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In re Patent of:	Michael S. Smith	
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Title:	DEVICES AND METHODS FOR NAVIGATING BETWEEN USER INTERFACES	

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PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 10,656,754 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. 10,656,754
EX1002	U.S. Patent No. 10,656,754 File History
EX1003	Declaration of Dr. Loren Terveen
EX1004	U.S. Publication No. 2008/0207188 to Hye Sang Ahn *et al.* ("Ahn")
EX1005	U.S. Publication No. 2007/0150842 to Imran Chaudhri *et al.* ("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 *et al.* ("Chaudhri '818")
EX1008	Robert Kosara *et al.*, "Semantic Depth of Field," IEEE Symposium on Information Visualization 2001, pp. 97-104 (2001)
EX1009	New Oxford American Dictionary (3rd Ed. 2010)
EX1010	U.S. Publication No.. 2012/0304133 to Jennifer Nan *et al.* ("Nan")
EX1011	Certified translation of JP Published Patent Application No. 2002-55750 ("Hisatomi"), published February 20, 2002
EX1012	Internet Archive Capture of *https://en.wikipedia.org/wiki/Acutance* from Nov. 2, 2010 (available at

	https://web.archive.org/web/20101102045925/https://en.wikipedia.org/wiki/Acutance)
EX1013	U.S. Publication No. 2010/0095240 to Daniel Marc Gatan Shiplacoff *et al.* ("Shiplacoff")
EX1014-1019	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 2	
[2.a]	An apparatus, comprising: at least one non-transitory memory; a touch screen; and one or more processors in communication with the at least one non-transitory memory, and the touch screen, wherein the one or more processors execute instructions in the at least one non-transitory memory to cause the apparatus to . . .
[2.b]	display an object and at least one other object;
[2.c]	detect at least part of a gesture on the touch screen; and
[2.d]	during detection of at least a portion of the gesture before a completion thereof is detected, blur, based on a change in a magnitude of the gesture being detected on the touch screen, at least a portion of the at least one other object.
Claim 80	
[80]	The apparatus of claim 27, wherein the apparatus is configured such that the menu includes a multitasking interface.
Claim 81	
[81]	The apparatus of claim 27, wherein the apparatus is configured such that the menu includes a multitasking interface for choosing among a plurality of only active applications.
Claim 82	
[82]	The apparatus of claim 27, wherein the apparatus is configured such that the menu includes a multitasking interface that remains displayed after detection of the completion of the gesture.
Claim 83	
[83]	The apparatus of claim 2, wherein the apparatus is configured such that, when a distance magnitude of the gesture detected on the touch screen is detected to increase above a distance threshold, and a duration magnitude of the gesture detected on the touch screen is detected to

	increase above a duration threshold, a menu is displayed with at least one option.
Claim 88	
[88]	The apparatus of claim 83, wherein the apparatus is configured such that the at least part of the gesture is detected on the touch screen at an edge of the touch screen.
Claim 90	
[90]	The apparatus of claim 83, wherein the apparatus is configured such that the at least part of the gesture is detected on the touch screen on the object.
Claim 94	
[94]	The apparatus of claim 83, wherein the apparatus is configured such that the menu is displayed simultaneously with the blurring of the at least portion of the at least one other object.
Claim 95	
[95]	The apparatus of claim 83, wherein the apparatus is configured such that, based on the change in the magnitude of the gesture being detected on the touch screen, a location of the object is moved before the menu is displayed.
Claim 97	
[97]	The apparatus of claim 83, wherein the apparatus is configured such that the menu includes a multitasking interface for choosing among a plurality of active applications.
Claim 98	
[98]	The apparatus of claim 83, wherein the apparatus is configured such that the menu includes a multitasking interface.

Claim 99	
[99]	The apparatus of claim 83, wherein the apparatus is configured such that the menu includes a multitasking interface for choosing among a plurality of only active applications.
Claim 100	
[100]	The apparatus of claim 83, wherein the apparatus is configured such that the menu includes a multitasking interface that remains displayed after detection of the completion of the gesture.

Apple Inc. ("Petitioner") petitions for IPR of the Challenged Claims of U.S. Patent No. 10,656,754 ("the '754 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 phrase "as discussed" 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 '754 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 the grounds listed below. Petitioner's ground sare supported by a declaration from Dr. Loren Terveen. EX1003.

Ground	Challenged Claims	Basis for Rejection
1A	**2**	§103–Ahn (US 2008/0207188), Chaudhri '842 (US 2007/0150842)
1B	83, 88, 90, 94, 95	§103–Ahn (US 2008/0207188), Chaudhri '842 (US 2007/0150842), Hinkley (US 2011/0209093)

Ground	Challenged Claims	Basis for Rejection
1C	80-82	§103–Ahn (US 2008/0207188), Chaudhri '842 (US 2007/0150842), Shiplacoff (US 2010/0095240)
1D	97-100	§103–Ahn (US 2008/0207188), Chaudhri '842 (US 2007/0150842), Hinkley (US 2011/0209093), Shiplacoff (US 2010/0095240)

The '754 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)
Shiplacoff (EX1021)	Filed Apr. 1, 2009	§102(e)

III. THE '754 PATENT

A. Pertinent Disclosure

The '754 patent "generally relate[s] to touch screens" and describes embodiments where "a user experience [with a touch screen device] may be altered" based on a "touch signal." EX1001, 1:35-36, 14:31-15:64, Figure 3; EX1003, ¶[21]. The claims of the '754 Patent generally relate to a hodge podge of touch screen gestures (*e.g.*, swipe and tap gestures) and various display functions on the user interface associated with those gestures (*e.g.*, blurring or moving displayed objects). *See, e.g.*, EX1001, 95:35-53 (Claims 2-4). However, as discussed below, the support for these claimed gestures and claimed user interface functions is scattered throughout the specification of the '754 Patent, often without explanation about any relationship between the disparate teachings or their utilization together in a single embodiment. EX1003, ¶[21]. Nonetheless, as will be described in Section VI, *infra*, the claimed gestures and user interface functions were well-known well before the '754 Patent. EX1003, ¶[21].

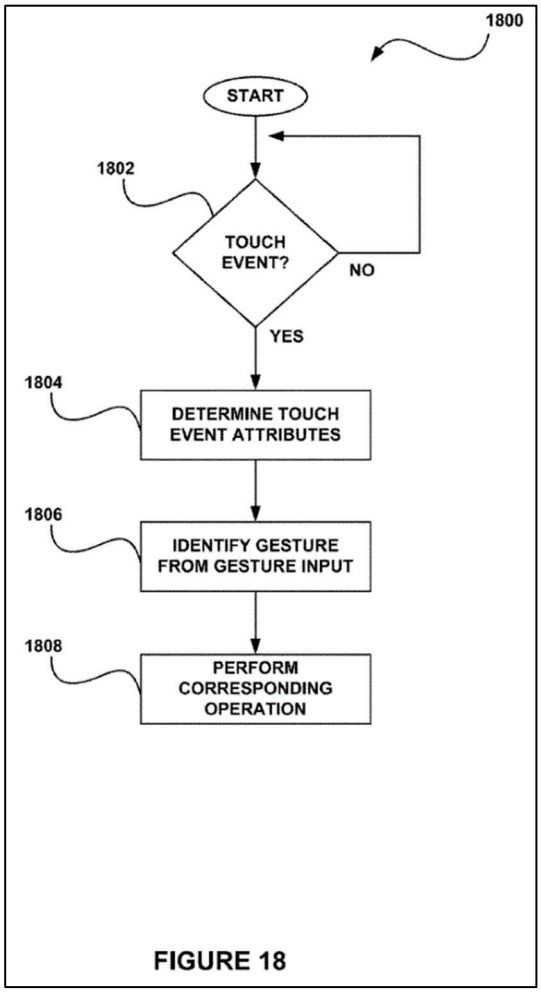


FIGURE 18

In one part of the specification, the '754 Patent describes a method that involves performing operations that correspond to identified gestures. EX1001, 56:24-57:10. "If it is determined that a touch event has occurred, then the initial touch event attributes are determined," and "the gesture is identified from gesture input." EX1001, 56:34-38. According to the '754 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, 56:39-41. "For example, in one embodiment, a two-finger pinch gesture may be identified by two contact points combined with their motion with respect to each other, and parameterized by the extent of the motion." EX1001, 56:41-45. "Once the gesture has been identified, the corresponding operation is performed." EX1001, 57:9-10; EX1003, ¶[22].

The '754 Patent describes that "[p]attern-based gestures may be simple to perform and easy for a user to remember." EX1001, 65:37-39. One such gesture is a "pinch slide gesture." EX1001, 66:17-27. The pinch slide "gesture may be performed by pinching the device, then sliding the pinch across the interaction surfaces while maintaining contact." EX1001, 66:21-24. In one embodiment, "a pinch slide gesture may be used to display menus of common operations or applications." EX1001, 66:64-66. "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, 66:66-67:2; EX1003, ¶[23].

Separately, the '754 Patent describes embodiments that utilize a "3D layered user interface" in which "displayed objects may exist in one of a plurality of layers." EX1001, 67:66-68:10; EX1003, ¶[24]. "[A] 3D layered user interface may be implemented in a device having single layer displays through the use of virtual display layers." EX1001, 68:37-39. "[A] 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, 68:39-42. In some embodiment, "virtual display layers may be given the appearance of depth through the use of 3D depth cues." EX1001, 68:58-60. "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, 68:63-66.

Notably, the '754 Patent does not explicitly 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. Rather, the '754 Patent describes its 3D layered user interface more generically with respect to "objects" or "display elements" and collections thereof. EX1001, 67:44-71:39; EX1003, ¶[25]. These "objects" are described as including, but not limited to, "digital objects (i.e. images, text boxes, UI control widgets, selections, etc.), subject matter objects (i.e.

people within a photograph, letters and/or words within text, etc.), and/or any other type of identifiable visual object." EX1001, 68:48-57. While the '754 Patent describes that these general "objects" or "elements" may be "located in a virtual display layer" (*see* EX1001, 68:55-57), there is sparse detail about how specific "objects" or "elements" are assigned to a particular virtual display layer, and no clear discussion of whether or how "objects" or "elements" may be reassigned or otherwise moved between virtual display layers. EX1001, 67:44-71:39; EX1003, ¶[25]. Rather, the '754 Patent focuses on the ability of a user to "move" visually between layers and providing visual cues that provide the appearance of such "movement" ("*i.e.* magnifying and fading display layers as they are passed by, sharpening previously blurry display layers as they grow closer, etc."), which is a distinct concept. EX1001, 70:64-71:9; EX1003, ¶[25].

B. Prosecution History

On June 11, 2019, the Applicant (P4TENTS1, LLC) filed the '753 patent as U.S. Appl. No. 16/438,455 accompanied by a Request for Prioritized Examination under 37 C.F.R. §1.102(e). EX1002, 933, 937-940. In the first non-final Office Action dated August 1, 2019, the Examiner rejected the claims under 35 U.S.C. § 101 and for both statutory and non-statutory double patenting. EX1002, 713-721. No prior art rejections were made.

In a response dated September 6, 2019, the Applicant filed a terminal disclaimer with respect to U.S. Patent No. 10,345,961, made minor amendments to original independent claim 1, cancelled original claims 8-16, and added new claims 17-202. EX1002, 671-712. Shortly thereafter, the Applicant filed a supplemental amendment and response on September 23, 2019, in which the Applicant filed a more extensive terminal disclaimer, additionally cancelled original claims 2-7, more extensively amended original independent claim 1 to include features related to "blur," and replaced the new claims with a different set of new claims 17-237. EX1002, 603-660.

After an interview on November 19, 2019 in which the Examiner proposed cancelling then-new claim 237 to "expedite a NOA," the Examiner issued a Notice of Allowance (NOA) with an Examiner's Amendment that made relatively minor amendments to the independent claims. EX1002, 336-369. In the Notice of Allowance, the Examiner identified the following feature recited in issued independent claims 1 and 2 that was alleged to distinguish the prior art:

> **during** detection of at least a portion of the gesture before a completion thereof is detected, **blur, based on a change in a magnitude of the gesture** being detected on the display, at least a portion of the at least one other object

EX1002, 365 (emphasis in original).

Of the hundreds of references cited in Information Disclosure Statements (IDSs), neither the Applicant nor the Examiner appears to have identified Ahn (EX1004) as a prior art reference relevant to the disclosed invention. Nor did either the Applicant or Examiner explicitly discuss or consider the combination of Ahn and Chaudhri '842 with respect to the above-identified features. However, as will be described in greater detail below, the combination of Ahn and Chaudhri '842 explicitly teaches and renders obvious each of these limitations. Section VI, *infra*. Thus, there exists material error in the allowance of the claims that issued as part of the '754 Patent.

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, ¶¶[29]-[30]. 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. Section VI, *infra*. 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. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. GROUND 1A—Claim 2 Is Obvious Over Ahn-Chaudhri '842

1. Ahn (EX1004)

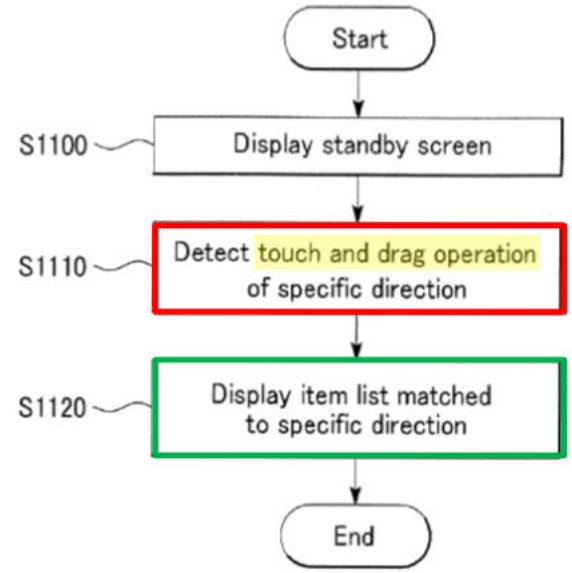
Ahn generally relates to a "method of displaying a menu in a mobile communication terminal." EX1004, Abstract, [0004]. More specifically, Ahn describes a method of displaying different menus on a display of the mobile communication terminal based on a "selected direction" of user input. EX1004, [0032]-[0033]; EX1003, ¶[32].

With respect to FIGS. 3A-10, Ahn describes various methods for displaying menus on the mobile communication terminal including that "the user can select a direction using any input device that can select a direction, such as…a touch screen[.]" EX1004, [0072]. Ahn describes that the mobile communication terminal 100 illustrated in 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]. And Ahn provides several additional figures that

focus on using a touch screen 10 as an input for the display of menus. EX1004, [0095]-[0119]; EX1003, ¶[33].

Specifically, with respect to 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, ¶[34].

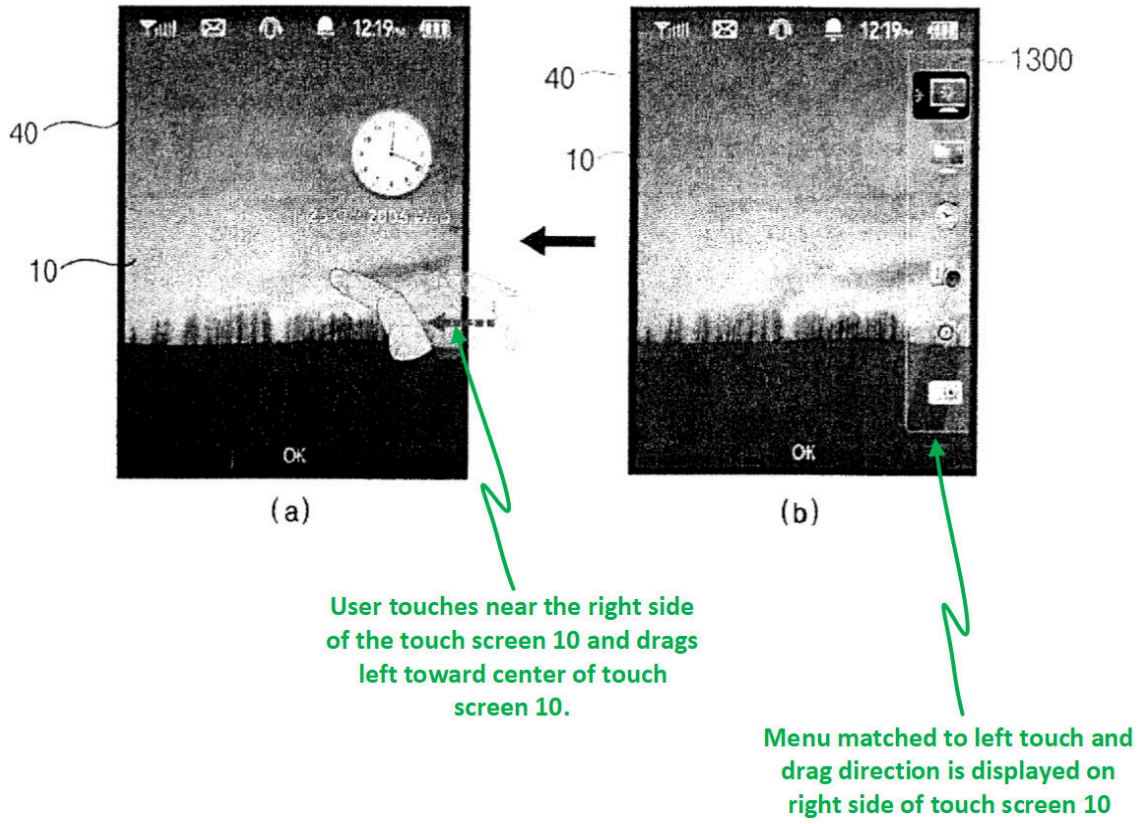
FIG. 11



EX1004, FIG. 11 (annotated)

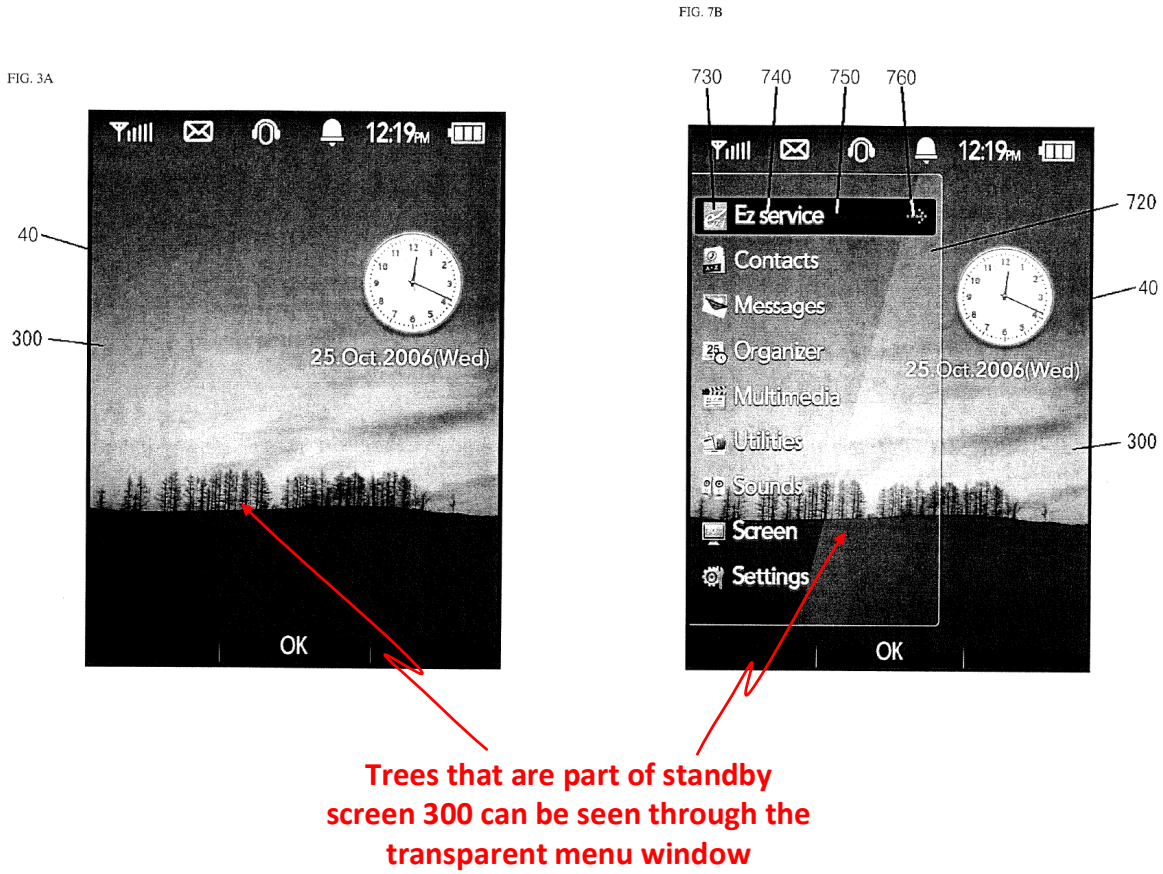
In one example illustrated in FIGS. 13a and 13b, "if the user touches a specific position of the touch screen 10 and drags the touch in a left direction a menu list 1300 matched to a left direction is displayed in the display 40." EX1004, [0102]. As can be seen in FIG. 13a, a user initially touches near the right side or edge of the touch screen 10 and initiates the drag gesture to open the menu. EX1004, FIG. 13a, [0102]; EX1003, ¶[35]. 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 and 13b (annotated)

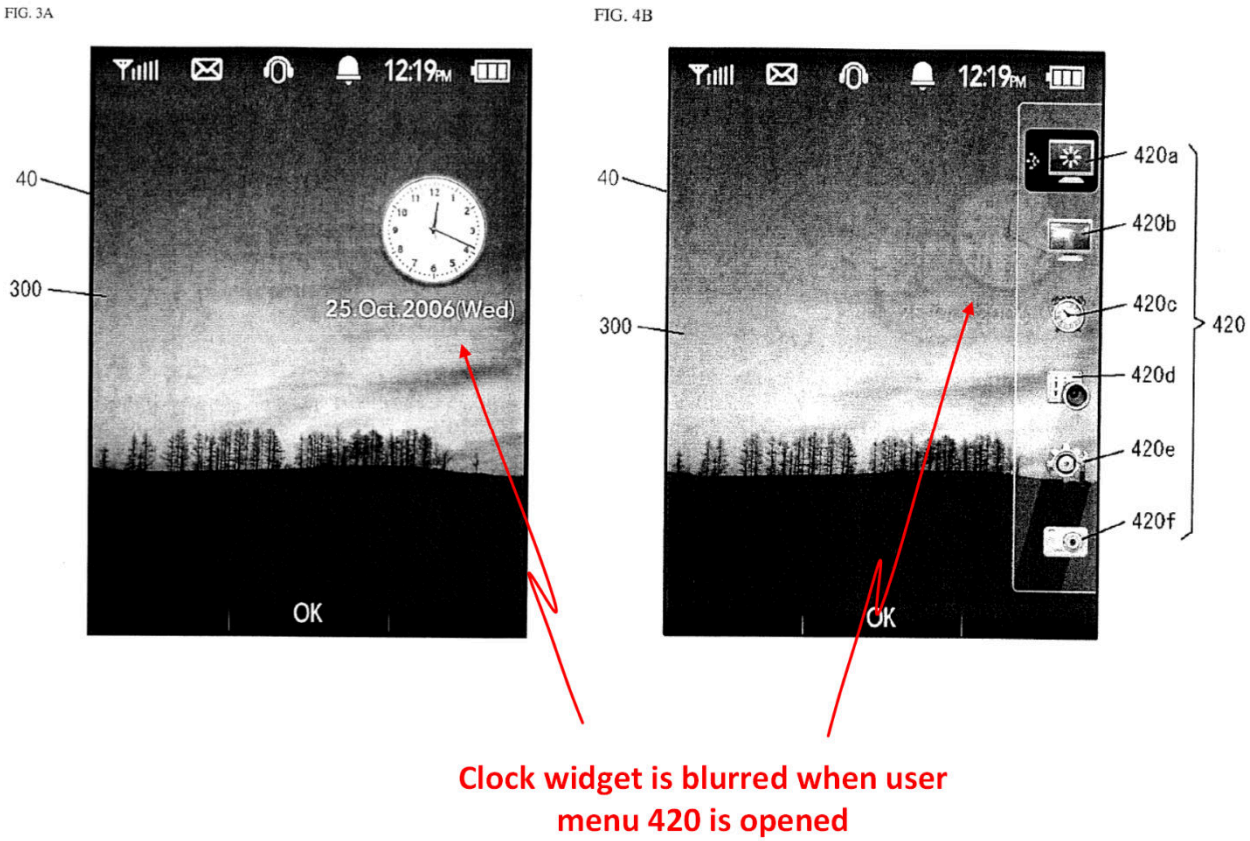
Ahn describes that the displayed menus may be "transparently displayed on the standby screen 300." EX1004, [0070]. This can be seen, for example, by comparing FIG. 3A, which shows standby screen 300 without any menus, and FIG. 7B, which shows the basic setting menu list 720 "displayed in a transparent window form in a left area of the standby screen 300." EX1004, [0064]; EX1003, ¶[36]. 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]. However, Ahn is not limited to these transparent menu windows. EX1003, ¶[36].



EX1004, FIGS. 3A and 7B (annotated)

Ahn teaches 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] (emphasis added). 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. 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. 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). EX1003, ¶[37].



EX1004, FIGS. 3A and 4B (annotated)

Second, Ahn explicitly shows that opening a menu can blur at least a portion of the standby screen 300. EX1003, ¶[38]. 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, ¶[38]. 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, ¶[38]. 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, ¶[38]. A similar blurring effect of the clock widget can also be seen in FIGS. 10 and 13B. EX1004, FIGS. 10, 13B; EX1003, ¶[38].

Ahn does not explicitly explain the purpose of blurring the clock widget or otherwise limit the implementation details a POSITA might utilize in providing this effect. 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, ¶[39].

2. Chaudhri '842 (EX1005)

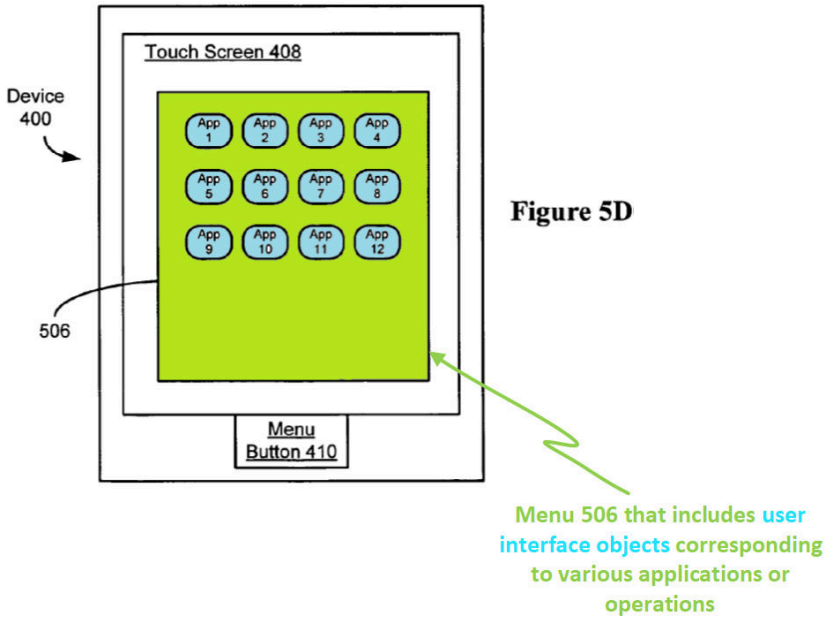
Like the '754 Patent and Ahn, Chaudhri '842 "relate[s] generally to user interfaces that employ touch-sensitive displays." EX1005, [0002]; EX1003, ¶[40]. Chaudhri '842 recognized that "there is a need for more efficient, user-friendly procedures for transitioning such devices, touch screens, and/or applications between user interface states (e.g., from a user interface state for a first application to a user interface state for a second application, between user interface states in the

same application, or between locked and unlocked states)." EX1005, [0006]. In one embodiment described in greater detail below, Chaudhri '842 describes supplying visual feedback to a user who is 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]; EX1003, ¶[40]. Through this embodiment, Chaudhri '842 provides at least one possible set of implementation details particularly relevant to the blurring shown in Ahn. EX1003, ¶[40].

Like Ahn's mobile communication terminal, Chaudhri '842 describes a portable electronic device 100 that includes a touch screen 126. EX1005, [0026]; EX1003, ¶[41]. "The touch screen 126 provides both an output interface and an input interface between the device and a user." EX1005, [0033]. The portable electronic device also includes "one or more processors 106 run various software programs and/or sets of instructions stored in the memory 102 to perform various functions for the device 100 and to process data." EX1005, [0028]. The "software components include an operating system 132, a communication module (or set of instructions) 134, a contact/motion module (or set of instructions) 138, a graphics module (or set of instructions) 140, a user interface state module (or set of instructions) 144, and one or more applications (or set of instructions) 146." EX1005, [0037].

"The contact/motion module 138 includes various software components for performing various operations related to detection of contact with the touch screen 122, such as determining if contact has occurred, determining if there is movement of the contact and tracking the movement across the touch screen, and determining if the contact has been broken (i.e., if the contact has ceased)." EX1005, [0040]. "The graphics module 140 includes various known software components for rendering and displaying graphics on the touch screen 126." EX1005, [0041]. The graphics module 140 may also include an optical intensity module 142 that "controls the optical intensity of graphical objects, such as user-interface objects, displayed on the touch screen 126." EX1005, [0042]. "The user interface state module 144 controls the user interface state of the device 100." EX1005, [0043] ; EX1003, ¶[42].

"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 is clear that its disclosure applies more generally to any transitions between user interface states, such as states of a plurality of applications. EX1005, [0006], [0048], [0079], [0081]; EX1003, ¶[43]. In at least one example, a user interface state transition described by Chaudhri '842 involves the display of a menu that "includes interactive user-interface objects corresponding to various applications or operations." EX1005, [0076], FIG. 5D; EX1003, ¶[43].



EX1005, FIGS 5D (annotated)

With respect to FIG. 6 (reproduced below), Chaudhri '842 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, ¶[44].

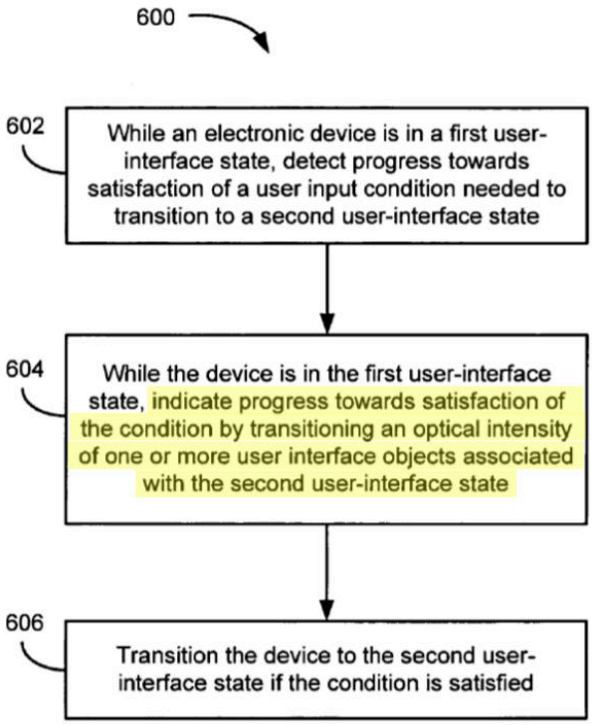


Figure 6

EX1005, FIGS 6 (annotated)

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 explicitly

describes differentiating between a menu and a background displayed on the touch screen during its user interface state transition process. EX1003, ¶[45].

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]; *see also* EX1005 [0047] ("The predefined set of functions that are performed exclusively through the touch screen and the touchpad include navigation between user interfaces"). 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, ¶[46].

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, ¶[47].

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

Like the '754 patent, the disclosures of Ahn and Chaudhri '842 seek to improve the usability of mobile devices with relatively small display screens. EX1003, ¶[61]. Accordingly, the Ahn-Chaudhri combination represents the predictable and expected result of applying in the context of Ahn's touch screen mobile device: the user interface state transition techniques described by Chaudhri '842. EX1003, ¶[61]. From a POSITA's perspective in 2011, integrating the supplemental teachings of Chaudhri '842 with Ahn's disclosure would have involved nothing more than applying known solutions to known problems in the field of computer interfaces and applications to achieve predictable outcomes. EX1003, ¶[61]. The fundamental aspects of Ahn's disclosure would remain intact, bolstered by the well-known and beneficial teachings of Chaudhri '842 to successfully arrive at the '754 patent's claimed invention. EX1003, ¶[61].

(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 into Ahn's touch screen mobile device. EX1003, ¶[62]. 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. EX1003, ¶[62]. 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, ¶[63]. As discussed in Section VI.A.1, *supra*, 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, ¶[63]. However, Ahn does not provide further details about this blurring process and leaves the implementation details to POSITAs. EX1003, ¶[63].

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, ¶[64]. Specifically, as discussed in Section

VI.A.2, *supra*, Chaudhri '842 provides details for utilizing transitions in optical intensity during transitions in user interface state. EX1003, ¶[64]. A POSITA would have understood and found obvious that the opening of the edge menus described in Ahn are a form of transition in user interface state. EX1003, ¶[64]. 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] ("As the touch and drag operation is detected, the controller 50 controls to display an item list matched to the specific direction"); EX1005, [0075] ("performing the gesture by moving her finger, which is in continuous contact with the touch screen 408, in the direction of movement 504"); EX1003, ¶[64]. 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). EX1003, ¶[64].

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 understood and 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, ¶[65]. 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 perming 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, ¶[65]. Furthermore, Chaudhri '842 teaches that changes in optical intensity help to create "visual differentiation between the user-interface object and the background," which a POSITA would have understood and found obvious would have been visually helpful to a user both during the predefined gesture and after it is complete. EX1005, [0085]; EX1003, ¶[65]. A POSITA would have understood and 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. EX1003, ¶[65].

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, ¶[66]. 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 (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, ¶[66]. A POSITA would have understood and 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). EX1003, ¶[66]. By utilizing the optical intensity variation described in Chaudhri '842, a POSITA would have recognized that they

would have been better focusing a user's attention on the most relevant object (i.e., the now opened menu). EX1003, ¶[66].

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 that's explicitly shown in FIGS. 4B, 10, and 13B of Ahn. EX1003, ¶[67]; *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, ¶[67].

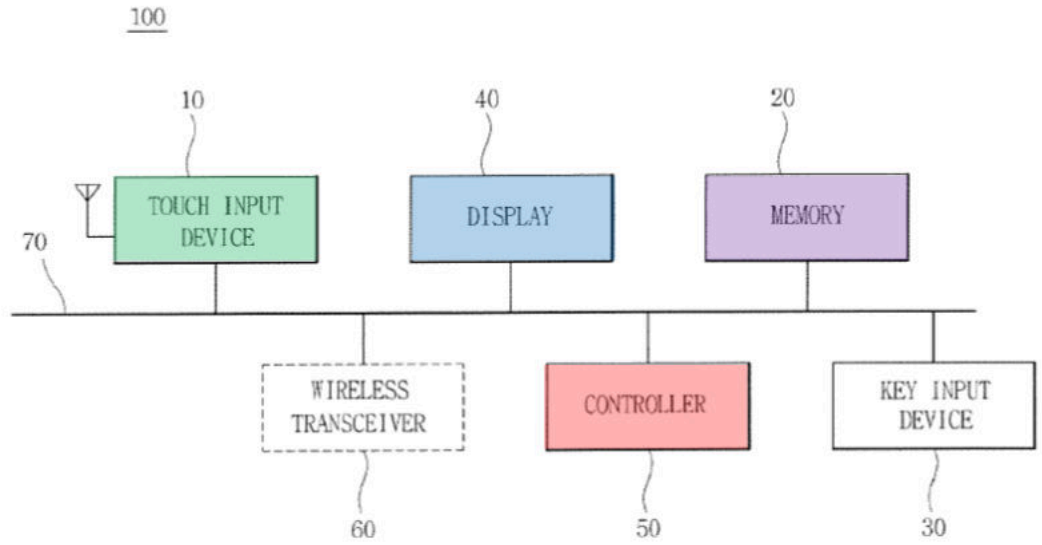
4. Claim Element Analysis

(a) Claim 2

Element [2.a]:

The Ahn-Chaudhri combination renders obvious Element [2.a]. EX1003, ¶[78]. For example, 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.

FIG. 1



EX1004, FIG. 1 (highlighted)

"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 ***at least one non-transitory memory***, as recited in [1.a]. EX1003, ¶[79].

"The **touch input device [10]** is a device in which a user inputs various information or instruction with a touch method. The touch input device [10] comprises, for example, a touch screen or a touch pad." EX1004, [0028]. When described with respect to FIGS. 13-15, Ahn explains that the user provides input (*e.g.*, a touch and drag operation) through the touch screen 10, and display 40 is illustrated as being collocated with the touch screen 10 so that is can "match" the

display of menus with these gestures. EX1004, FIGS. 13-15, [0101]-[0104]. Though Ahn describes the touch screen 10 and **display 40** as separate elements, a POSITA would have understood and found obvious that these elements may be the same physical device, consistent with the description of FIGS. 13-15. EX1003, ¶[80]. Indeed, Chaudhri '842 addresses similar user interface problems for similar mobile touchscreen devices, and Chaudhri '842 describes that its portable electronic device includes a "touch screen 126 [that] provides both an output interface and an input interface between the device and a user." EX1005, [0033]. A POSITA would have understood or found obvious that Ahn's **touch input device 10** is a ***touch screen***, as recited in [2.a]. EX1003, ¶[80].

"The **controller 50** controls a general operation of the mobile communication terminal 100." EX1004, [0032]. Ahn does not explicitly describe hardware implementation details for controller 50. EX1003, ¶[81]. However, **controller 50** is described, for example, as interfacing with **memory 20** (*see* EX1004, [0099]-[0100]), controlling the **display 40** (*see* EX1004, [0099], [0106]. [0108]), and detecting a touch and drag operation input via **touch input device 10** (*see* EX1004, [0099], [0107], [0109]). EX1003, ¶[81]. A POSITA would have understood and found obvious that Ahn's description of controller 50 is indicative that at least one known hardware implementation for controller 50 would have been ***one or more processors***, as recited in [1.a]. EX1003, ¶[81]. Indeed, Chaudhri '842 addresses

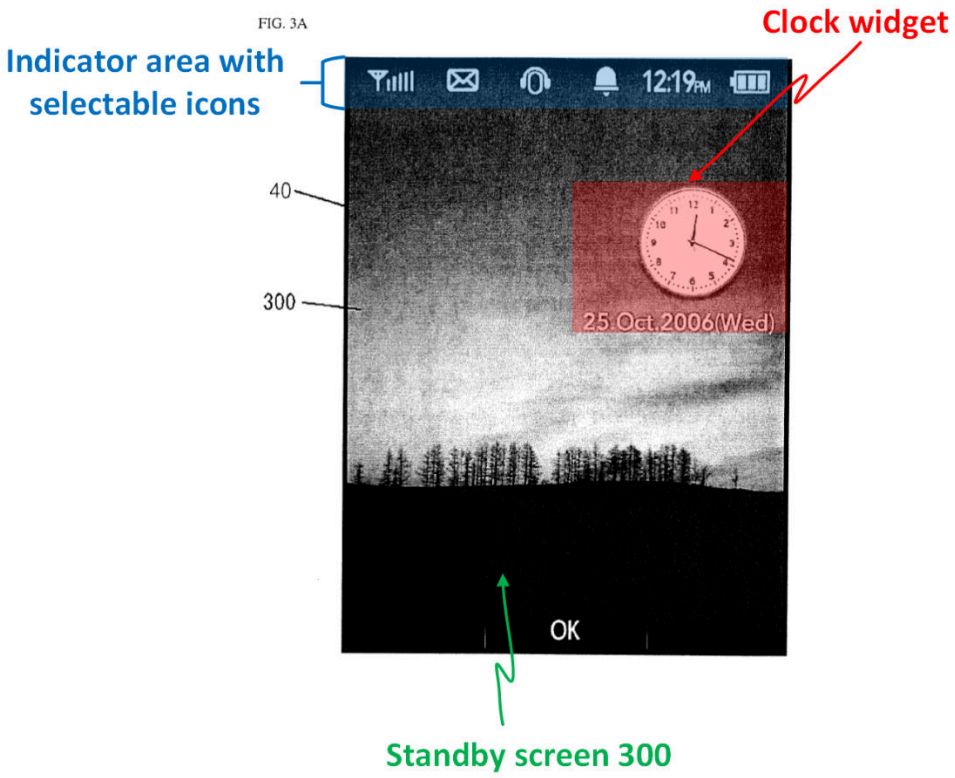
similar user interface problems for similar mobile touchscreen devices, and Chaudhri '842 describes that their respective devices comprise ***one or more processors***, as recited in [2.a]. EX1005, [0026] (portable electronic device "includes a memory 102, a memory controller 104, one or more processing units (CPUs) 106, a peripherals interface 108, RF circuitry 112, audio circuitry 114, a speaker 116, a microphone 118, an input/output (I/O) sub system 120, a touch screen 126[.]"); EX1003, ¶[81]. Furthermore, Ahn describes that each of the **memory 20**, **touch input device 100**, and **controller 50** "may be connected by a bus 70." EX1004, [0027]. Thus, a POSITA would have understood and found obvious that Ahn's **controller 50** is ***one or more processors in communication with the at least one non-transitory memory, and the touch screen***, as recited in [2.a]. EX1003, ¶[81].

Furthermore, a POSITA would have understood or found obvious that Ahn's "programs for controlling a general operation of the mobile communication terminal [] stored in the program memory" of **memory 20** are ***instructions in the at least one non-transitory memory***, as recited in [2.a]. EX1005, [0029]; EX1003, ¶[82]. Indeed, Chaudhri '842 address similar user interface problems for similar mobile touchscreen devices, and Chaudhri '842 describes that its respective devices comprise ***one or more processors execute instructions in the at least one non-transitory memory***, as recited in [2.a]. EX1005, [0028] ("The one or more processors 106 run various software programs and/or sets of instructions stored in

the memory 102 to perform various functions for the device 100 and to process data."); EX1003, ¶[82]. Accordingly, a POSITA would have understood and found obvious that ***the one or more processors*** (*e.g.*, Ahn's **controller 50**) ***execute instructions*** (*e.g.*, Ahn's "programs") ***in the at least one non-transitory memory*** (e.g., Ahn's **memory 20**) ***to cause the apparatus*** to perform Elements [2.b]-[2.d], as recited in [2.a]. EX1003, ¶[82].

Element [2.b]:

The Ahn-Chaudhri combination renders obvious Element [2.b]. EX1003, ¶[83]. For example, with respect to FIG. 3A, Ahn describes that "a standby screen 300 set by a user is displayed in the display 40 of the mobile communication terminal 100." EX1004, [0036]. Ahn illustrates a clock widget as part of this standby screen 300. EX1004, FIGS. 3A, 12 and 13a; EX1003, ¶[84]. Ahn also illustrates that several menu items are displayed at the top of the standby screen 300. EX1004, FIGS. 3A, 3C, 12 and 13a, [0040]; EX1003, ¶[84]. Ahn describes these menu items are part of an "indicator area 320 [that] comprises a signal intensity icon 330a, a message notification icon 330b, a background music setting icon 330c, a reception mode setting icon 330d, a watch icon 330e, and a battery residual quantity display icon 300f, for example." EX1004, [0040]. And, unlike other menus that are only displayed after a specific gesture, "various icons can be displayed in the indicator area 320 on the standby screen 300." EX1004, [0040].



EX1004, FIG. 3A (annotated)

Indeed, for the touch interface embodiments described with respect to FIGS. 11-18, Ahn does not include a separate discussion of opening the indicator area 320, as it does with regard to the menus associated with the bottom and right and left sides of the display. EX1004, [0095]-[0119]; EX1003, ¶[85]. Thus, a POSITA would have thus understood and found obvious that the standby screen 300 includes indicator area 320 and that a user would have been able to directly activate and interact with its various icons directly from the standby screen 300. EX1003, ¶[85].

A POSITA would have understood and found obvious that at least one of the icons in the indicator area 320 and the clock widget displayed on display 40 of Ahn's

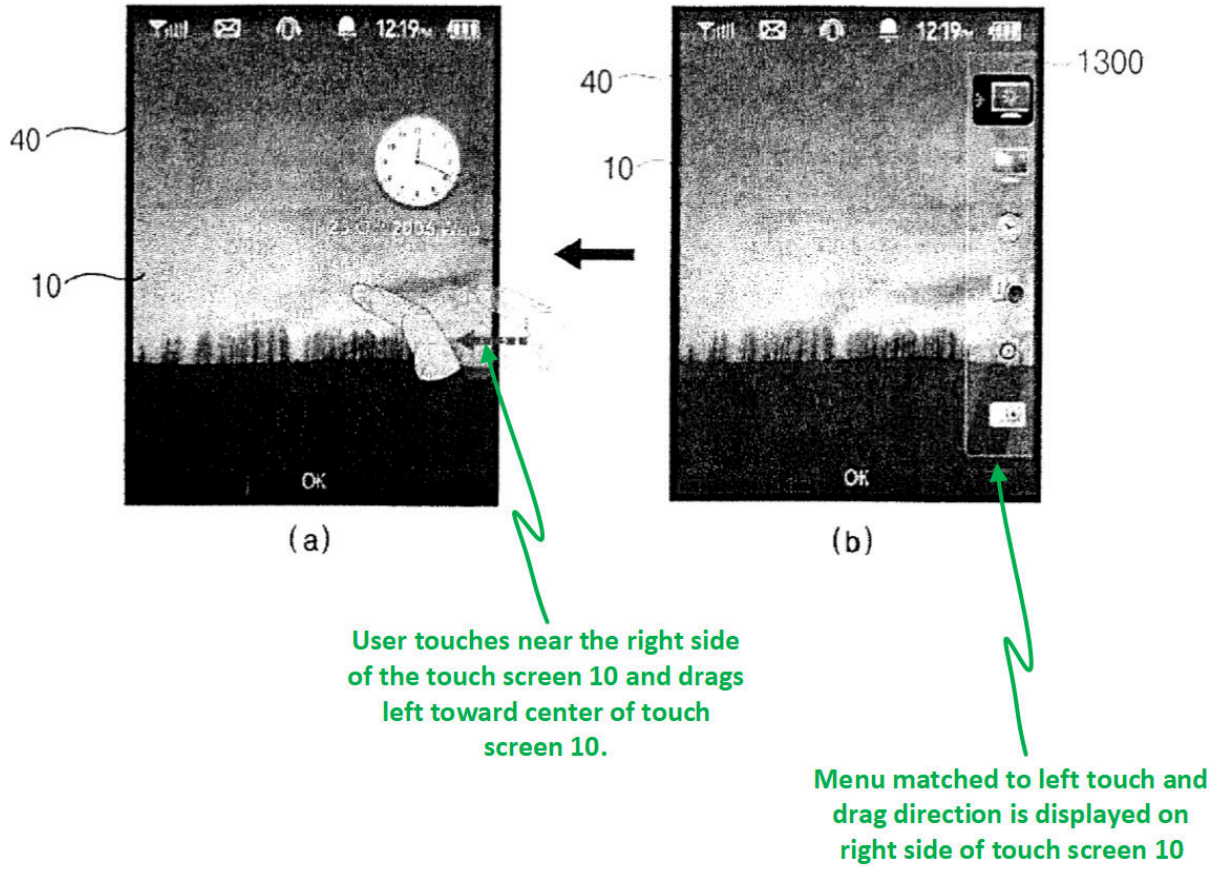
mobile communication terminal 100 are ***an object and at least one other object***, respectively, as recited in [2.b]. EX1003, ¶[86]. Indeed, Chaudhri '842 describes menus and the background screen as "objects." EX1005, [0003] ("A device may display one or more soft keys, menus, and other user-interface objects on the touch screen"), [0041] ("Note that the term 'graphics' includes any object that can be displayed to a user, including without limitation text, web pages, icons (such as user-interface objects including soft keys), digital images, videos, animations and the like."), [0060] ("The user-interface objects are objects that make up the user interface of the device and may include, without limitation, text, images, icons, soft keys (or 'virtual buttons'), pull-down menus, radio buttons, check boxes, selectable lists, and so forth."), [0076] ("The menu 506 includes interactive user-interface objects corresponding to various applications or operations. A user may interact with the user-interface objects to activate an application or perform an operation."); EX1003, ¶[86].

From at least these teachings, a POSITA would have understood and found obvious that the mobile device of the Ahn-Chaudhri would have ***display[ed] an object*** (*e.g.*, icons displayed as part of standby screen 300) ***and at least one other object*** (*e.g.*, the clock widget of standby screen 300), as recited in [2.b]. EX1003, ¶[87].

Element [2.c]:

The Ahn-Chaudhri combination renders obvious Element [2.b]. EX1003, ¶[88]. For example, as discussed in Section IV.A.1, *supra*, 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]; EX1003, ¶[89].

FIG. 13



EX1004, FIGS. 13a and 13b (annotated)

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]. As can be seen in 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, ¶[90]. A POSITA would have understood and found obvious that Ahn's "touch and drag operation" is a gesture.

EX1005, [0055] ("As used herein, a gesture is a motion of the object/appendage making contact with the touch screen. For example, the predefined gesture may include a contact of the touch screen on the left edge (to initialize the gesture), a horizontal movement of the point of contact to the opposite edge while maintaining continuous contact with the touch screen, and a breaking of the contact at the opposite edge (to complete the gesture)."); EX1003, ¶[90].

Thus, as shown in at least FIGS. 13a and 13b and described with respect thereto, Ahn explicitly teaches, ***detect[ing] at least part of a gesture on the touch screen***, as recited in [2.c]. EX1003, ¶[91].

Element [2.d]:

The Ahn-Chaudhri combination renders obvious Element [2.d]. EX1003, ¶[92].

As discussed in Section IV.A.1, *supra*, Ahn describes the use of blurring in at least two ways. EX1003, ¶[93]. First, Ahn describes that the displayed menus may be "displayed on the standby screen 300…in a translucent form[.]" EX1004, [0070] (emphasis added). 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. 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. This is consistent with the '754 Patent's use of the word "blur" in its claims, because dependent claim 61, for example, recites that "the blur includes changing a translucency of the at least portion of the at least one other object." EX1001, 99:51-53; EX1003, ¶[93]. 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 unclear or less distinct. EX1003, ¶[93].

A POSITA would have understood and 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. EX1003, ¶[94]. With respect 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]; EX1003, ¶[94]. 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]. Similarly, Chaudhri '842 describes moving displayed graphics in correspondence with the magnitude of gestures associated with those

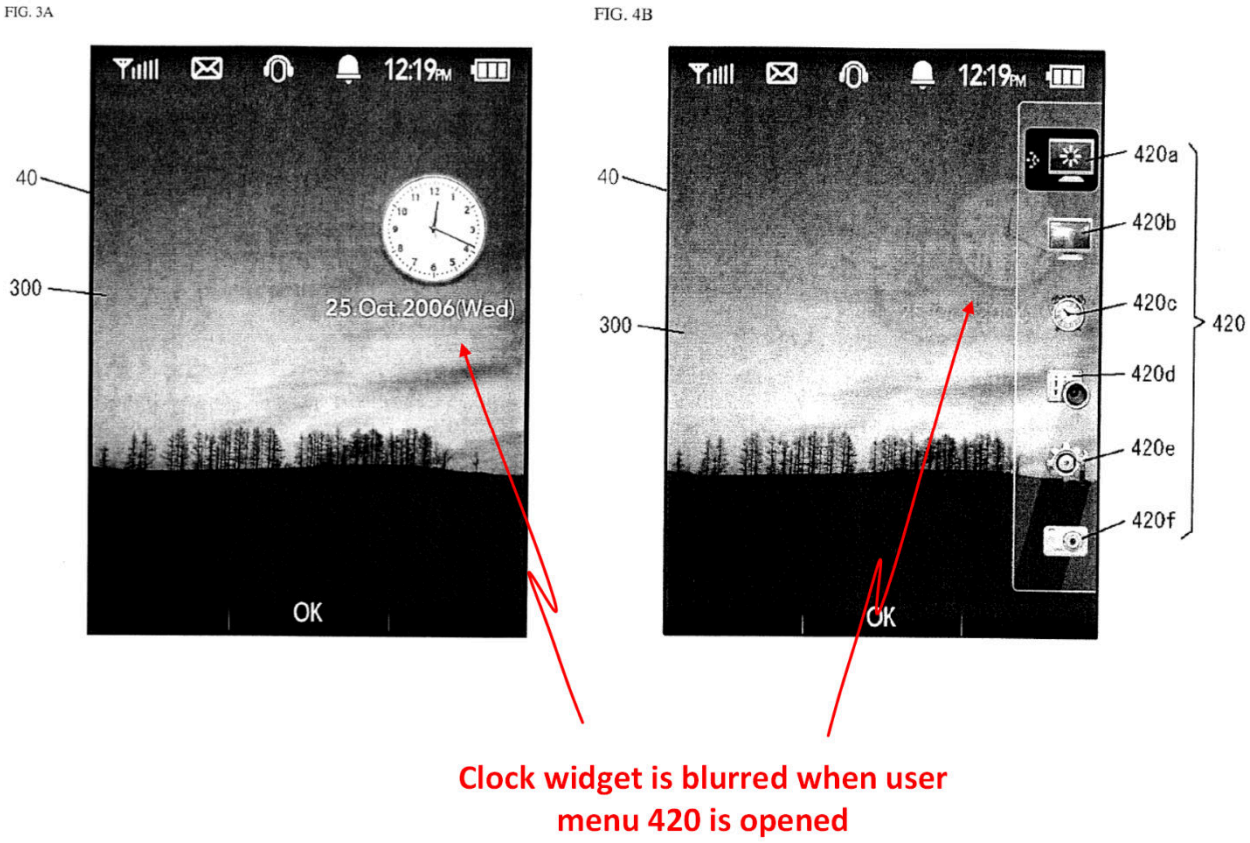
graphics in order to provide the user who is performing the gesture a visual confirmation of the gesture and help direct them on how to complete the gesture. EX1005, [0054] (describing the display of "visual cue(s)" to provide "hints or reminders" regarding the action necessary to transition between 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). A POSITA would have understood and found obvious from these teachings that, in at least implementations like those described with respect to FIG. 18, Ahn's menu list would have been graphically displayed as sliding onto the display based on a change in a magnitude of the "touch and drag" gesture being detected on the touch screen. EX1003, ¶[94].

A POSITA would have understood and found obvious that, as a translucent menu slides onto the screen in correspondence with the magnitude of the touch and drage gesture, the translucent menu would correspondingly progressively blur the portion of the background over which the menu is displayed (including, *e.g.*, the clock widget) as it slides onto the screen. EX1003, ¶[95]. Accordingly, when

displayed as a translucent window (as opposed to a transparent window), Ahn's menu would have, ***during detection of at least a portion of the gesture before a completion thereof is detected, blur[red], based on a change in a magnitude of the gesture being detected on the touch screen, at least a portion of the at least one other object***, as recited in [2.d]. EX1003, ¶[95].

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, ¶[96]. In FIG. 3A, Ahn illustrates that a clock widget is part of the background standby screen 300. EX1004, [0036], FIG. 3A; EX1003, ¶[96]. 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, ¶[96]. 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; EX1003, ¶[96]. A similar blurring effect of the clock widget can also be seen in FIGS. 10 and 13B. EX1004, FIGS. 4B, 10; EX1003, ¶[96]. 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 at least dependent claim 61 of the '754 Patent. EX1001, 99:51-53 ("the blur includes changing a translucency of the at least portion of the at least one other object"); EX1009, 3 ("blur" means "make

or become unclear or less distinct"), 6 ("translucence" means "allowing light, but not detailed images, to pass through; semitransparent"); EX1003, ¶[96].



EX1004, FIGS. 3A and 4B (annotated)

Ahn does not specify or otherwise limit the manner in which a POSITA would have implemented the above-described blurring of its clock widget. EX1003, ¶[97]. For the reasons described in Section IV.A.3, *supra*, 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, ¶[97].

As discussed in Section IV.A.2, *supra*, Chaudhri '842 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," 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, ¶[98].

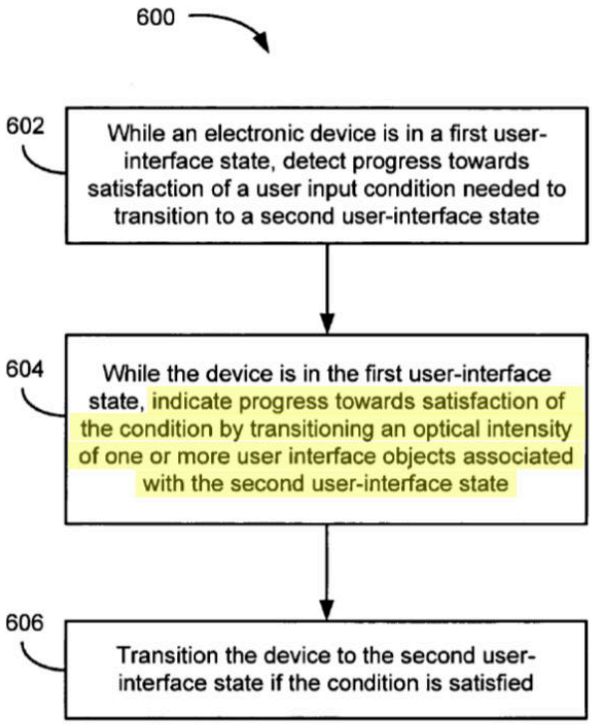


Figure 6

EX1005, FIG. 6 (annotated)

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 explicitly

describes differentiating between a menu and a background displayed on the touch screen during its user interface state transition process. EX1003, ¶[99].

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, ¶[100].

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, ¶[101]. 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, ¶[101].

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 combination would have, ***during detection of at least a portion of the gesture before a completion thereof is detected, blur[red], based on a change in a magnitude of the gesture being detected on the touch screen, at least a portion of the at least one other object***, as recited in [2.d]. EX1003, ¶[102].

B. Ground 1B—Claims 83, 88, 90, 94, 95 Are Obvious Over Ahn, Chaudhri '842, and Hinkley

1. Hinkley (EX1006)

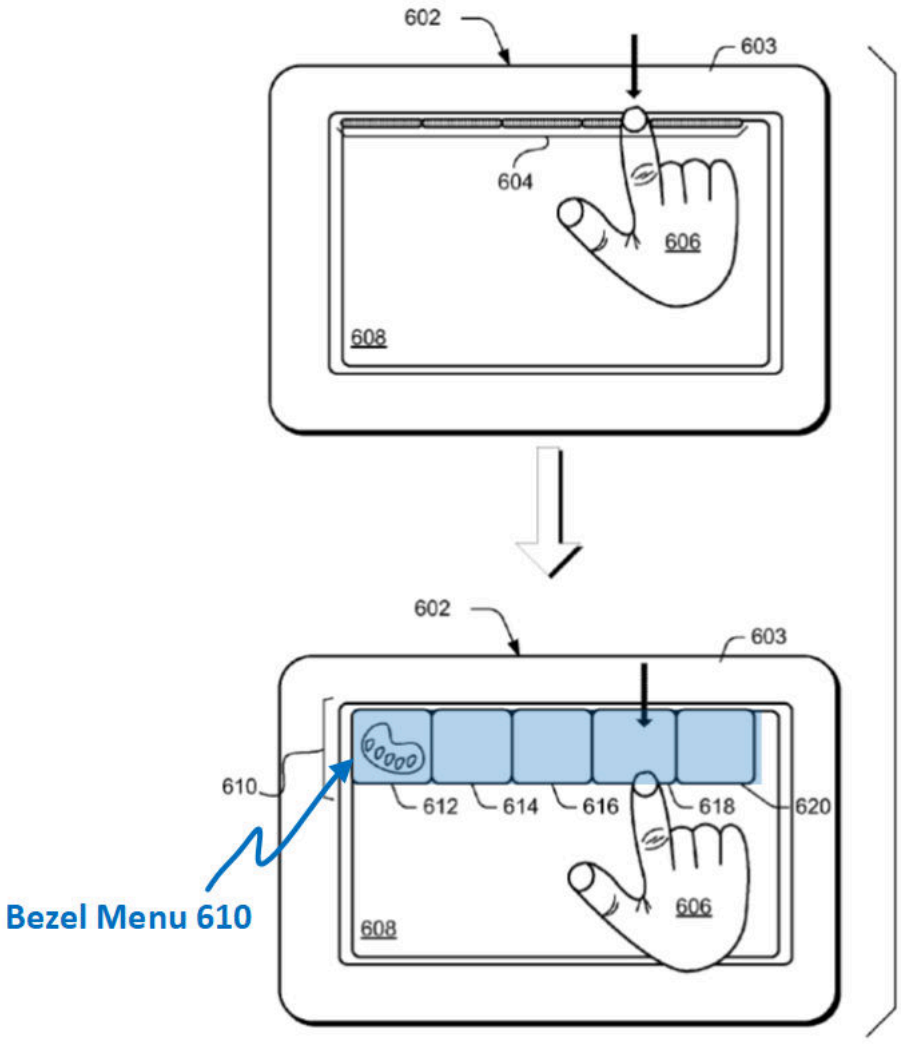
Like the '754 Patent, Ahn, and Chaudhri '842, Hinkley relates to user input for touch displays. EX1006, [0001], [0003]; EX1003, ¶[48]. More specifically, Hinkley describes "bezel gestures for touch displays." EX1006, [0003], [0039]. "The bezel is made up of the frame structure adjacent the device's display" and "forms part of the device's housing." EX1006, [0044]. Hinkley seeks to utilize

these bezel gestures in order to "provid[e] enhanced functionality for users, without necessarily permanently manifesting the functionality as part of the 'chrome'[1] of a device's user interface." EX1006, [0001], [0003].

Hinkley describes its bezel gestures in the context of a computing device 102 that may take the form of a handheld device or wireless telephone that utilize a touchscreen display. EX1006, [0043]-[0051]; EX1003, ¶[49]. The computing device 102 includes a "gesture module 104 may be configured to recognize a touch input, such as a finger of a user's hand 106a as proximal to display device 108 of the computing device 102 using touchscreen functionality." EX1006, [0045]. The computing device 102 also includes a "bezel gesture module 105 [that] 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]. Hinkley describes that gesture modules 104 and 105 "are representative of functionality" and may be implemented in software. EX1006, [0044].

[1] In this context, a POSITA would have understood and found obvious that the "chrome" of a device's user interface accounts for all of the visible graphical interface features of an application and/or the overall visible and usable display space. EX1003, [48], n. 1.

Like Ahn, Hinkley describes associating inputs received on certain parts of the touchscreen of a computing device with different functionalities. EX1006, [0061]; EX1003, ¶[51]. "For example, input received on the right side of the bezel might be mapped to a first functionality; input received on the left side of the bezel might be mapped to a second functionality and so on." EX1006, [0061]. With respect to FIG. 6, for instance, Hinkley 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]; EX1003, ¶[51.

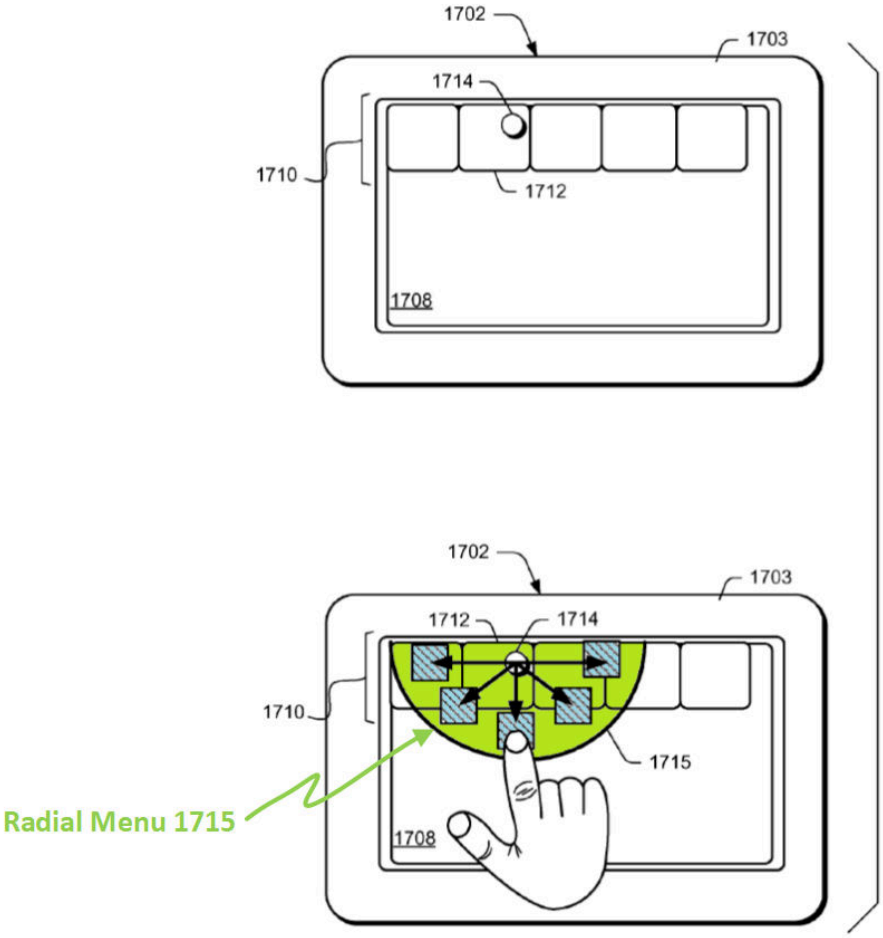


EX1006, FIG. 6 (annotated)

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].

"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].



EX1006, FIG. 17 (annotated)

"[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, ¶[54].

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

Like the '754 patent, the respective disclosures of Ahn, Chaudhri '842, and Hinkley all seek to improve the usability of mobile devices with relatively small display screens. EX1003, ¶[61]. A POSITA would have found it obvious and 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, ¶[61]. 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. EX1003, ¶[61]. The fundamental aspects of Ahn's disclosure would remain intact, bolstered by the well-known, beneficial, and complementary teachings of Chaudhri '842 (*e.g.*, transitions in optical intensity during transitions in under interface states to provide visual cues and feedback to the user) and Hinkley (*e.g.*, implementation details related to edge gestures and menus that help distinguish between a variety

gestures that permit a user to progressively learn faster and more efficient gestures). EX1003, ¶[61].

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 (*see* EX1006, [0043]), and describes that the functionality can be embodied in software stored in memory (*see* EX1006, [0044]) using a touchscreen display that does not require special hardware under the bezel (*see* EX1006, [0046]). EX1003, ¶[68]. 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, ¶[68]. 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, ¶[69]. 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]; EX1003, ¶[69]. 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 performs actions on the user interface without waiting for the visual guides to appear. EX1006, [0077]-[0080], [0110]; EX1003, ¶[69]. "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, ¶[69]-[71].

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, ¶[72]; *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.").

3. Claim Element Analysis

(a) Claim 83

The Ahn-Chaudhri-Hinkley combination renders obvious Claim [83]. *See* EX1003, ¶[333]-[335].

Ahn describes the "touch and drag" gesture as "indicat[ing] movement of an external object on the touch screen 10." EX1004, [0098]. And in the context FIG. 16, Ahn describes the "touch and drag" gesture with respect to at least two distance thresholds, and varying the operation of the user interface based on these distance thresholds. EX1004, [0105]-[0110]. Ahn does not specify or otherwise limit a duration of the "touch and drag" gesture.

For at least the reasons described in Section IV.B.2, *supra*, a POSITA would have found it obvious to turn to Hinkley for additional implementation details of

Ahn's touch screen user interface. Hinkley describes 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]. Indeed, in some embodiments, Hinkley describes that a bezel menu (which is very similar to the edge menus in Ahn) is displayed based on both a distance threshold and a duration threshold. *See,* EX1006, [0079] ("This feature can be implemented by using a time delay, e.g. ⅓ second, and considering the location of the user's finger before actually deciding whether to deploy the bezel menu responsive to a bezel gesture."), [0080] ("When the finger is observed to cross from the screen bezel into a slot of the bezel menu, a timer is started. No other immediate visual feedback occurs. When the timer expires, if the finger is still in the region occupied by the bezel menu, the bezel menu slides out and tracks with the user's finger.").

Based at least on these teachings, a POSITA would have found it obvious that the touch and drag gesture that opens the edge/bezel menus in the Ahn-Chaudhri-Hinkley combination would have been based on both a distance magnitude and a duration magnitude.

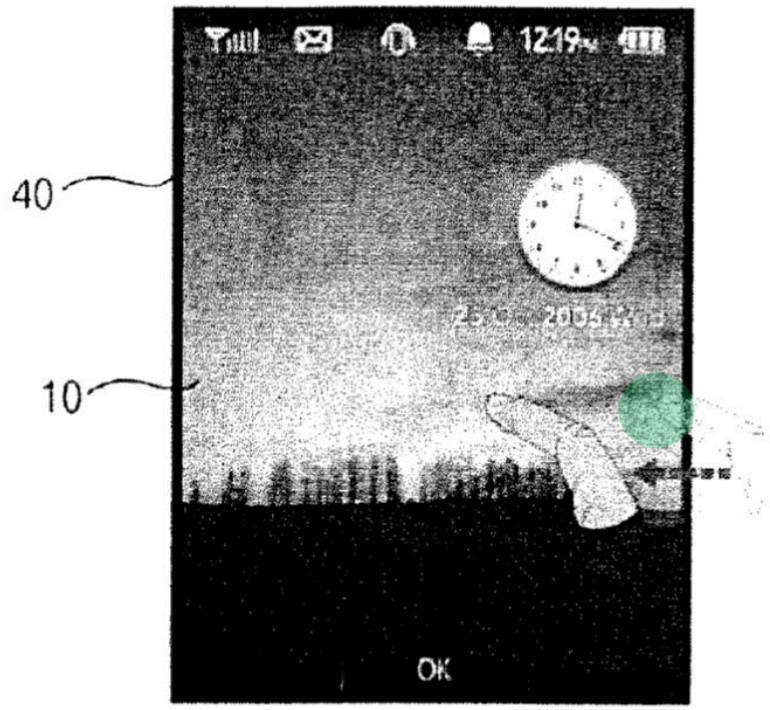
As discussed with respect to Element [2.d], *supra*, applying the teachings of Chaudhri '842 in the context of Ahn's "touch and drag" gesture and Ahn's

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 the "touch and drag" gesture. EX1005, [0080]-[0089]. Where, for the reasons discussed above, the touch and drag gesture that opens the edge/bezel menus in the Ahn-Chaudhri-Hinkley combination would have been based on both a distance magnitude and a duration magnitude, a POSITA would have further found it obvious that, ***when a distance magnitude of the gesture detected on the touch screen is detected to increase above a distance threshold*** (*e.g.*, when the finger is observed to cross from the screen bezel into a slot of the bezel menu, as taught by Hinkley)***, and a duration magnitude of the gesture detected on the touch screen is detected to increase above a duration threshold*** (*e.g.*, the timer expires, if the finger is still in the region occupied by the bezel menu, as taught by Hinkley)***, a menu is displayed with at least one option***, as recited in [83].

(b) Claim 88

The Ahn-Chaudhri combination renders obvious Claim [88]. *See* EX1003, ¶[336]. 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]. As illustrated in FIG. 13a, the "specific position" at which the user's finger touches the touch screen 10 is ***at an edge of the touch screen***, as recited in Claim 28.

FIG. 13



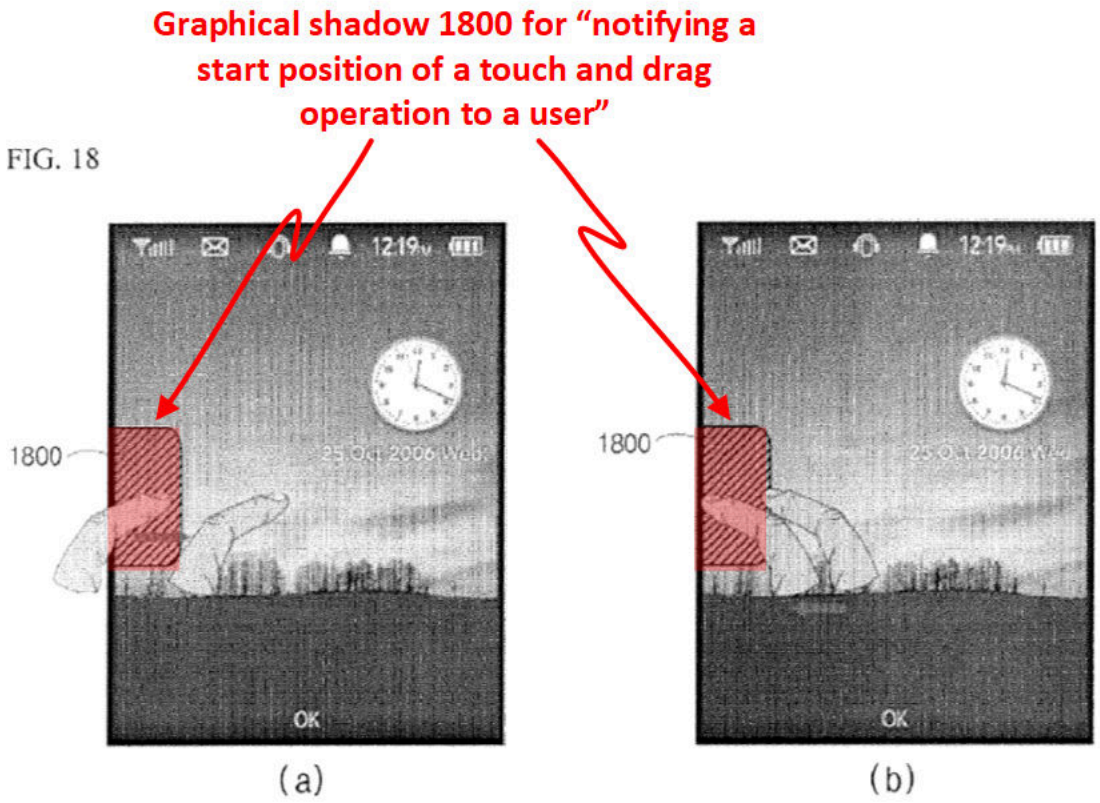
EX1004, FIG. 13a (highlighted)

Moreover, with respect 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 ***at an edge of the touch screen***. EX1004, [0118]-[0119].

A POSITA would have understood and found obvious from these teachings that ***the apparatus is configured such that the at least part of the gesture is detected on the touch screen at an edge of the touch screen***, as recited in Claim 88.

(c) Claim 90

The Ahn-Chaudhri combination renders obvious Claim [90]. *See* EX1003, ¶[337]. With respect 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 illustrates "a graphical shadow 1800" displayed at an edge of the display. 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 understood and found obvious that in those implementations that include a graphic shadow 1800, it is also an ***object***, as recited in Element [2.b]. *See* Element [2.b], *supra* (describing a POSITA's understanding of the term "object").



EX1004, FIG. 18 (annotated)

Accordingly, Ahn teaches that ***the at least part of the gesture is detected on the touch screen on the object***, as recited in [90].

(d) Claim 94

The Ahn-Chaudhri combination renders obvious Claim [94]. *See* EX1003, ¶[338]. As discussed with respect to Element [2.d], *supra*, 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,

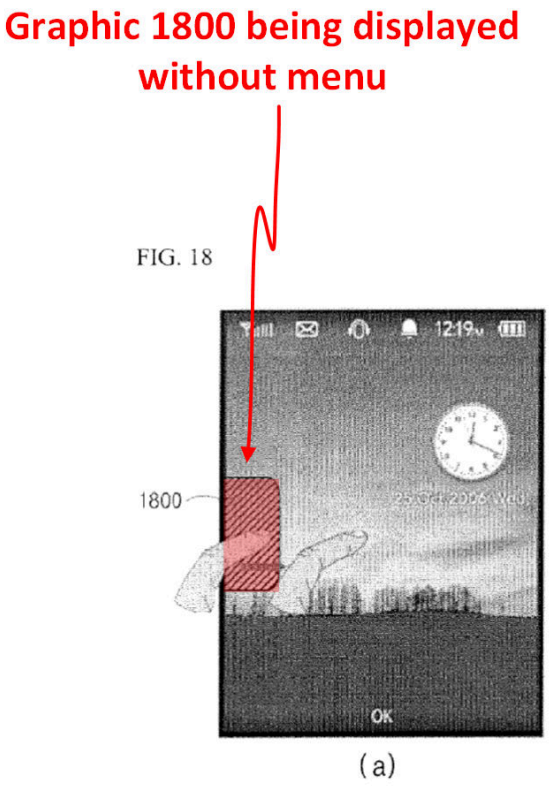
FIG. 4B, 10, and 13b), a POSITA would have at least found it obvious to vary, according to the teachings of Chaudhri '842, the optical intensity of the standby screen or at least portions thereof (*e.g.*, the blurring of the clock widget, as shown in FIGS. 4B, 10, and 13b) as a visual indication of a user's progress in completing Ahn's "touch and drag" gesture. EX1005, [0080]-[0089]. Because a POSITA would have understood and found obvious that the blurring of the standby screen or at least portions thereof happens simultaneously with the sliding of the menu as it is opened with the "touch and drag" gesture, a POSITA would have understood and found obvious that ***the menu is displayed simultaneously with the blurring of the at least portion of the at least one other object***, as recited in [94].

(e) Claim 95

The Ahn-Chaudhri combination renders obvious Claim [95]. *See* EX1003, ¶[339]. As discussed with respect to Claim [90], *supra*, a POSITA would have understood and found obvious that in those implementations that include a graphic shadow 1800, graphic 1800 is ***the object***.

Ahn describes that "as the user drags the graphic shadow 1800, the menu list 1500 can be displayed along the dragged graphic 1800." EX1004, [0118]. In other words, Ahn describes that the graphic 1800 moves (*i.e.*, is "dragged") in response to and along with a user's touch and drag gesture on the touch screen. EX1004, [0118]. As shown in FIG. 18a, graphic 1800 is initially displayed alone, without any portion

of its corresponding menu (*e.g.*, menu 1500) displayed. EX1004, FIG. 18a. A POSITA would have understood and found obvious that the graphic 1800 would begin, at least momentarily, its dragging movement in response to a user's gesture before the corresponding menu 1500 is initially displayed, and certainly before the entire menu is displayed.



EX1004, FIG. 18a (annotated)

Based on these teachings, a POSITA would have at least found it obvious ***that, based on the change in the magnitude of the gesture being detected on the touch screen, a location of the object is moved before the menu is displayed***, as recited in [95].

C. Ground 1C—Claims 80-82 Are Obvious Over Ahn, Chaudhri '842, and Shiplacoff

1. Shiplacoff (EX1006)

Like the '754 Patent, Ahn, and Chaudhri '842, Shiplacoff relates to a device 100 with a touch-sensitive screen 101 that accepts "gesture-based commands" so that "so that a user can activate an application or function." EX1013, [0064]. Shiplacoff teaches that "[m]any currently available computing devices run operating systems that offer users the opportunity to run several applications at the same time, and even to perform several activities simultaneously, within a single application and/or among two or more applications." EX1013, [0005]. These computing devices include "[m]obile devices such as smartphones, personal digital assistants, music players, handheld computers, and the like." EX1013, [0010]. Managing and navigating between multiple active applications was "accomplished by the use of multiple overlapping windows within a graphical user interface," but the conventional windows-based techniques did "not function very well on mobile devices" due to "insufficient screen space to display multiple overlapping windows." EX1013, [0006]-[0010]; EX1003, ¶[55]. To solve this problem, Shiplacoff teaches user interface structures called "cards" that provide a visualization of active applications and that allow a user to better "navigate among activities" on a mobile device. EX1013, [0010], [0012]-[0013], [0060]; EX1003, ¶[55].

Like standby screen 300 of Ahn (*see* EX1004, [0036], FIG. 3A) and the home menu of Chaudhri '842 (*see* EX1005, [0047], [0076], FIG. 5D), Shiplacoff teaches a launch screen (illustrated in FIG. 1, which is reproduced below), which includes "several icons 104 representing applications that can be opened by the user." EX1013, [0063], [0099]. "[S]creen 101 is touch-sensitive, so that a user can activate an application or function by touching a displayed icon 104, 106." EX1013, [0064]. For example, by selecting the calendar icon 106, a card corresponding to a calendar application can be displayed in full screen, as shown in FIG. 2. EX1013, [0077]-[0078]; EX1003, ¶[56].

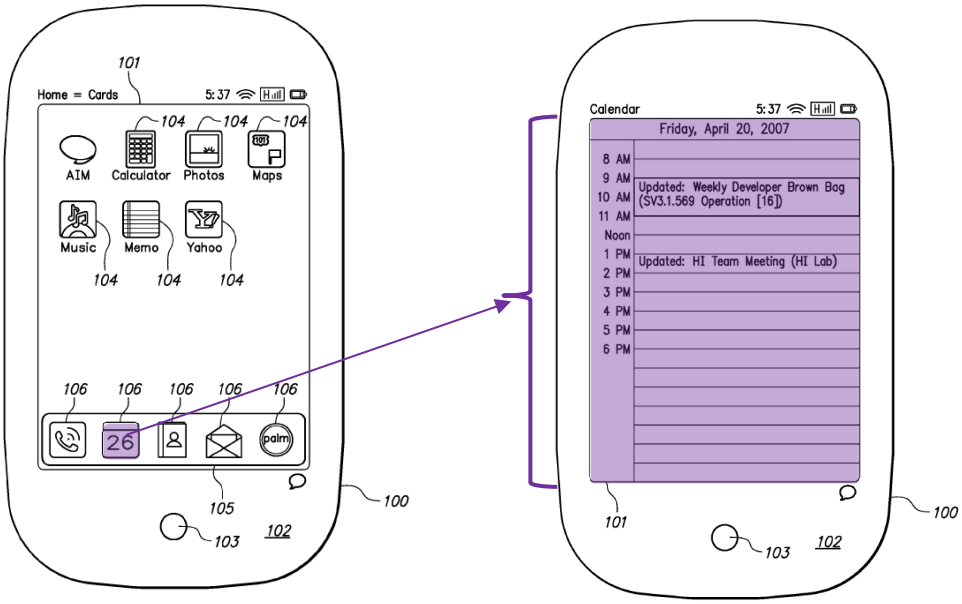


FIG. 1 FIG. 2

EX1013, FIGS. 1 (left), 2 (right).

Shiplacoff "provides techniques for displaying and manipulating representations of activities on an electronic device using a card metaphor."

EX1013, [0060]. "Cards" refer to "areas of the screen that can be moved and manipulated by the user." EX1013, [0060]. "Users interact with cards to launch, terminate, and reorder activities, as well as to navigate among activities and perform other operations." EX1013, [0060]; EX1003, ¶[57].

Shiplacoff also implements several display modes for navigating among the cards including a full-screen mode, a card mode, a shuffle mode, and a grid mode. EX1013, [0068]-[0073]. Examples of a full-screen mode are shown in FIG. 2, a card mode in FIG. 3, a shuffle mode in FIG. 10B, and a grid mode in FIG. 10G. EX1003, ¶[58].

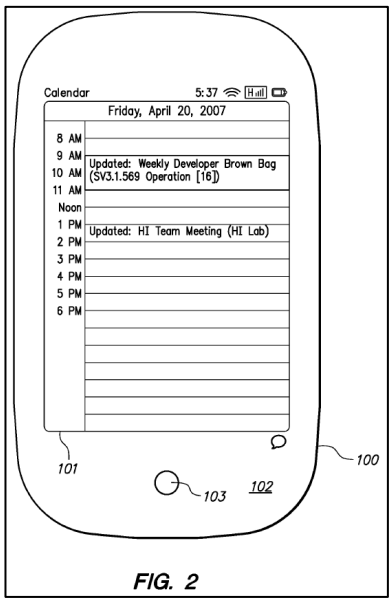


FIG. 2

Full screen mode

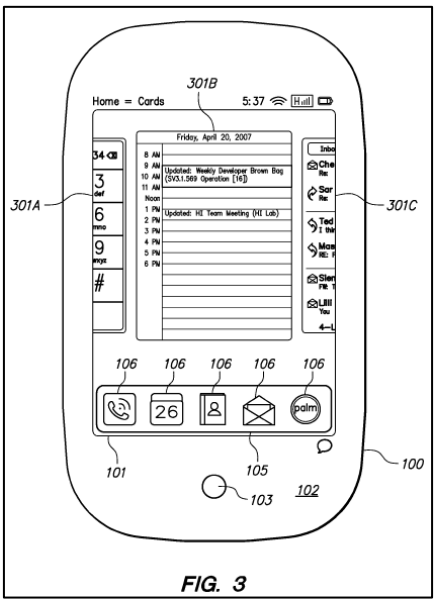


FIG. 3

Card Mode

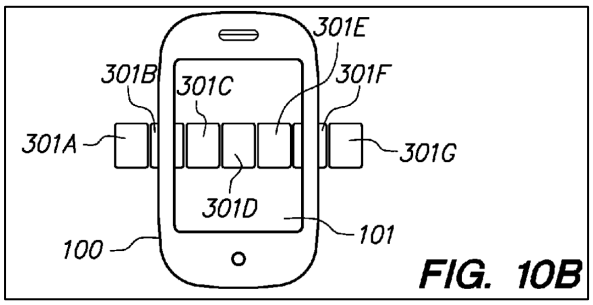


FIG. 10B

Shuffle Mode

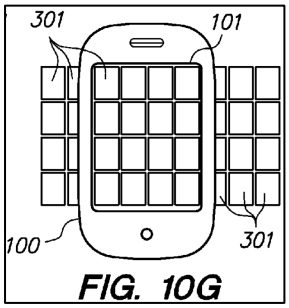


FIG. 10G

Grid Mode

EX1013, FIGS. 2 (top left), 3 (top right), 10B (bottom left), 10G (bottom right)

The "full-screen mode is optimized for maximum use of screen space for interacting with a single activity; [and the] card mode is optimized for easily switching focus from one activity to another and for easily initiating and terminating activities." EX1013, [0074]; EX1003, ¶[59]. In other words, the card mode is a

multitasking interface, as it allows a user to navigate between multiple activities. EX1003, ¶[59].

In one or more of the modes (*e.g.*, the card mode), the device "can receive input from the user … to switch from one display mode to another, and/or to reposition displayed cards in response to user input specifying a switch to another card." EX1013, [0073], [0077]. In one example, a user can perform a "swipe up" gesture to "switch[] from full-screen mode to card mode, or from card mode to a launcher screen." EX1013, [0127]. This allows the user to easily use gestures to navigate between different interfaces. EX1003, ¶[60]. For example, "the user can launch additional activities by returning to the launch screen as shown in FIG. 1." EX1013, [0099]; EX1003, ¶[60].

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

Like the '754 patent, the respective disclosures of Ahn, Chaudhri '842, and Shiplacoff all seek to improve the usability of mobile devices with relatively small display screens. EX1003, ¶[73]. A POSITA would have found it obvious and been motivated to integrate Shiplacoff's teachings about its card metaphor in conjunction with the Ahn-Chaudhri touch screen mobile device. EX1003, ¶[73]. The predictable result of this Ahn-Chaudhri-Shiplacoff combination is a mobile device that utilizes gestures on a touchscreen for launching and navigating between multiple active

activities. EX1003, ¶[73]; *see also* EX1013, [0175]-[0184] (describing Shiplacoff's teachings "are not inherently related to any particular computer, virtualized system, or other apparatus"). The fundamental aspects of Ahn's disclosure would remain intact, bolstered by the well-known, beneficial, and complementary teachings of Chaudhri '842 (*e.g.*, transitions in optical intensity during transitions in under interface states to provide visual cues and feedback to the user) and Shiplacoff (*e.g.*, for launching and navigating between multiple active applications/functions/activites). EX1003, ¶[73].

A POSITA would have been motivated to incorporate the teachings of Shiplacoff into the_Ahn-Chaudhri touch screen mobile device, because Shiplacoff provides one example of implementation details that are lacking for a feature otherwise disclosed in Ahn. EX1003, ¶[74]. Generally, Ahn describes "displaying a standby screen in a display of the mobile communication terminal, selecting one of a plurality of specific directions through an input device of the mobile communication terminal, and displaying each menu corresponding to the selected specific direction on the standby screen." EX1004, Abstract. However, Ahn does not provide many details about or otherwise limit how its mobile device handles selection of various of its menu items and activation of their associated function. EX1003, ¶[74]. For example, with respect to user menu 420, Ahn describes that selection of the brightness setting menu 420a causes the display of a corresponding

window (*see* EX1004, [0053], FIG. 5A), but Ahn does not illustrate similar windows for more complex functions or applications, such as the "Messages" menu item illustrated in FIG. 7B. EX1004, [0062]-[0072]; EX1003, ¶[74]. Nor does Ahn describe or otherwise limit the manner in which a user would activate multiple tasks simultaneously or navigate between them. EX1003, ¶[74].

A POSITA would have understood and found obvious that implementing Shiplacoff's card metaphor in the context of Ahn's mobile terminal would have provided a user interface paradigm that would have allowed Ahn's mobile terminal to more easily and efficiently "offer users the opportunity to run several applications at the same time, and even to perform several activities simultaneously," as was common in mobile devices available before the Critical Date. EX1013, [0005]-[0010], [0060]; EX1003, ¶[75]. A POSITA would have been motivated to make the Ahn-Chaudhri-Shiplacoff combination based on these express benefits. EX1003, ¶[75].

A POSITA would have found it obvious that at least one way to implement the Ahn-Chaudhri-Shiplacoff combination would have been to associate one of the directions of Ahn's touch-and-drag gesture with the navigation between the different card navigation "modes," consistent with the teachings of Shiplacoff. EX1013, [0127]-[0128], EX1003, ¶[76]. For example, in one obvious implementation of the Ahn-Chaudhri-Shiplacoff combination, a POSITA would have found it obvious that

activities/applications/functions would have been selected/launched from Ahn's menus (e.g., the "Organizer" activity/application/function illustrated in FIG. 7B) and/or from icons displayed on the standby screen 300, consistent with the teachings of Chaudhri '842 (*see* EX1005, [0047], [0076], FIG. 5D) and Shiplacoff (*see* EX1013, [0063], [0099], FIG. 1). EX1003, ¶[76]. The selected/launched activity would have been displayed in a full screen card, as taught by Shiplacoff. EX1013, [0077]-[0078]; EX1003, ¶[76]. When a user performs a touch-and-drag gesture in the upward direction (akin to the "swipe-up" gesture described by Shilacoff), instead of displaying the service provider additional service menu 620 shown in FIG. 6B, the mobile terminal would "switch[] from full-screen mode to card mode, or from card mode to a launcher screen." EX1013, [0127]; EX1003, ¶[76].

3. Claim Element Analysis

(a) Claim 80

The Ahn-Chaudhri-Shiplacoff combination renders obvious Claim [80]. *See* EX1003, ¶[372]-[374].

As discussed in Section VI.C.2, *supra*, a POSITA would have found it obvious and been motivated to integrate Shiplacoff's teachings about its card metaphor in conjunction with the Ahn-Chaudhri touch screen mobile device. Specifically, a POSITA would have found it obvious that at least one way to implement the Ahn-Chaudhri-Shiplacoff combination would have been to associate

one of the directions of Ahn's touch-and-drag gesture with the navigation between the different card navigation "modes," consistent with the teachings of Shiplacoff. EX1013, [0127]-[0128], For example, in one obvious implementation of the Ahn-Chaudhri-Shiplacoff combination, a POSITA would have found it obvious that activities/applications/functions would have been selected/launched from Ahn's menus (e.g., the "Organizer" activity/application/function illustrated in FIG. 7B) and/or from icons displayed on the standby screen 300, consistent with the teachings of Chaudhri '842 (*see* EX1005, [0047], [0076], FIG. 5D) and Shiplacoff (*see* EX1013, [0063], [0099], FIG. 1). The selected/launched activity would have been displayed in a full screen card, as taught by Shiplacoff. EX1013, [0077]-[0078]. When a user performs a touch-and-drag gesture in the upward direction (akin to the "swipe-up" gesture described by Shilacoff), instead of displaying the service provider additional service menu 620 shown in FIG. 6B, the mobile terminal would "switch[] from full-screen mode to card mode, or from card mode to a launcher screen." EX1013, [0127].

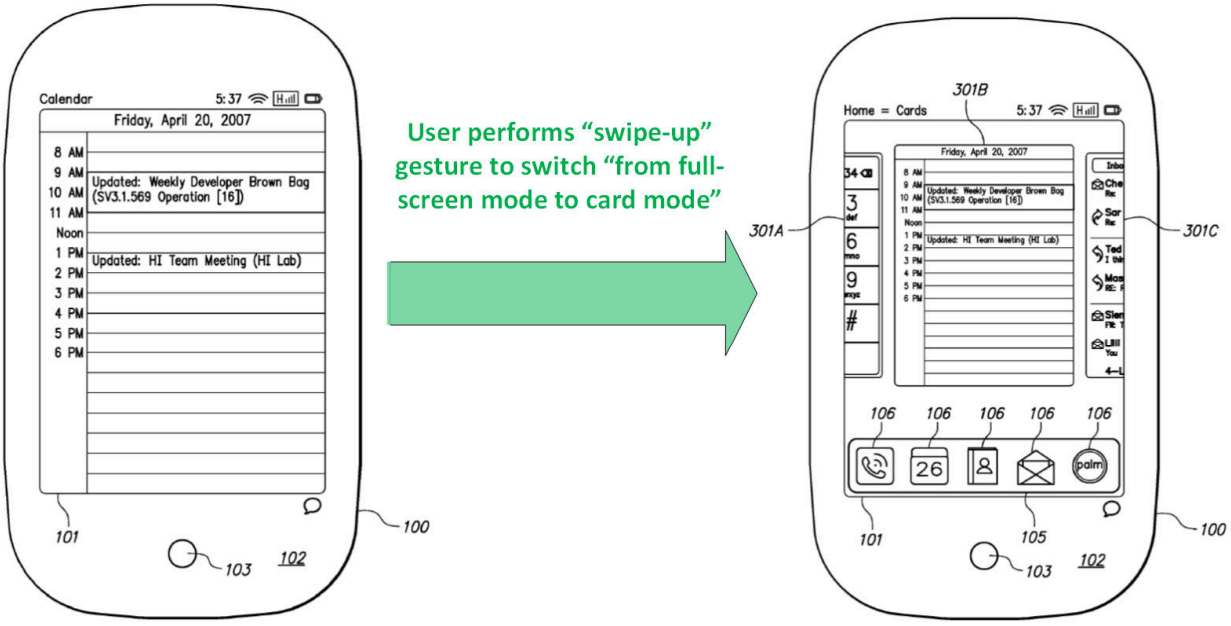


FIG. 2 FIG. 3

EX1013, FIGS. 2 and 3 (annotated)

As discussed in Section VI.C.1, *supra*, a POSITA would have understood and found obvious that Shiplacoff's card mode is a multitasking interface, as it allows a user to navigate between multiple activities. EX1013, [0015] ("In the card mode, the user can cause cards to move on the screen, so as to change focus from one card to another. For example, the card having focus can be moved off the screen, to be replaced by a new card that is then given focus."), [0070], [0074] ("card mode is optimized for easily switching focus from one activity to another and for easily initiating and terminating activities"), [0077]-[0106] (describing operation details of card mode). Further, a POSITA would have understood and found obvious that Shiplacoff's card mode is a type of menu, because it provides the user with a list of

options (*e.g.*, various active applications/activities) from which they may select. EX1001, 31:46-49, 33:34-37, 35:20-23, 55:57-61 (describing various menus that as lists of options from which a user may select).

Based on these teachings a POSITA would have at least found it obvious that the mobile device of the Ahn-Chaudhri-Shiplacoff combination would have been ***configured such that the menu includes a multitasking interface*** (e.g., Shiplacoff's card mode interface), as recited in Claim 80.

(b) Claim 81

The Ahn-Chaudhri-Shiplacoff combination renders obvious Claim [81]. *See* EX1003, ¶¶[375]-[377].

As discussed with respect to Claim 80, *supra*, a POSITA would have at least found it obvious that the mobile device of the Ahn-Chaudhri-Shiplacoff combination would have been ***configured such that the menu includes a multitasking interface*** (*e.g.*, Shiplacoff's card mode interface), as recited in Claim 81. Shilacoff describes that "cards are initially positioned according to the order in which the corresponding activities (such as applications) were launched." EX1013, [0021]. These launched "cards are active, regardless of the current display mode, so that the information represented in a card is substantially current and is updated substantially in real-time." EX1013, [0019]. "[T]he user can interact with cards regardless of display mode, so that user interface elements within cards are active regardless of the display

mode." EX1013, [0019]. Based on these teachings, a POSITA would have understood and found obvious that, in the Ahn-Chaudhri-Shiplacoff combination, the multitasking interface is ***for choosing among a plurality of only active applications***, as recited in Claim 81.

(c) Claim 82

The Ahn-Chaudhri-Shiplacoff combination renders obvious Claim [82]. *See* EX1003, ¶[378]-[380].

As discussed with respect to Claim 80, *supra*, a POSITA would have at least found it obvious that the mobile device of the Ahn-Chaudhri-Shiplacoff combination would have been ***configured such that the menu includes a multitasking interface*** (*e.g.*, Shiplacoff's card mode interface), as recited in Claim 82. As discussed in Section VI.C.1, *supra*, Shiplacoff describes that "the user can switch among the various modes by performing a gesture," such as a "swipe-up" gesture, that "switches from full-screen mode to card mode, or from card mode to a launcher screen." EX1013, [0127]. In order to navigate through the card mode interface that is displayed as a result of this "swipe-up" gesture, Shiplacoff describes additional independent gestures (e.g., "rearrang[ing] cards 301 while in card mode, by tapping and holding a card 301 for a period of time (such as, for example, 500 milliseconds), and then dragging a card 301 from one position to another"). EX1013, [0104]; *see also id.* [0077]-[0106]. Based on these teachings, a POSITA would have understood

and found obvious that, in the Ahn-Chaudhri-Shiplacoff combination, the multitasking interface ***remains displayed after detection of the completion of the gesture*** (*e.g.*, the swipe-up gesture that switches to card mode), as recited in Claim 82.

D. Ground 1D—Claims 97-100 Are Obvious Over Ahn, Chaudhri '842, Hinkley, and Shiplacoff

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

Like the '754 patent, the respective disclosures of Ahn, Chaudhri '842, Hinkley, and Shiplacoff all seek to improve the usability of mobile devices with relatively small display screens. EX1003, ¶[77]. As discussed in Section VI.A, *supra*, a POSITA would have found it obvious and been motivated combine the teachings of Ahn and Chaudhri '842 to, *e.g.*, integrate the transitions in optical intensity taught by Chaudhri '842 during the transitions in user interface states described by Ahn to provide visual cues and feedback to the user. EX1003, ¶[77]. As discussed in Section VI.B, *supra*, As discussed in Section VI.A, *supra*, a POSITA would have found it obvious and been motivated combine the teachings of Ahn and Hinkley to, *e.g.*, integrate into Ahn device implementation details related to edge gestures and menus taught by Hinkley and otherwise absent from Ahn that help distinguish between a variety gestures and permit a user to progressively learn faster and more efficient gestures. EX1003, ¶[77]. And, as discussed in Section VI.A,

supra, a POSITA would have found it obvious and been motivated combine the teachings of Ahn and Shiplacoff to, *e.g.*, provide details for launching and navigating between multiple active applications/functions/activites. EX1003, ¶[77]. A POSITA would have understood and found obvious that each of these combinations would have improved a distinct aspect of Ahn's mobile terminal, and therefore their teachings are complementary and additive to the teachings of Ahn together in the same manner as individually. EX1003, ¶[77].

2. Claim Element Analysis

(a) Claim 97

Claim [97] is substantially the same as Claim [81]. EX1003, ¶[439]. Thus, the Ahn-Chaudhri-Hinkley combination renders obvious Claim [97] for at least the same reasons described above with respect to Claim [81]. *Supra* Claim [81]; EX1003, ¶[439].

(b) Claim 98

Claim [98] is substantially the same as Claim [80]. EX1003, ¶[440]. Thus, the Ahn-Chaudhri-Hinkley combination renders obvious Claim [98] for the same reasons as Claim [80]. *Supra* Claim [80]; EX1003, ¶[440].

(c) Claim 99

Claim [99] is substantially the same as Claim [81]. EX1003, ¶[441]. Thus, the Ahn-Chaudhri-Hinkley combination renders obvious Claim [99] for the same reasons as Claim [81]. *Supra* Claim [81]; EX1003, ¶[441].

(d) Claim 100

Claim [100] is substantially the same as Claim [82]. EX1003, ¶[442]. Thus, the Ahn-Chaudhri-Hinkley combination renders obvious Claim [100] for the same reasons as Claim [82]. *Supra* Claim [82]; EX1003, ¶[442].

VII. ANALYSIS ON DISCRETION

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

The *Advanced Bionics* framework strongly favors institution. Ahn (EX1004) was never cited in the hundreds of references disclosed by the Applicant in Information Disclosure Statements and/or cited by the Examiner in various Office Actions. Nor did either the Applicant or Examiner explicitly discuss or consider the combination of Ahn and Chaudhri '842 with respect to the claim limitations highlighted by the Examiner has leading to the allowance of the issued claims. Thus, neither condition of Part One in the *Advanced Bionics* two-part framework is met.

Further, while there is no need to reach Part Two of the *Advanced Bionics* framework, the record shows that the Challenged Claims were allowed based on a material error by the Examiner. For example, Ahn describes blurring in at least two

ways: (1) through its translucent menus; and (2) illustrating that the clock widget portion of the standby screen is blurred when a menu is opened. *See* Section VI.A.1, *supra*. Moreover, Chaudhri '842 (EX1005) explicitly describes the use of "color, hue, color saturation, brightness, contrast, transparency, and any combination thereof" to differentiate between a user interface object and the background, particularly to indicate progress in the context of transitioning between user interface states. *See* Section VI.A.2, *supra*. Taken in the context of and in combination with Ahn's menu display transition, a POSITA would have understood that the features that led to allowance of issued independent claims 1, 2, and 225 were well known prior to the Critical Date.

Had the Examiner properly assessed the Ahn and Chaudhri '842 disclosures and appreciated their teachings in view of the prior art as a whole, the Challenged Claims would not have issued. *See* Section VI, *supra*.

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 '754 Patent. The '754 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 IPR50095-0166IP6@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 13,855 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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