

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**SAMSUNG ELECTRONICS CO., LTD. AND
SAMSUNG ELECTRONICS AMERICA, INC.,**
Petitioners

v.

MAXELL, LTD.,
Patent Owner

Inter Partes Review No.: IPR2024-00828

U.S. Patent No. 8,982,086

PETITIONERS' REPLY TO THE PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Level of Skill in the Art.....	1
III.	Claim Construction.....	1
	A. “first information necessary for the identification of a user” and “second information relating to the identification of the user”	1
	B. “first registering mode for inputting input information by a pad of the finger” and “second registering mode for inputting input information by an end of the finger”	2
IV.	Ground 1: Rogers and Rosenberg Render Claim 1, 2, and 4-7 Obvious	9
	A. Rogers Discloses or Renders Obvious Limitation [1e].....	9
	B. Rogers and Rosenberg Render Obvious Limitation [1f]	15
	C. Rogers Discloses or Renders Obvious Limitation [1d]	20
	D. Rogers and Rosenberg Render Obvious Claim 5.....	20
	E. It Would Be Obvious to Combine Rogers and Rosenberg	22
V.	Ground 2: Rogers, Rosenberg, and Miyazawa Render Claims 9-14 Obvious.....	23
VI.	Ground 3: Rogers and Rekimoto Render Claims 1, 2, and 4-7 Obvious	24
	A. Rogers Discloses or Renders Obvious Limitation [1e].....	24
	B. Rogers and Rekimoto Render Obvious Limitation [1f].....	24
	C. Rogers and Rekimoto Render Obvious Claim 5.....	25
VII.	Ground 4: Rogers, Rekimoto, and Miyazawa Render Claims 9-14 Obvious.....	26
VIII.	Conclusion	26

INDEX OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. 8,982,086
1002	File History of U.S. Pat. No. 8,982,086
1003	Declaration of Seth James Nielson, Ph.D.
1004	Reexamination File History of U.S. Patent No. 8,982,086
1005	Reissue File History of U.S. Patent No. 8,654,093
1006	U.S. Patent No. 8,683,582 (“Rogers”)
1007	U.S. Patent Publication No. 2007/0097096 (“Rosenberg”)
1008	U.S. Patent No. 8,633,909 (“Miyazawa”)
1009	U.S. Patent No. 7,877,707 (“Westerman”)
1010	U.S. Patent No. 8,477,115 (“Rekimoto”)
1011	U.S. Patent No. RE48,830 (“RE48,830”)
1013	Excerpts from Maxell’s Rebuttal Claim Construction Brief, ITC Investigation No. 337-TA-1215
1014	Excerpts from the Initial Expert Declaration of Jacob O. Wobbrock, Ph.D. in Support of Maxell’s Proposed Claim Constructions, ITC Investigation No. 337-TA-1215
1015	Excerpts from the Rebuttal Expert Declaration of Jacob O. Wobbrock, Ph.D. in Support of Maxell’s Proposed Claim Constructions, ITC Investigation No. 337-TA-1215
1016	Excerpts from Maxell’s Initial Claim Construction Brief, ITC Investigation No. 337-TA-1324
1017	Excerpts from the Expert Declaration of Jacob O. Wobbrock, Ph.D. in Support of Maxell’s Proposed Claim Constructions, ITC Investigation No. 337-TA-1324
1018	Deposition Transcript of Dr. Jacob O. Wobbrock, Ph.D. (March 26, 2025)
1019	Reply Declaration of Seth James Nielson, Ph.D.
1020	Excerpts from Maxell’s Initial Claim Construction Brief, ITC Investigation No. 337-TA-1215

TABLE OF CLAIMS

CLAIMS
[1pre] An information processing apparatus comprising:
[1a] a touch panel configured to detect a contact of a finger of a user;
[1b] a detector configured to detect first information necessary for an identification of the user when the contact is detected between the touch panel and the finger of the user;
[1c] a first controller configured to control the information processing apparatus to operate into two operating modes: at least an identification mode and a registering mode, as the operating mode thereof;
[1d] memory that is configured to store second information relating to the identification of the user, which is stored in advance; and
[1e] a second controller configured to execute a specified process when said first information and said second information are coincident within said identification mode, wherein:
[1f] in said registering mode, there are provided a first registering mode for inputting input information by a pad of the finger, and a second registering mode for inputting input information by an end of the finger, and said second information relating to the identification of the user is produced upon basis of the input information, which is inputted at least in the first or second mode.
[2] The information processing apparatus according to claim 1, wherein said first information includes a position and an area of the finger contacting with said touch panel.
[4] The information processing apparatus according to claim 1, wherein said specified process includes releasing of a lock of resting an operation of said information processing apparatus.
[5] The information processing apparatus according to claim 1, wherein the touch panel comprises a display screen configured to display a first image and first descriptive text associated with the first registering mode and a second image and second descriptive text associated with the second registering mode.

CLAIMS

[6] The information processing apparatus according to claim 1, wherein the touch panel includes one or more capacitive sensors, such that the contact of the finger is detected based on variations in capacitance of the one or more capacitive sensors in response to the contact.

[7] The information processing apparatus according to claim 1, wherein the touch panel comprises a display screen configured to display information during the identification mode that informs the user to use a finger to execute an unlock operation of the information processing apparatus.

[9] The information processing apparatus according to claim 1, wherein the first controller is configured to execute one or more of tapping, dragging, flicking, and pinching operations based on the detection of contact of the finger.

[10] The information processing apparatus according to claim 9, wherein the first controller is configured to execute tapping operations, and the tapping operations include detection of contact of the finger for a first time period.

[11] The information processing apparatus according to claim 9, wherein the first controller is configured to execute dragging operations, and the dragging operations correspond to the user moving the finger while maintaining contact for a first time period.

[12a] The information processing apparatus according to claim 9, wherein the first controller is configured to execute flicking operations, and the flicking operations correspond to the user sliding the finger for a first time period, and

[12b] wherein the first controller is configured to execute pinching operations, and the pinching operations correspond to the user establishing two contacts and increasing the distance between the established two contacts.

[13a] The information processing apparatus according to claim 9, wherein the first controller is configured to execute said dragging operations, and the dragging operations correspond to the user moving the finger while maintaining contact for a first time period, and

[13b] wherein the first controller is configured to execute said flicking operations, and the flicking operations correspond to the user sliding the finger for a second time period that is shorter than the first time period.

CLAIMS

[14] The information processing apparatus according to claim 1, wherein the touch panel comprises a display screen displaying a plurality of icons corresponding to applications being executed on the information processing apparatus, and the information processing apparatus is configured to execute an operation for moving at least one of the plurality of icons based on an operation that requires contact by a finger for a predetermined period of time.

I. INTRODUCTION

Petitioners have conclusively demonstrated that the challenged claims of U.S. Patent No. 8,982,086 should be invalidated. The Patent Owner's Response ("POR") that Maxell, Ltd. ("PO") filed ignores the vast majority of Petitioners' evidence. Instead, PO offers untenable constructions of terms such as "controller" and "mode" to distinguish the prior art. But these novel constructions, which have never been proposed in other proceedings—likely because their unduly narrow scope would jeopardize PO's infringement theories—are contrary to the law, the patent, common sense, and PO's own past submissions. Indeed, many assertions in Dr. Wobbrock's declaration about these constructions contradict his past sworn statements from other proceedings involving the '086 patent. His declaration, along with PO's arguments, should be afforded little weight. The challenged claims are invalid.

II. LEVEL OF SKILL IN THE ART

The experts agree on the definition of a person of ordinary skill in the art ("POSITA"). *See* EX1003 ¶ 45; EX2005 ¶ 76-77.

III. CLAIM CONSTRUCTION

A. "first information necessary for the identification of a user" and "second information relating to the identification of the user"

Although Petitioners respectfully disagree that these terms encompass fingerprint recognition, the issue is irrelevant to whether Petitioners' prior art invalidates the claims, and the Board may proceed based on the terms' undisputed

plain and ordinary meaning. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (only terms in controversy need to be construed, and only to the extent necessary to resolve the controversy).

B. “first registering mode for inputting input information by a pad of the finger” and “second registering mode for inputting input information by an end of the finger”

PO proposes to construe the “first registering mode” and “second registering mode” of limitation [1f] as distinct “operational states.” POR 10. PO additionally “interpret[s]” an operational state as “a system state such that the same action has different results or effects based on the current value of the system state.” POR 36; EX1018, 37:12-44:6. As evidenced by the fact that PO has never proposed to construe these terms in numerous prior proceedings, these terms require no construction. Plain and ordinary meaning should therefore apply. Additionally, there are many reasons for rejecting PO’s construction. EX1019, ¶¶ 11-25.

First, the claim language contradicts PO’s proposed construction. EX1019, ¶ 14. Limitation [1c] refers to the “identification mode” and “registering mode” as “operating modes.” EX1001, 8:43-46. Limitation [1f], however, makes no such distinction for the “first registering mode” and the “second registering mode” that are provided in “said registering mode,” and instead refers to them as “mode[s] for inputting input information.” *Id.* 8:54-57. It would be improper to rewrite limitation [1f] to include an “operational states” requirement that the patentee knew how to

apply but purposely omitted.¹ *Takeda Pharm. Co. Ltd. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1365 (Fed. Cir. 2014) (refusing to rewrite a claim to include a word, when the remainder of the claim demonstrated that the inventors knew how to use that word when they so desired and decided not to do so).

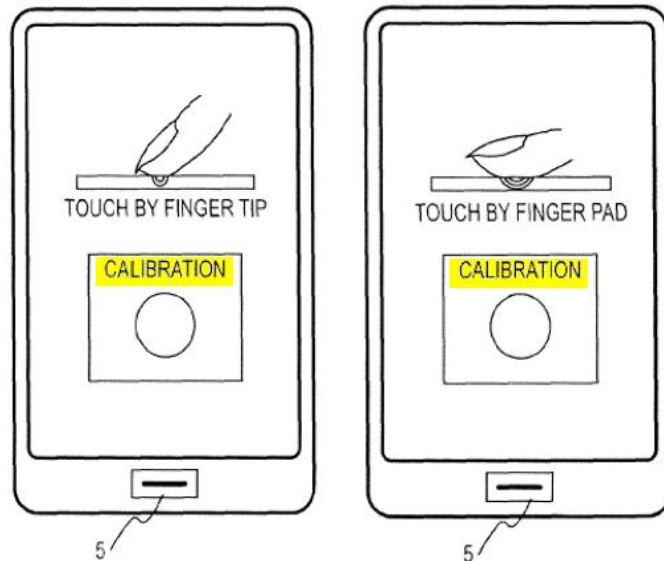
Adopting PO's construction would also have the "highly disfavored" result of rendering superfluous the claim language reciting an "operating mode," because—according to Dr. Wobbrock—the term "modes" by itself refers to an "operational state." EX1018, 39:17-41:9; EX1019, ¶ 15; *Wasica Finance GmbH v. Continental Auto. Sys., Inc.*, 853 F.3d 1272, 1288 n.10 (Fed. Cir. 2017) ("It is highly disfavored to construe terms in a way that renders them void, meaningless, or superfluous.").

Second, the specification contradicts PO's "interpretation" of the first and second registering modes as distinct "operational states." PO argues that evidence of the two modes being distinct operational states can be found in Figures 10A and 10B. POR 11-13. This is wrong. These figures show "calibration"—not "registering"—as the figures' labeling demonstrates.

¹ PO's proposed use of the words "operational states" would be "consistent" with the patent's use of the words "operating modes." POR 10-11; EX1018, 48:6-18.

FIG. 10A

FIG. 10B



EX1001, Figs. 10A, 10B (annotated with highlighting). The specification defines “calibration” as “an operation of setting a threshold value that is used for determining a contact range” to distinguish finger tip and pad inputs. *Id.* 3:59-60, 4:61-5:19. Figures 10A and 10B are “typical screen image[s] displayed during calibration” to generate this “threshold value.” *Id.* Fig. 9 (steps S2001-S2004), 6:16-51.

The specification discloses that password registration occurs *after* calibration. EX1001, Fig. 9 (S2006-S2010), 6:28-7:7. Figures 11A-11C, labeled “password registration,” are described as “a screen that prompts the user to register a password” (11A) and as “screen[s] displayed during password registration to inform the user that a finger [pad/tip] input has been made” (11B, 11C). EX1001, 2:34-47.

FIG. 11A

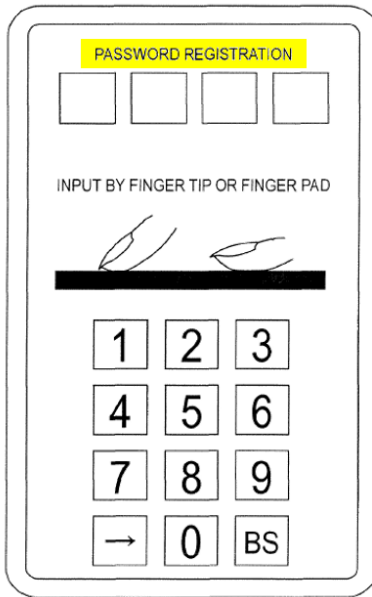
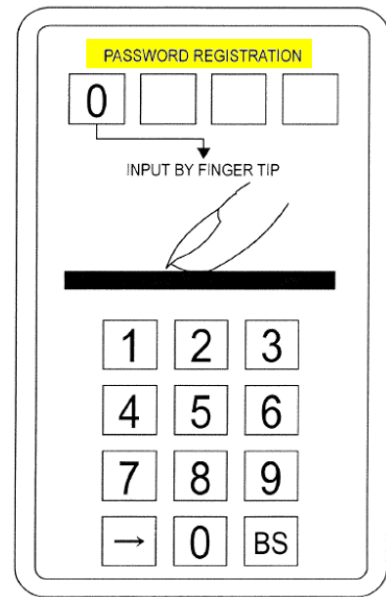
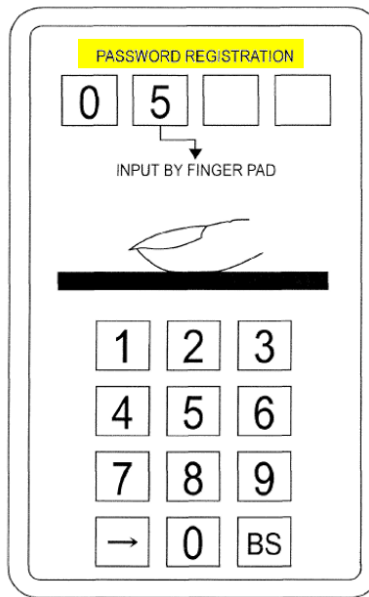


FIG. 11B



EX1001, Figs. 11A, 11B, 11C (annotated with highlighting). The “numeric string of four input numerals” entered by the user during password registration “is registered as the password as shown in FIG. 12A” below.

FIG. 12A

DIGIT	1	2	3	4
PASSWORD	0	5	2	8
INPUT METHOD	FINGER TIP	FINGER PAD	FINGER PAD	FINGER PAD

EX1001, Fig. 12A, 7:2-4; *see also id.* at Fig. 12B.

PO does not dispute that a password results from the registration process in the specification and recited in limitation [1f]. *See* POR 4; EX2005, ¶ 84; EX1018, 33:3-35:12. Indeed, during re-examination of the '086 patent, PO cited Figures 11A, 11B, and 11C as support for new claim 5 and its recitation of images and descriptive

text associated with the first and second registering modes of limitation [1f]. EX1004, 4 (new claim 5), 75 (identifying support for new claim 5). PO and Dr. Wobbrock simply ignore that concession. The excerpts above plainly demonstrate that registration occurs in a single “operational state,”² wherein the device recognizes—via a first and second registering mode—two different types of touch input for registering the password entries. EX1001, 6:52-7:7. Thus, the first and second “registering modes” of limitation [1f] are not distinct “operational states” as PO argues. EX1019, ¶¶ 16-19. They are instead input modes, as the claim language recites and as Petitioners’ expert Dr. Nielson testified. EX2009, 49:8-53:8.

Third, the extrinsic evidence does not support PO’s position. As an initial matter, PO’s reliance on a PCMag definition of “mode” (EX2011) is misplaced. The webpage is dated “1/21/25”—**two days before PO filed its POR**—and offers no evidence regarding the definition of “mode” as of the 2011 assumed priority date. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (*en banc*) (holding that a term’s meaning must be ascertained “at the time of the invention”). Moreover, the PCMag exhibit is the only reference PO identifies that defines a “mode” as an “operational state,” and even that definition does not append the further “interpretation” that PO relies upon to distinguish the prior art, i.e., further defining

² Or at least a single “operational state” as apparently defined by PO. POR 36.

an operational state as “a system state such that the same action has different results or effects based on the current value of the system state.” POR 36. PO also gives no reason for ignoring the broader definitions of “mode” that appear in its own references. *See, e.g.*, EX2012 (“One of several alternative conditions or methods of operation of a device”). In short, no extrinsic evidence—apart from Dr. Wobbrock’s conclusory statements—defines “mode” as PO proposes.

Fourth, PO’s proposal should be rejected because it is ambiguous and susceptible to inconsistent application. For example, PO distinguishes Rogers’ modes because they lack “different UIs” (POR 40-41), but presents no evidence that “operational states” must have different UIs to be distinct. Indeed, PO’s allegedly exemplar “mode”—the Caps Lock key (POR 43-44)—does not require “different UIs.” Moreover, UIs are not recited in, or required by, the claims, a point that Dr. Wobbrock concedes. EX1018, 58:14-59:9.

PO’s Caps Lock analogy to the ’086 patent also fails. PO argues that, in the ’086 patent, the same action A (“touching the screen”) registers a “fingertip” value or “finger pad” value depending on the registering mode. POR 44. This is wrong. The ’086 patent discloses **two different ways** of “touching the screen” during both calibration and registration—i.e., finger tip and finger pad input—that are distinguished based on a comparison of the input contact range. *See* EX1001, Figs. 5A, 5B, 9 (S2006-S2009). In fact, during calibration, if the user **does** perform exactly

the same action twice—i.e., if he/she presses the same portion of the finger to the screen during the calibration steps depicted in Figures 10A and 10B—then calibration resets until the device can correctly distinguish the finger tip and pad inputs as different touch input actions. EX1001 Fig. 9 (step S2003), 6:42-45.

Fifth, PO incorrectly argues that claim construction is required because of Petitioners' alleged "inconsistent interpretation" of the terms. POR 16-21. PO's arguments, however, expose that any such inconsistencies are its own, not those of Petitioners. For example, PO criticizes Petitioners for referencing "the **process** disclosed by Rogers" when discussing the registration mode in limitation [1c] (POR 17), but then PO itself—quoting directly from the '086 patent—describes "the **process** for password registration, i.e., the claimed 'registering mode'" disclosed in the patent. POR 11 (emphasis added).

As another example, PO says that Petitioners "pivot" to a discussion of "different input methods" when discussing the first and second registering modes in limitation [1f] (POR 17), but elsewhere PO quotes the '086 patent's discussion of the "types of **input methods**... registered for one password." POR 4 (emphasis added); *see also id.*, 38-39 (citing Figure 13, which refers to "password input method[s]"). Indeed, PO's citations to the specification demonstrate that Petitioners' expert Dr. Nielson is correct: the claims refer to "operational modes" in the context of the registration and identification modes of limitation [1c], and refer to input

modes in the limitation [1f] first and second registering modes for finger tip and finger pad input. EX2009, 49:8-53:8. Both are consistent with the plain and ordinary meaning of “mode.” PO’s arbitrarily limiting construction should be rejected.

IV. GROUND 1: ROGERS AND ROSENBERG RENDER CLAIM 1, 2, AND 4-7 OBVIOUS

A. Rogers Discloses or Renders Obvious Limitation [1e]

It is undisputed that Rogers discloses a “processor 71” that (1) controls “electronic device 70,” (2) consists of “processing elements” comprising “electronic hardware, computer software, or combinations of both,” and (3) “executes a specified process” as recited in limitation [1e]. Petition 27-29. The sole issue PO disputes is whether “processor 71” discloses the claimed “second controller,” or indeed any type of controller. POR 24; EX2005 [0111].

As an initial matter, PO has never before disputed that a processor can constitute either “controller” in the '086 patent limitations. The POPR did not dispute that Rogers discloses or renders obvious either “controller” limitation. During reexamination, PO and its expert Dr. Wobbrock did not dispute that “processor 110” in the Bayram reference constituted the claimed “first controller,” nor did they dispute that it would be obvious to modify Bayram “to use a [second] separate controller to control unlocking the device.” EX1004, 86-88 (Examiner non-final findings), 76-80 (PO response), 27-39 (Dr. Wobbrock declaration). Moreover, the POR and Dr. Wobbrock concede that “processor 71” in Rogers comprises the

“first controller” of limitation [1c] (EX1018, 59:10-15), and the Board’s Institution Decision agrees that Rogers discloses or at least renders obvious both the “first controller” and the “second controller.” Paper 9, 26-27. These facts alone demonstrate that PO’s position should be rejected as meritless.

Nothing in the POR compels a different result, particularly when PO’s arguments here contradict its prior submissions. Indeed, PO and Dr. Wobbrock previously stated that a POSITA would have known not only that a processor can constitute a controller, but that a single processor can constitute both the first and second controllers recited in the ‘086 claims. As detailed below, the clear inconsistencies between PO’s current and past positions are substantial, and demonstrate that Rogers does disclose or at least render obvious this limitation.

First, although PO and Dr. Wobbrock argue that “a POSITA would not equate any type of processor to a controller” (POR 24; EX2005 ¶ 111), both have previously taken the opposite position in ITC proceedings with the same claim construction standard. PO argued that a controller “could include, for example, a microcontroller, a CPU, **and/or one or more processors** as were being used in portable terminals in or around 2011.” EX1020, 6-7 (emphasis added). PO also cited approvingly to an opposing expert’s mapping of a prior art “processor” to the ‘086 patent controller terms, and identified two processors that could be considered to fulfill the role of both the first and second controllers. EX1013, 3-5.

PO's expert also offered opinions—under penalty of perjury—contradicting his current statement that a “processor” is not a controller. In one matter, Dr. Wobbrock provided “controller” definitions broader than the narrow definition he now advocates, and opined that “a controller is a component of a computer system that controls, via using a processor (e.g., CPU), the operation of a subsystem within the computer system.” EX1017, ¶ 65. He identified known “controllers” in the prior art, including “a microprocessor” (*id.* ¶ 62) and “a processing logic or processor” (*id.* ¶ 61). He also identified “known structures of controller [that] existed” in 2011, including various third-party “microprocessors” and “processors.” *Id.* ¶ 56.

Moreover, when Dr. Wobbrock previously referred to a microcontroller as a “controller” in the context of the '086 patent claims, he opined that its only relevant component is a CPU/processor. EX1017, ¶ 31 (“a POSITA would also understand that the specification uses the terms ‘controller’ and ‘control unit’ consistent with their plain and ordinary meaning as identified in the intrinsic evidence to include ***at least a processor***”) (emphasis added); *see also id.* ¶¶ 51, 59, 65 (similar opinions).

Even within these proceedings, Dr. Wobbrock offers inconsistent opinions. For example, he opines that a “processor” is not a “controller” (EX2005, ¶ 111), but also states that the '086 patent's “determination unit”—which he identifies as a “CPU” (*id.*, ¶ 108) and therefore a “processor” (*id.*, ¶ 106)—constitutes the claimed

“second controller” because “one if its specified processes is to, for example, tell the control unit a match occurred” (*id.*, ¶ 99).

Second, PO and Dr. Wobbrock now argue that a controller must have “at a minimum... processing, input/output (I/O), and memory” similar to the structural elements of “control unit 3” in the ’086 patent specification. POR 25-27; EX2005 ¶ 106-111. In the past, however, both have argued that the patent uses the term controller “broadly” and that it should not be limited to the structural elements of “control unit 3.” EX1020, 6-7; EX1014, ¶ 56. Indeed, Dr. Wobbrock opined that “[t]here is no intrinsic evidence that would require the claimed ‘controller’ to be limited to a specific type of structure.” EX1017, ¶ 66; *see also* EX1014, ¶ 56 (offering a similar opinion). PO has even cited approvingly to Petitioner’s expert Dr. Nielson, who, in previous declarations, opined that a controller may have “different configurations of hardware and software.” EX1016, 11.

Third, PO and Dr. Wobbrock argue that “Rogers does not disclose a distinct, separate second controller by structure or function,” and that it would be “untenable” to make this modification. POR 24, 29-31; EX2005 ¶¶ 112, 115. But in previous matters—when addressing arguments that the single control unit 3 disclosed in the ’086 patent specification could not provide corresponding structure for both “controller” limitations in claim 1—PO and Dr. Wobbrock opined that a POSITA would have been well aware that a single processor could simultaneously serve as

both the first and second controllers if provided with “a first configuration” according to limitation [1c] and “a second configuration” according to limitation [1e]. See EX1016, 11; EX1017, ¶¶ 56-57, 63-64, 66; EX1013, 5; EX1015, ¶ 30. According to Dr. Wobbrock, “it would have been common for electrical engineering and computer engineering students in or before 2011 to be exposed to the[se] known structures of controllers as claimed in claim 1 of the '086 patent.” EX1017, ¶ 64.³

At deposition Dr. Wobbrock confirmed the above theory, and further stated that the “second controller” did not need to be a physical component at all: it could be “a conceptual component” such as different program code that gets “swapped” with the “first controller” code and executed by the same processor. EX1018, 72:5-80:14. Moreover, Dr. Wobbrock testified that the code for both the first controller and second controller elements can be stored on the same memory, but separated for security purposes. *Id.* These concessions demonstrate that the modifications proposed by Petitioners' expert would have been both tenable and desirable.

Thus, PO's and Dr. Wobbrock's admissions confirm that Rogers discloses or at least renders obvious the “second controller” of limitation [1e], either as a single

³ This prior opinion from Dr. Wobbrock makes clear that the alleged difficulties associated with modifying Rogers are entirely untrue.

processor with separate processing elements configured for the first and second controller limitations, or as separate processors devoted to those limitations.

Even assuming that Dr. Wobbrock correctly defines the requisite structural elements of the claimed “second controller,” Rogers discloses or at least renders obvious limitation [1e]. EX1019, ¶¶ 29-32. Rogers discloses all the alleged “controller” components that Dr. Wobbrock incorrectly requires that term to have access to. It discloses a processor (CPU) and a memory—not only as discrete components, but also as part of an ASIC or as a combined component wherein “the storage medium may be integral to the processor.” EX1006, 14:56-15:4; EX1019, ¶ 31. Rogers teaches that the memory may include program counter “registers” (*id.*) and, in any event, such program counter registers would have been inherently present in any processor, as conceded by Dr. Wobbrock. EX1018, 70:10-72:4. Finally, as shown in Figure 1 of Rogers, the processor 71 includes numerous inputs and outputs, including to/from touch screen display 40, keypad 76, navigation pad 77, radio communications transceiver 75, and “cable to cable connector (e.g., a FireWire or USB connector)” 79. EX1006, Fig. 1, 5:6-11, 5:33-38; EX1019, ¶ 31. Thus, a POSITA would have understood that Rogers discloses or renders obvious the use of a “second controller” even under the incorrect construction Dr. Wobbrock offers.

Moreover, a POSITA would have been motivated to implement such changes to, for example, enhance device security by having security-related processes

executed by a second controller. EX1019, ¶ 32. As Dr. Wobbrock admitted at deposition, a POSITA would have had all the necessary skills to implement such a configuration. EX1018, 80:16-81:7. This modification would have taken no more than basic programming skills to achieve the configuration Dr. Wobbrock described at deposition, wherein the second controller code exists as “a conceptual unit” consisting of source code that gets “swapped” onto the existing processor of Rogers for execution. EX1019, ¶ 32.

B. Rogers and Rosenberg Render Obvious Limitation [1f]

PO concedes that Rogers discloses “distinguish[ing] between inputting two different types of user input” during the “registration process” for “a graphical passcode” on “a touch screen.” POR 32-33. PO argues, however, that these disclosures are not the “first registering mode” and “second registering mode” of limitation [1f]. POR 31-48. This is incorrect. Rogers discloses a registration process, including first and second registering modes within that process, that is similar to the '086 patent. PO's attempt to distinguish Rogers is based solely on its proposed construction of “modes” that contradicts the '086 patent's disclosures.

As discussed above, the “process for password registration” in the '086 patent involves a numeral input entered by one of two distinguishable types of touch input, i.e., finger tip or pad input (S2007-S2010), at the location on the touch screen where the desired numeral is located (e.g., FIG. 11B). *Id.* 6:45-7:7 (“The user selects and

touches any numbers among numbers 0 to 9 displayed on a touch panel 1 by either the finger tip input or the finger pad input.”). After recording four inputs, registration ends and a passcode is generated. *Id.* 7:2-27; Fig. 12A.

Rogers discloses a similar password registration process. The registration mode of Rogers accepts inputs entered by touching a specific location on the touch screen of the device, wherein each location touched by the user is associated with one of two distinguishable types of touch input, i.e., finger pad and stylus input. EX1006, 3:32-39, 4:15-19, 7:56-67; EX1003, ¶¶ 116-21. Figure 7 from Rogers illustrates this process in the related context of high- and low-pressure touch inputs, showing a registration mode consisting of five taps on the screen (Fig. 7A), wherein each tap corresponds to a low or a high pressure (Fig. 7E).

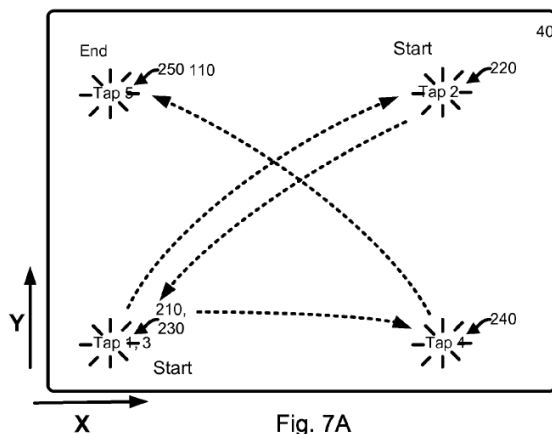


Fig. 7A

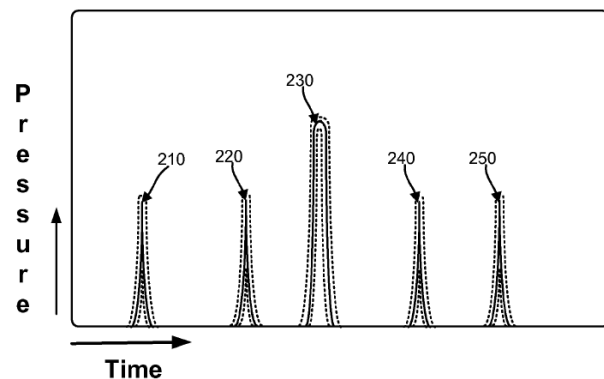


Fig. 7E

EX1006, Figs. 7A, 7E. Rogers discloses that—instead of pressure—the size of the touch input contact range can be used, and gives the example of “discriminat[ing] between a large fingertip and a small stylus tip” as a potential alternative to high- and low-pressure inputs. *Id.* 4:15-19, 7:56-67; EX1003, ¶ 121. Figure 7A and 7E

therefore disclose—in the context of fingertip and stylus tip input modes—entering a password consisting of five taps, each associated with finger tip or stylus input. EX1003, ¶ 121. Thus, Rogers discloses a password registration mode provided with a first and second registering mode for inputting information according to two distinguishable types of touch input (e.g., finger tip and stylus tip input).⁴

PO attempts to dispute the similarities between Rogers and the '086 patent claims and disclosures, but each attempt is unavailing.

First, PO argues that distinguishing between two input methods during registration does not constitute two separate “modes” as recited in limitation [1f]. POR 32-38. This is wrong for the reasons discussed above in the claim construction section. Namely, it contradicts (1) the claims, which purposely do **not** refer to the first and second registering modes in [1f] as “operating modes”; (2) the specification, which discloses that a user’s identification information (password) may be inputted in a finger tip input mode or finger pad input mode as shown in Figures 11A, 11B, and 11C; (3) the extrinsic evidence, which defines “mode” more broadly than PO

⁴ As discussed below, PO does not dispute Petitioners’ evidence that it would be obvious in view of Rosenberg to use a finger pad input and finger tip input instead of the finger tip and stylus inputs expressly disclosed in Rogers.

proposes; and (4) common sense, which counsels against adopting an ambiguous definition of “mode” that PO itself cannot apply consistently.

Second, PO advances a convoluted argument about Rogers’ purported disclosure of “comparing scalar values within tolerance envelopes” (POR 38) and failure to “use[] the term ‘threshold.’” POR 41. This argument, however, mischaracterizes both Rogers and the ’086 patent. Rogers discloses that a “training” session can occur “within the initialization [registration] procedure” (EX1006, 7:9-11), similar to the ’086 patent’s calibration process. EX1001, Fig. 9 (S2001-S2004). And Rogers states that—when training the device to distinguish the contact range of finger tip and stylus input—the “measured contact area” may be required to be “greater than or less than a certain size” (EX1006, 7:63-67), i.e., the two input types can be distinguished by comparison against a certain threshold. This, too, is similar to the ’086 patent, which discloses “compar[ing] the contact range [of a touch input] with the threshold value,” and determining that it is a finger tip input “[w]hen the contact range is equal to or smaller than the threshold value,” or a finger pad input “[w]hen the contact range is larger than the threshold value.” EX1001, 6:55-64.⁵

⁵ These disclosures make it clear that—even if PO’s proposed construction were adopted, and even if the ’086 patent calibration disclosures (e.g., Figures 10A and

Third, PO references the re-examination history and the Bayram reference, arguing that Rogers does not disclose limitation [1f] for the same reasons previously identified in those proceedings. POR 42-43. But Bayram is not analogous to Rogers. In Bayram, the signature registration process recognizes differences in the non-centroid shapes formed by the user's touch interaction. EX2004, 242-44. Bayram does not—as Rogers does—use those differences to distinguish between two discrete types of touch input and record the touch input of the graphical passcode as being entered by one method or the other depending upon the size of the contact area as compared against a threshold (e.g., by finger tip or stylus as in Rogers). The re-examination history as to Bayram has no bearing on Rogers.

Even under PO's incorrect proposed construction of the first and second registering modes in limitation [1f], Rogers and Rosenberg disclose or at least render obvious this limitation. As Dr. Wobbrock conceded at deposition, a “mode” can be categorized as a “passive mode” or an “active mode,” wherein the former is similar to pressing the Caps Lock key **before** providing user input, and the latter is similar to pressing the Shift key **while** providing user input. EX1018, 44:8-47:13. Both types of “modes” are distinct operational states. *Id.* Under Dr. Wobbrock's proposed

10B) were considered exemplar first and second registering modes—Rogers still discloses similar “modes” in the form of “training.”

construction, both the '086 patent and Rogers can be understood to be describing “active” first and second registration modes, wherein the same user action (e.g., tapping the screen) produces a different result based on the mode state (e.g., whether the user enters the touch input in a finger tip/pad mode setting, or—as in Rogers—the finger/stylus mode setting). EX1019, ¶¶ 38-40.

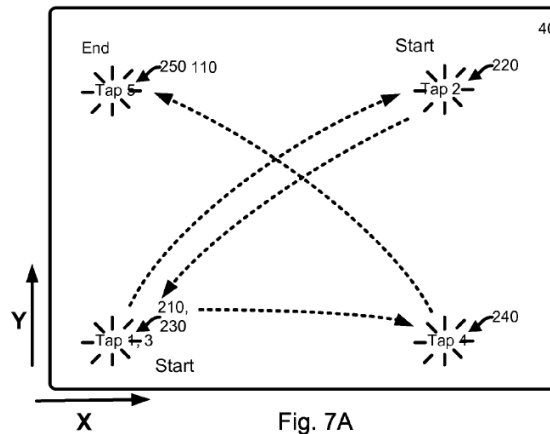
Thus, as the Board has already determined, Rogers and Rosenberg render obvious limitation [1f].

C. Rogers Discloses or Renders Obvious Limitation [1d]

PO concedes that Rogers discloses a memory and that the memory stores a graphical password, and argues only that Rogers fails to disclose this limitation because the graphical password allegedly is not generated in the first and second registering modes recited by limitation [1f]. POR 48. This is incorrect for the reasons already discussed above. Thus, Rogers discloses this limitation.

D. Rogers and Rosenberg Render Obvious Claim 5

PO asserts that “Rogers offers no discussion of any particular graphical user interface implemented to register the graphical password.” POR 49. That is wrong. Rogers states that Figures 2A, 6A, 7A, and 8A each “illustrate[] an exemplary graphical passcode” registered by a user. EX1006, 2:20-43. Figure 7A below shows an example of the graphical passcode inputs on the “touchsurface” of the Rogers device.



EX1006, Fig. 7A. Rogers also teaches that the graphical passcode entered by the user can be accompanied by visible indicators such as “an ‘X’ or target symbol.” EX1006, 8:1-5. As explained in the Petition, these disclosures from Rogers—combined with Rosenberg’s disclosures regarding a similar touchsurface that can display “icons” and other “graphical elements”—would have provided more than a sufficient basis to render obvious the elements of claim 5. Petition, 40-43.

PO also argues that the Petition lacks “an articulated reason for why different forms of input would require different images and text *during a registration process*.” POR 50. But the Petition, supported by Dr. Nielson’s declaration, explains that it would have been obvious to display an image and descriptive text during registration to confirm for the user the location and touch input type registered by the device (e.g., to confirm, in Figure 7A above, the location of each tap and to confirm that the tap was registered as a tip/pad input). EX1003, ¶¶ 134-38. By providing visual confirmation of the location and input method of each registration

input, the device would improve the accuracy of passcode registration and subsequent authentication. *Id.* PO does not address these arguments at all.

Thus, Rogers and Rosenberg render claim 5 obvious.

E. It Would Be Obvious to Combine Rogers and Rosenberg

PO does not dispute any of Petitioners' stated reasons for combining Rogers and Rosenberg so that the device of Rogers operates to register a graphical password using finger tip and finger pad inputs rather than finger tip and stylus inputs. EX1003, ¶¶ 86-91. Because this is the only element missing from Rogers' disclosures, PO effectively concedes that a POSITA would have been motivated to modify Rogers in view of Rosenberg as Petitioners described.

PO's sole challenge to the Rogers/Rosenberg combination appears to be that Rosenberg does not "disclose the two registering modes" of limitation [1f]. POR 45-48. Although Petitioners do not require that Rosenberg disclose the claimed first and second registering modes because Rogers already discloses them, PO's discussion of Rosenberg must be addressed.

PO's discussion reveals another reason to reject its proposed construction of "mode." PO argues that the "interaction modes" and "targeting modes" taught in Rosenberg—which discloses a device that is admittedly analogous to the '086 patent device—cannot, despite their names, be "modes" under PO's proposed construction because they do not reflect distinct "operational states." POR 46. PO, however, has

already conceded that Rosenberg's disclosures constitute "modes" at least as a general matter. POPR 27; Institution Decision, 31-32. PO's argument distinguishing Rosenberg therefore demonstrates that its proposed construction would exclude operational features that PO has already admitted to be "modes" in a similar device.

PO also criticizes Rosenberg because it "merely describes different outputs in response to different inputs discernable based on parameters of the inputs" (POR 47), apparently without realizing that the '086 patent does the same. By PO's own admission, the '086 patent registers a different password in response to different touch inputs (tip/pad) discernable based on the parameters of those inputs (i.e., the contact range of the touch input). POR 3-4; EX2005, ¶¶56-59. PO's attempt to distinguish Rosenberg only further confirms that its proposed "interpretation" of the first and second registering modes departs from the '086 patent specification.

V. GROUND 2: ROGERS, ROSENBERG, AND MIYAZAWA RENDER CLAIMS 9-14 OBVIOUS

PO relies solely on arguments made in Ground 1 to dispute the combination of Rogers, Rosenberg, and Miyazawa in Ground 2. Thus, PO's arguments fail for reasons already discussed. The challenged claims are invalid.

VI. GROUND 3: ROGERS AND REKIMOTO RENDER CLAIMS 1, 2, AND 4-7 OBVIOUS**A. Rogers Discloses or Renders Obvious Limitation [1e]**

PO relies solely on arguments made in Ground 1 to dispute Rogers' disclosure of the "second controller" of limitation [1e]. Thus, PO's arguments fail for reasons already discussed. Rogers discloses or renders obvious limitation [1e].

B. Rogers and Rekimoto Render Obvious Limitation [1f]

PO relies primarily on arguments made in Ground 1 to dispute Rogers' disclosure of the first and second registering modes of limitation [1f]. Thus, PO's arguments fail for reasons already discussed.

Regarding Rekimoto, PO concedes the obviousness of combining Rekimoto with Rogers to achieve a graphical passcode registration process that relies on finger tip and finger pad inputs. Combined with Rogers' disclosure of the other elements of [1f], this concession conclusively establishes the challenged claims' invalidity.

PO offers two additional criticisms of Rekimoto, both unavailing.

First, PO argues that Rekimoto's disclosed finger tip and finger pad input methods are not "modes" because "these inputs are not a state of the system such that the *same* input results in *different* responses." POR 53. This argument—based on PO's incorrect claim construction position regarding the first and second registering modes—is incorrect for the reasons discussed above.

Alternatively, even if PO's proposed construction of "modes" were adopted, Rekimoto's input methods would disclose limitation [1f] because they constitute "active" input modes—similar to pressing the shift key along with the touch input—according to the description provided by Dr. Wobbrock at deposition. EX1019, ¶ 50.

Second, PO reprises its "scalar quantity" argument when addressing Rekimoto, attempting to distinguish Rekimoto and the fact that it "maps different contact areas of different touch inputs to different functions." POR 53-54. But PO again overlooks that the '086 patent discloses an identical method for distinguishing finger pad and tip inputs. EX1001, 3:1-13, 4:44-50, 6:52-7:7. In the '086 patent, the disclosed device uses scalar quantities (e.g., contact area of the touch input as compared against a threshold value) to determine whether a finger tip input or finger pad input has been entered by the user during password registration. *Id.*, 6:52-7:7.

Thus, PO again demonstrates that its proposed construction of "modes" is inconsistent with the disclosures in the '086 patent itself. PO's arguments regarding Rekimoto fail for the same reasons.

C. Rogers and Rekimoto Render Obvious Claim 5

PO relies on the same arguments made in Ground 1 to dispute the obviousness of claim 5 in view of Rogers and Rekimoto. Thus, PO's arguments fail for reasons already discussed. Rogers and Rekimoto render obvious claim 5.

VII. GROUND 4: ROGERS, REKIMOTO, AND MIYAZAWA RENDER CLAIMS 9-14 OBVIOUS

PO relies solely on arguments made in Ground 3 to dispute the combination of Rogers, Rekimoto, and Miyazawa in Ground 4. Thus, PO's arguments fail for reasons already discussed. The challenged claims are invalid.

VIII. CONCLUSION

The Challenged Claims should be found unpatentable for the reasons set forth in the Petition and in the Board's Institution Decision.

Date: April 17, 2025

Respectfully submitted,

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), Petitioners certify that this Reply includes 5,445 words, as measured by Microsoft Word, exclusive of the table of contents, exhibit listing, and certificates of word count and service.

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CERTIFICATE OF SERVICE

The undersigned certifies pursuant to 37 C.F.R. §§ 42.6(e) and 42.105 that on April 17, 2025, a true and correct copy of the Petitioners' Reply to the Patent Owner Response was served by emailing a copy of same (by agreement) to the following attorneys for the Patent Owner:

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