §42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,877 words, which is less than the 14,000 allowed under 37 CFR §42.24.

Dated: June 28, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on June 28, 2024, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided via USPS Priority Express Mail, to the Patent Owner by serving the correspondence address of record as follows:

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