

**IN 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

Case: IPR2024-00828

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

DECLARATION OF JACOB O. WOBBROCK, PH.D.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and/or imprisonment under Section 1001 of Title 18 of the United States Code, and such willful false statements may jeopardize the validity of the patent which is under review in this proceeding.

Dated: January 23, 2025

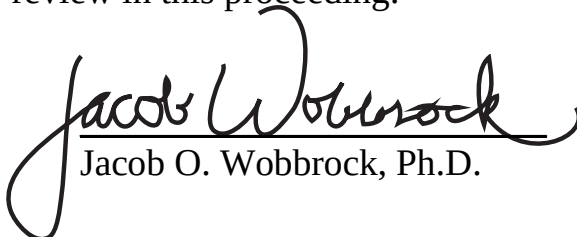

Jacob O. Wobbrock, Ph.D.

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I. INTRODUCTION

1. My name is Jacob O. Wobbrock, and I have prepared this declaration at the request of the Patent Owner, Maxell, Ltd. (“Maxell”). This declaration provides my opinions with respect to various aspects of the Petition filed by Petitioners relating to U.S. Patent No. 8,982,086 (“the ’086 Patent”).

2. Depending on new information learned, including positions taken by Petitioners or Petitioner’s expert, I reserve the right to supplement my opinions herein.

3. Although I am being compensated at my usual consulting rate of \$675 per hour for my time reviewing materials and preparing this declaration, my opinions expressed here are my own. My compensation is in no way dependent on the outcome of this case and I have no other financial interest in this matter or the parties thereto.

4. In forming my opinions, I have relied on my knowledge and experience as well as the documents and information referenced in this declaration.

II. BACKGROUND AND QUALIFICATIONS

5. My qualifications to testify about the ’086 Patent and the relevant technology are set forth in my curriculum vitae (“CV”), which I have attached here as Exhibit A. My CV includes a list of my peer-reviewed publications. It also includes the matters in which I have served as an expert witness.

6. I now summarize my qualifications to render opinions regarding the '086 Patent and technology therein in the following paragraphs.

7. Since 1995, I have studied, worked, taught, and conducted research in the fields of computer science and human-computer interaction ("HCI"). Specifically, I have worked on projects relating to the human use of interactive computing systems, including their design, construction, and scientific evaluation.

8. As a field, HCI focuses on the design, construction, and evaluation of interactive computing systems, and on the study of such systems' use by individuals, groups, and organizations. Of central importance is the term "interactive," which refers to computing technologies that people directly use and that create some kind of "user experience." Thus, the field of HCI encompasses topics like user interface design, usability engineering, rapid prototyping, user interface technology, interaction design, user research, interactive systems engineering, and the human factors of computing systems, among related topics. The popular notion of a "user friendly" interface comes from the field of HCI. Owing to the broad range of relevant phenomena within the purview of HCI, the field attracts not only computer scientists and engineers (like me), but also designers, psychologists, social scientists, and others interested in shaping or studying the individual or collective human experience of interactive technologies.

9. I earned my Bachelor of Science with Honors (“B.S.”) in Symbolic Systems and my Master of Science (“M.S.”) in Computer Science from Stanford University in 1998 and 2000, respectively. In both degrees, I had an official concentration in HCI. I earned my Ph.D. in Human-Computer Interaction from the HCI Institute in the School of Computer Science at Carnegie Mellon University in 2006. The HCI Institute at Carnegie Mellon is a pioneer in HCI research and education, and my doctoral degree was the first in the United States to be offered in HCI *per se*. Within my Ph.D. degree, I had an official concentration in Computer Science. Upon graduation, I received the Carnegie Mellon School of Computer Science Distinguished Dissertation Award. The award was given for my work on the EdgeWrite text entry system that I invented (U.S. Patent No. 7,729,542), which made text entry highly accurate on mobile touch screen devices and other input devices, especially for people with fine motor disabilities.

10. I have been on the faculty at the University of Washington (“UW”) in Seattle, WA since September 2006. I currently hold the rank of (full) Professor in The Information School, ranked #2 nationally by U.S. News and World Report, and (full) Adjunct Professor in the Paul G. Allen School of Computer Science & Engineering, ranked #7 nationally. For 2024-2025, the University of Washington

overall was ranked #7 in the world by U.S. News in its global university rankings,¹ just ahead of Columbia, Yale, and UCLA.

11. At UW, in addition to my official departmental appointments, I am a founding member of the cross-campus DUB Group. “DUB” stands for “design: use: build:”, and is a grassroots alliance of ~250 HCI professors, students, and industry affiliates at UW and in the Seattle region. The DUB Group is regarded as a premiere center for HCI research and education worldwide. Although there are no official rankings in HCI, *CSRankings.org* maintains rankings of various computing disciplines, including HCI, where the University of Washington is ranked #2 worldwide.²

12. It was out of the DUB Group that I co-founded the Master of Human-Computer Interaction and Design (“MHCI+D”) degree at UW, which I chaired from its inception in 2013 until 2016, and am chairing again from 2024 – 2027. For 2020 – 2023, I served on the Interdisciplinary Faculty Group overseeing the degree. The MHCI+D degree is an intensive one-year practitioner-oriented program that is jointly owned and administered by four separate departments across three separate colleges: The Information School (my unit), the Paul G. Allen School of Computer Science & Engineering (where I hold a courtesy appointment), the Department of

¹ See <https://www.usnews.com/education/best-global-universities/rankings>.

² See <http://csrankings.org/#/index?chi&world> for the top universities in human-computer interaction (HCI) worldwide, where the University of Washington is #2.

Human-Centered Design & Engineering, and the Division of Design. To the best of my knowledge, the MHCI+D degree is the first HCI degree at any university to be owned by four separate departments across three separate colleges, a challenging organizational feat but essential for interdisciplinary education in HCI.

13. I also founded and direct the ACE Lab, which stands for both “Accessible Computing Experiences” and “Advanced Computing Experiences” at UW. The lab incorporates students from Ph.D. programs in information science and computer science working on problems related to understanding and improving people’s interactions with computers and information, especially for people with disabilities. The lab has graduated seventeen (17) Ph.D. students and one (1) postdoctoral fellow to date, nine (9) of whom are currently professors at universities including Harvard, Brown, Toronto, Washington, and Cornell Tech. In addition, I currently advise ten (10) Ph.D. students in information science or computer science who are part of my lab.

14. Most recently, I co-founded the UW Center for Research and Education on Accessible Technology and Experiences (“CREATE”). This high-profile center brings together faculty and students from engineering, computing, information, rehabilitation medicine, and disability studies to tackle big problems in accessible technology. The center’s mission, which I authored, is “to make technology accessible, and to make the world accessible through technology.” It pursues this

mission through three primary activities: research, education, and translation. Center research focuses on cutting-edge problems in accessible technology. Center faculty also educate the next generation of technology designers, engineers, and managers to prioritize accessibility in their work. And center innovations are translated into practice via commercialization, nonprofits, licensing, open-sourcing, field deployments, and community partnerships, among other activities. The formation of CREATE was jointly announced by University of Washington President Ana Marie Cauce and Microsoft President Brad Smith in May 2020 after Microsoft gave an inaugural gift of \$2.5M to launch the center. It has since raised nearly \$10M to date, including a \$4.6M grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) program of the Administration for Community Living, U.S. Department of Health and Human Services.

15. I have co-authored over 200 scholarly publications, which currently have been cited 25,327 times, according to Google Scholar.³ From these publications, I have received thirty-three (33) paper awards, including seven (7) best paper winners (top 1% of submissions) and eight (8) honorable mention papers (top 5% of submissions) from the flagship HCI conference, the ACM Conference on Human Factors in Computing Systems, referred to as the “CHI conference” (pronounced “kai”). To the best of my knowledge, this number of CHI paper awards

³ See <https://scholar.google.com/citations?user=TmZ3howAAAAJ>.

is the most received by any member of the HCI community to-date, which numbers thousands of researchers and practitioners. The CHI conference draws about 4,000 attendees annually.

16. In October 2016, I was the Program Co-Chair for the ACM Symposium on User Interface Software and Technology, or “UIST” (pronounced “wist”). In October 2022, I was the General Co-Chair for the same. The UIST conference is the top conference and most prestigious venue for technical innovations in HCI. (The aforementioned CHI conference also publishes technical innovations, but UIST focuses exclusively on them.)

17. In May 2017, I was awarded the SIGCHI Social Impact Award, a major international award “for HCI research applied to pressing social needs.” The basis for the award was my work in accessible computing for people with disabilities, particularly my development of Ability-Based Design, a technology design approach that prioritizes human abilities and requires computing systems to better match those abilities through techniques like automatic user interface adaptation.

18. In May 2019, I was inducted into the prestigious CHI Academy, the international academy of researchers and practitioners in HCI who have made significant contributions to the field. Five (5) to ten (10) people have been inducted each year since 2000, including luminaries from the early days of interactive computing, computer graphics, and human factors. Having received my Ph.D. in

2006, I was one of the youngest inductees into this esteemed group, as measured by time-since-degree.

19. In October 2019, I received the SIGACCESS ASSETS Paper Impact Award, which is an award given every-other-year to one paper 10 or more years after its publication. My paper, published in 2008, was on Slide Rule, a system I co-invented that demonstrated the first finger-driven screen reader for mobile touch screen devices, like the iPod Touch and iPhone 1. Slide Rule exhibited gestures that blind people could use to control a screen reader and select interface elements (e.g., buttons, links, menus, etc.) without lifting their finger. A few years after Slide Rule's publication, an Apple engineer indicated that it had been influential in Apple's design of its VoiceOver accessibility software, which ships on every Apple smartphone and tablet today. (Android devices have a similar feature called TalkBack.)

20. In November 2022, I received my second 10-year lasting-impact award, this time from ACM's International Conference on Multimodal Interfaces ("ICMI"). The award was for the \$P gesture recognizer, which was published in 2012. The \$P gesture recognizer conceived of gestures as "point clouds" and performed a matching algorithm to enable highly accurate gesture recognition with minimal lines of code. \$P was quickly adopted into numerous academic and commercial projects, and helped popularize gesture input as a widespread input modality.

21. In October 2024, I received my third 10-year lasting impact award, this time from ACM’s Symposium on User Interface Software and Technology (the aforementioned “UIST” conference). The award was for the \$1 gesture recognizer, which I published in 2007. The \$1 recognizer was a simple geometric and trigonometric template-matching algorithm that required far fewer training examples than existing statistical gesture classifiers. \$1 made it easy for designers and developers to incorporate gestures into their prototypes, just when touch devices were becoming more mainstream. It was quickly adopted by researchers and industry practitioners alike, and is still widely used today.

22. In January 2022, I received my highest honor to date, being named a 2021 ACM Fellow “for contributions to human-computer interaction and accessible computing.”⁴ ACM Fellows represent the top 1% of computing professionals worldwide, and must be nominated by at least five (5) existing Fellows. Unsuccessful nominees must wait a period of three (3) years before being nominated again, so only the most competitive nominees are put forward. This prestigious recognition is conferred each year at a black-tie banquet in San Francisco where the A.M. Turing Award is given—the equivalent of the Nobel Prize in computing.

23. From 2012 – 2022, I served as an Associate Editor for *ACM Transactions on Computer-Human Interaction*, a top journal in the HCI field.

⁴ See <https://www.acm.org/media-center/2022/january/fellows-2021>.

Previously, I was an Associate Editor of *Foundations and Trends in Human-Computer Interaction*, the *International Journal of Human-Computer Studies*, and *Advances in Human-Computer Interaction*. I have also peer-reviewed countless journal and conference submissions for the most prestigious publication venues in the field.

24. Within the field of HCI, my overarching research interests involve scientifically understanding people's experiences with interactive technologies, and improving those experiences by designing, building, and evaluating new interactive techniques and systems. My specific research topics include text entry, pointing, touch, and gesture; human performance measurement and modeling; HCI research and design methods; virtual reality; mobile devices; and accessible computing. My work blends computer science, interaction design, and experimental psychology. Several of my research projects have been devoted to inventing or improving user interfaces to make computers, including touch screen devices, easier to use for people with disabilities, particularly people with motor impairments (e.g., due to spinal cord injury) or sensory impairments (e.g., blindness).

25. Besides Slide Rule, other influential projects that I have conducted include: a family of easy-to-implement gesture recognizers that have come to be known as the "\$-family" recognizers, of which the aforementioned \$1 and \$P are two; a popular gesture design methodology called "end-user elicitation" that has

been replicated over 300 times in the literature (and cited over 1600 times), and used by Microsoft to design gestures for their products; classification algorithms for improving typing on adaptive tabletop and mobile touch screen keyboards; and a method for sensing touch-based force without using actual force sensors. Touch input and touch devices have been an important focus of my research. In fact, twenty-eight (28) of my publications contain the term “touch” in their titles. Relatedly, twenty-five (25) of my publications contain the term “gesture” in their titles. And thirty-one (31) of my publications contain the term “mobile” in their titles.

26. My work and views have been covered in The New York Times, The Washington Post, The Seattle Times, The Pittsburgh Post-Gazette, The Huffington Post, The Guardian, Der Spiegel, M.I.T. Technology Review, PC World, Self Magazine, USA Today, and other popular press outlets.

27. I have received several competitive federal research grants to support my work, including a National Science Foundation CAREER award and seven (7) other National Science Foundation grants. I have also received research support for my lab from Microsoft, Intel, Baidu, Facebook, Adobe, Toyota, and Google. All federal grants and any industry support that I have received are listed on my CV.

28. I am the co-inventor of nineteen (19) issued U.S. Patents and six (6) U.S. Patent Applications that are generally directed to user interfaces, information

delivery and display, input and interaction techniques and devices, touch gestures, gesture recognition, mobile devices, touch screens and devices, interactive surfaces, and computer accessibility.

29. Along with being a full-time professor, I have also been an entrepreneur. From September 2012 to May 2015, I was the founding President & C.E.O. of AnswerDash, Inc., a venture capital-funded startup that provided context-sensitive help on websites and mobile apps. I co-founded AnswerDash with another professor and a graduate student from the University of Washington based on our joint research. During my ~3 years as AnswerDash's C.E.O., I raised over \$2.5M in venture capital, recruited a top-notch team, set the vision and priorities for the company, oversaw product development, set pricing, drove initial sales, and spoke and wrote about customer self-service technology. I also served as Chairman of the Board. In May 2015, I stepped down as C.E.O. to transition back to full-time academia by December 2015, at which point I became advisory to the company as AnswerDash's Chief Experience Officer (C.X.O.) and a Board Observer. In June 2020, AnswerDash was acquired by CloudEngage, Inc., a company headquartered in Spokane, WA.

30. Prior to co-founding AnswerDash, I worked in various industry roles related to the design, construction, and evaluation of computer user interfaces. These roles included both in-house and consulting positions at Silicon Valley startups, and

internships and consulting positions at tech giants like Intel (1997, 1999), Google (2001), and Microsoft (2003, 2008).

III. UNDERSTANDING OF LEGAL STANDARDS

31. I am not a lawyer and am not offering any opinions regarding legal matters. However, I have been informed about legal standards of patent law, which I have used in developing my opinions expressed herein.

32. I understand that a patent may include two types of claims: independent claims and dependent claims. An independent claim stands alone and includes only the limitations it recites. A dependent claim can depend from an independent claim or another dependent claim and includes all the limitations that it recites in addition to all of the limitations recited in the claim or claims from which it depends.

A. Obviousness

33. I understand that a patent claim can be invalid under 35 U.S.C. § 103 if the claimed subject matter would have been “obvious” to a person of ordinary skill in the art as of the priority date of the patent based upon one or more prior art references. I understand that an obviousness analysis should consider each of the following so-called “*Graham* factors”: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the pertinent art; and (4) secondary considerations, if any (such as unexpected

results, commercial success, long felt but unsolved needs, failure of others, copying by others, licensing, and skepticism of experts).

34. I understand that a conclusion of obviousness may be based upon either a single prior art reference or a combination of prior art references, particularly if the combination of elements does no more than yield predictable results. However, I understand that merely demonstrating that each of the claim elements was, independently, known in the prior art does not prove that a patent composed of several claim elements is obvious.

35. Moreover, I understand that it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in a way the claimed new invention does.

36. I further understand that, to determine obviousness, courts look to the interrelated teachings of multiple patents or other prior art references, the effects of demands known to the design community or present in the marketplace, and the background knowledge possessed by a person having ordinary skill in the art.

37. I also understand that, in determining whether a combination of prior art references renders a claim obvious, it may be helpful to consider whether there is some teaching, suggestion, or motivation to combine the references and a reasonable expectation of success in doing so. I understand, however, that the

teaching, suggestion, or motivation to combine inquiry is not required and may not be relied upon in lieu of the obviousness analysis outlined above.

38. I understand that the following exemplary rationales may lead to a conclusion of obviousness: the combination of prior art elements according to known methods to yield predictable results; the substitution of one known element for another to obtain predictable results; and the use of known techniques to improve similar devices in the same way.

39. However, a claim is not obvious if the improvement is more than the predictable use of prior art elements according to their established functions. Similarly, a claim is not obvious if the application of a known technique is beyond the level of ordinary skill in the art.

40. Further, when the prior art teaches away from combining certain known elements, discovery of successful means of combining them is not obvious. I understand that similar subject matter may not be sufficient motivation for a person of skill in the art to combine references if the references have conflicting elements.

41. I understand that, in order to be used in an obviousness combination, a prior art reference must be “analogous.” I understand that a prior art reference may be analogous if it is in the same field of endeavor as the other references with which it is combined, or if the reference is reasonably pertinent to solving the problems the inventors of the patent-at-issue sought to solve.

42. I understand that obviousness of a patent claim cannot properly be established through hindsight, and that elements from different prior art references, or different embodiments of a single prior art reference, cannot be selected to create the claimed invention using the invention itself as a roadmap. I understand that the claimed invention as a whole must be compared to the prior art as a whole, and courts must avoid aggregating pieces of prior art through hindsight that would not have been combined absent the inventor's insight.

43. I understand that obviousness is not established by simply combining previously known elements from the prior art. A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. An invention is unpatentable as obvious if the differences between the patented subject matter and the prior art would have been obvious at the time of invention to a person of ordinary skill in the art.

44. I understand that obviousness of a patent cannot properly be established by mere conclusory statements. Instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. When an expert opines that all the elements of a claim disparately exist in the prior art, the expert should provide the rationale to combine the disparate references. A reason for combining disparate prior art references is a critical component of an obviousness analysis. The obviousness analysis should be made explicit and needs

to provide an articulated reasoning with some rational underpinning to identify the reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.

45. I also understand that inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known. This is another reason why merely pointing to the elements being known in the art in separate locations is not the end of the obviousness inquiry.

46. I understand that technical experts may testify to matters like the level of skill in the art at the time of the invention and what a skilled artisan might find obvious in light of the prior art without addressing objective indicia of non-obviousness. However, where an expert purports to testify not just to certain factual components underlying the obviousness inquiry, but to the ultimate question of obviousness, the expert must consider all factors relevant to that ultimate question, including all objective evidence of nonobviousness.

B. Claim Construction

47. I understand that the claim construction exercise begins with the language of the claims themselves, and that the general rule is that claim terms are given their plain and ordinary meaning to a person of ordinary skill in the art, in view of the specification of the patent, at the time of the invention. I also understand that

the intrinsic evidence (*i.e.*, the claims, the written description including the figures, and prosecution history) are the primary sources used in interpreting claim language.

48. I understand that if disputed claim language is clear on its face, the intrinsic evidence should be consulted to determine whether some deviation from the ordinary meaning of the claim language is warranted.

49. When the disputed claim language is not clear on its face, I understand that the intrinsic evidence should be used to resolve, if possible, any lack of clarity. I also understand that the specification is the best evidence of what the patentee intended the term to mean when there is no clear meaning of a claim term, and that the prosecution history may also shed light on the meaning of ambiguous terms. However, I understand that it is improper to import limitations from the specification into a patent claim through claim construction.

50. I have been informed that sometimes the ordinary meaning of claim language as understood by a person of ordinary skill in the art may be readily apparent even to lay persons. I understand that claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.

IV. METHODOLOGY AND MATERIALS CONSIDERED

51. I have relied upon my education, knowledge, and experience, as well as other materials discussed in this declaration in forming my opinions.

52. For this declaration, I have been asked to review the '086 Patent including the specification and the claims, and the '086 Patent's prosecution history (file history) including the prosecution history for the reexamination of the '086 Patent. In developing my opinions related to the '086 Patent, I have considered the materials cited herein, including those items listed in the Exhibit Table below.

Description	Exhibit #
U.S. Patent No. 8,982,086	1001
File History of U.S. Pat. No. 8,982,086	1002
Declaration of Seth James Nielson, Ph.D.	1003
Reexamination File History of U.S. Patent No. 8,982,086	1004
Reissue File History of U.S. Patent No. 8,654,093	1005
U.S. Patent No. 8,683,582 ("Rogers")	1006
U.S. Patent Publication No. 2007/0097096 ("Rosenberg")	1007
U.S. Patent No. 8,633,909 ("Miyazawa")	1008
U.S. Patent No. 7,877,707 ("Westerman")	1009
U.S. Patent No. 8,477,115 ("Rekimoto")	1010
U.S. Patent No. RE48,830 ("RE48,830")	1011
2024.06.18 [072] FIRST AMENDED DOCKET CONTROL ORDER	2001
2024.01.12 [045] Docket Control Order	2002
2024.06.20 - Maxell's Supplemental Preliminary Election of Asserted Claims	2003
2024.06.27 Samsung Defendants' Preliminary Election of Prior Art	2004
Handbook of Fingerprint Recognition (2nd ed.)	2006
Claim Construction Order	2007
Valdes-Perez, F.E. and Pallas-Areny, R. (2009) <i>Microcontrollers: Fundamentals and Applications with PIC</i> . Boca Raton, FL: CRC Press	2008
Deposition Transcript of Seth James Nielson, Ph.D. (January 15, 2025)	2009

Excerpts from Human-Computer Interaction, 3rd Ed., Dix et al. (2004)	2010
Definition of “mode” from PCMag (https://www.pcmag.com/encyclopedia/term/mode)	2011
McGraw-Hill Dictionary of Scientific and Technical Terms, 6th ed. (2003)	2012
Excerpts from the Deposition Transcript of Seth James Nielson, Ph.D. (December 20, 2024)	2013

V. BACKGROUND OF THE TECHNOLOGY OF THE '086 PATENT

A. Background of the '086 Patent

53. Before discussing my specific opinions on validity, I will first review the '086 Patent's disclosures as they would have been viewed by a person of ordinary skill in the art. My discussion describes only certain examples of the inventions discussed in the '086 Patent, and my description here is in no way meant to suggest that the claimed inventions are limited to these examples. The inventions are limited only by the claims.

54. The '086 Patent is entitled “Information Processing Apparatus”; it was filed on January 14, 2014 and issued on March 17, 2015 to inventor Masaaki Yamada. The patent claims priority to U.S. Patent Application No. 13/366,983 and Japanese patent application JP 2011-025576, filed February 9, 2011. I have been instructed by counsel for Maxell to use February 9, 2011 as the priority date for the '086 Patent, and have done so for all my analyses herein. The '086 Patent issued on March 17, 2015. The following certificate of correction issued on May 28, 2019.

Maxell, Ltd.

Ex. 2005

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,982,086 B2
APPLICATION NO. : 14/154993
DATED : March 17, 2015
INVENTOR(S) : Masaaki Yamada

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

At Column 8, Claim 1, Line 17, delete "registering" and insert --identification--.

At Column 9, Claim 4, Line 2, delete "specific" and insert --specified--.

55. Additionally, a Reexamination Certificate issued to the '086 Patent on September 28, 2021. The Reexamination Certificate confirmed the patentability of claims 1-4 of the '086 Patent as well as added new claims 5-15. The following certificate of correction issued on January 4, 2022.

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,982,086 C1
APPLICATION NO. : 90/014638
DATED : September 28, 2021
INVENTOR(S) : Masaaki Yamada

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

In the EX PARTE REEXAMINATION CERTIFICATE:

Column 2, Line 2 (Claim 10):

After "*the*", insert --*first*--.

Column 2, Line 6 (Claim 11):

After "*the*", insert --*first*--.

Column 2, Line 7 (Claim 11):

Delete "*include*", and insert --*correspond to*--.

Column 2, Line 12 (Claim 12):

After "*the*", insert --*first*--.

Column 2, Line 13 (Claim 12):

Delete "*include*", and insert --*correspond to*--.

Column 2, Line 15 (Claim 12):

After "*the*", insert --*first*--.

Column 2, Line 16 (Claim 12):

Delete "*include*", and insert --*correspond to*--.

Column 2, Line 21 (Claim 13):

After "*the*", insert --*first*--.

Column 2, Line 22 (Claim 13):

Delete "*include*", and insert --*correspond to*--.

CERTIFICATE OF CORRECTION (continued)

Page 2 of 2

U.S. Pat. No. 8,982,086 C1

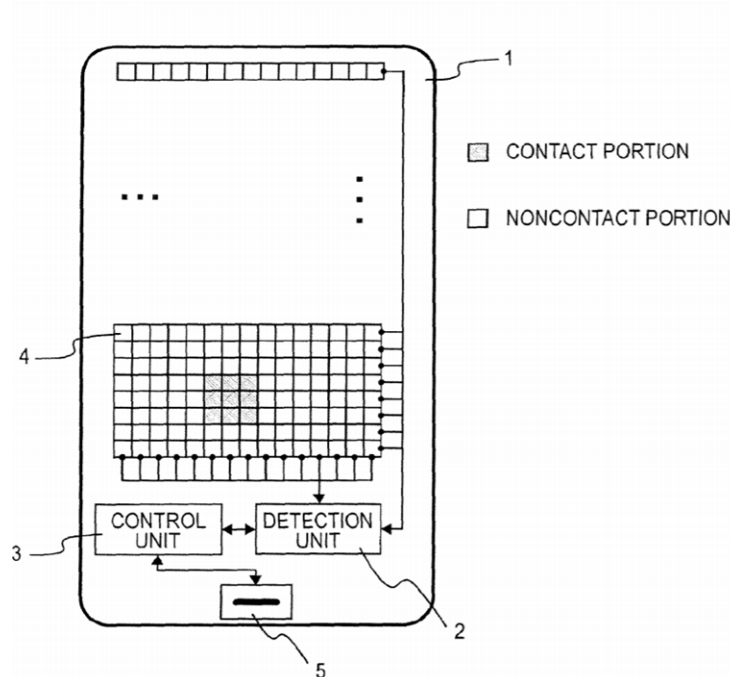
Column 2, Line 25 (Claim 13):

After "*the*", insert --*first*--.

Column 2, Line 26 (Claim 13):

Delete "*include*", and insert --*correspond to*--.

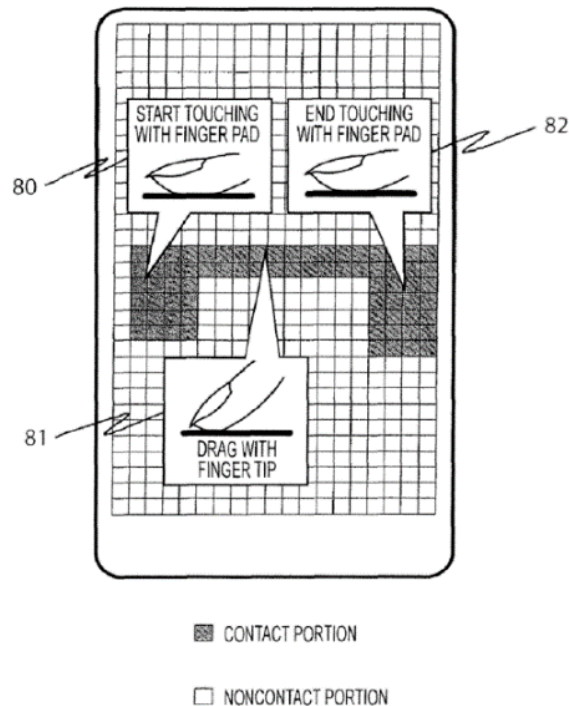
56. The '086 Patent discloses a “portable terminal” to enable various operations including tapping, dragging, flicking, pinching, and unlocking based on different types of input provided to the touch interface of the portable terminal. EX1001, 3:39-49. For example, as shown in Figure 2, the touch panel in the portable terminal “includes a group of sensors or a sensor” and “when the user’s finger contacts with the touch panel, capacitance of the sensor 4 changes and the sensor 4 outputs a signal according to the change.” EX1001, 3:17-20.



EX1001, FIG. 2.

57. Embodiments of the '086 Patent describe both the location and type of touch input being used by the portable terminal to allow for enhanced security and an improved user experience. As shown below in Figure 8 of the '086 Patent, the

device is able to distinguish inputs entered by different regions of the finger (*e.g.*, finger tip/end or finger pad):



EX1001, FIG. 8,

58. The portable terminal distinguishes between input methods provided by different regions of the finger. For example, a fingertip input has “an area of contact . . . between the finger of the user and the touch panel 1 [that] is small,” whereas finger pad input “is characterized in that the contact range of the finger and the touch panel 1 is wider than that of the finger tip input.” EX1001, 3:3-12. Further, a plurality of operations can be assigned to sequences of finger input methods:

DIGIT		1	2	3	4	OPERATION
PASSWORD		0	5	2	8	—
INPUT METHOD	1	FINGER TIP	FINGER PAD	FINGER PAD	FINGER PAD	WAITING SCREEN
	2	FINGER TIP	FINGER TIP	FINGER TIP	FINGER TIP	MAIL CREATING SCREEN
	3	FINGER PAD	FINGER TIP	FINGER PAD	FINGER TIP	APPLICATION STARTING

EX1001, FIG. 12B.

59. “For example, in the case shown in Figure 12B, three types of input methods are registered for one password and a specific operation is assigned for each of them: input method 1 is for displaying a normal standby screen, input method 2 is for displaying a mail creating screen, and input method 3 is for starting an application.” EX1001, 7:42-44. Using a group of capacitive sensors to distinguish between types of input entered by a user’s finger enables the portable terminal to execute a variety of operations that are associated with different types of inputs. *Id.* An example of such inputs includes an “enhanced security function that incorporates a four-digit password and a difference in the contact range” with respect to the capacitive sensors in the portable terminal being touched by different portions of the user’s finger. *Id.*, 6:16-35. The portable terminals “can thus handle user’s highly confidential information” and the “burden[] on the user for memorization can thus be alleviated.” *Id.*, 7:50-60.

B. Prosecution History of the '086 Patent

60. On May 9, 2014, the examiner issued a non-final office action rejecting the single filed claim for statutory type double-patenting:

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the claims that are directed to the same invention so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 1 is rejected upon statutory double patenting grounds for being a duplicate claim of claim 1 of patent number US: 8,654,093.

See EX1002 at 108.

61. Although he made the double patenting rejection, the examiner explained the allowable subject matter in relation to the Sakurai reference as follows:

Allowable Subject Matter

2. Claim 1 would be allowed if the double patenting rejection is overcome.

The following is an examiner's statement of reasons for allowance: The best prior art of record, i.e. SAKURAI et al (Publication number: 2005/0162407) do not specifically show the limitations of "a storage unit which stores reference identification information and a reference area range; a determination unit which determines whether the identification information detected by the detection unit matches the reference identification information stored in the storage unit and whether the area of the contact detected by the detection unit falls within the reference area range stored in the storage unit; and a control unit which performs particular processing on condition the determination unit determines that the identification information detected by the detection unit matches the reference identification information stored".

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

See EX1002 at 109.

62. The examiner also considered the full prosecution history of U.S. Patent No. 8,654,093, the parent patent to the '086 Patent:

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
M. F.	1	Entire Prosecution of US Application No. 13/366,983 to YAMADA entitled "INFORMATION PROCESSING APPARATUS" Filed 02/06/2012	☐
If you wish to add additional non-patent literature document citation information please click the Add button Add			
EXAMINER SIGNATURE			
Examiner Signature	/Michael Faragalla/		Date Considered 03/09/2014

See EX1002 at 114.

63. In response, the applicant canceled the then-pending claim and added four new claims (reproduced claim 8 below issued as claim 1) and provided argument responding to the examiner's office action as follows:

8. (New) An information processing apparatus comprising:

- a touch panel configured to detect a contact of a finger of a user;
- 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;
- 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;
- memory that is configured to store second information relating to the identification of the user, which is stored in advance; and
- a second controller configured to execute a specified process when said first information and said second information are coincident within said registering mode, wherein:
 - 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.

REMARKS

Applicants have carefully considered the May 9, 2014 Office Action, and the amendments above together with the comments that follow are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Claim 1 was pending in this application at the time of the mailing of the Office Action.

In response to the Office Action dated May 9, 2014, claim 1 has been canceled and new claims 8-11 have been added. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure as, for example, the depicted embodiments and related discussion thereof in the written description of the specification. Applicants submit that the present Amendment does not generate any new matter issue. Entry of the present Amendment is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Entry of various comments regarding the claims and/or the art, in the Office Action, should not be construed as any acquiescence or agreement by Applicants with the stated reasoning, regardless of whether or not these remarks specifically address any particular comment from the Office Action.

Claim 1 was rejected under statutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 8,654,093. Applicants have cancelled claim 1 thereby rendering the double patenting rejection moot.

Favorable consideration of newly added claims 8-11 is respectfully requested. The present subject matter, which is defined in new claim 8 differs from the Claim 1 of the parent patent (U.S.

Patent No. 8,654,093), in particular, in an aspect of conducting the registration and the identification with applying only the information of the finger.

Further, the claimed subject matter differs from the reference of record, Sakurai et al. (US Patent Pub. No. 2005/0162407), in particular, at least in an aspect that the subject matter comprises the followings: i.e., the memory and the first and the second controllers.

See EX1002 at 99-102.

64. In response, the examiner allowed the claims with then claim 8 (issued claim 1) having the first and second controller limitations, highlighting the applicant's arguments on page 5 of its response as the basis for his reasons for allowance:

Allowable Subject Matter

1. Claims 8-11 are allowed.
2. The following is an examiner's statement of reasons for allowance: Please see applicant's arguments submitted on 08/08/2014; page 5.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

See EX1002 at 52.

65. I note that nowhere in the examiner’s non-final rejection, notice of allowance, or reasons for allowance—and this is the same examiner (Mr. Michael Faragalla) that reviewed and allowed the parent application that matured into U.S. Patent No. 8,654,093—did the examiner comment on or conclude that the ’086 Patent’s claims were invalid for lack of written description or were indefinite under 35 U.S.C. § 112.

C. A POSITA Would Understand that the ’086 Patent Discloses a Structure that Could Be Used to Recognize Fingerprints

66. Petitioners proposed claim constructions that would exclude fingerprint information (Pet. at 6-9) and allege that “[t]he term ‘fingerprint’ does not appear in any claim of RE48,830.” Pet. at 6. However, the ’086 Patent discloses structure that a POSITA at the time of the invention would recognize as capable of detecting fingerprints.

67. At the time of the invention, there were two primary technologies used in fingerprint detection: optical sensors and solid state silicon-based sensors, the most common of which were capacitive sensors. A capacitive sensing grid is one technology employed by capacitive sensing methods. Such grids are indeed disclosed in the ’086 Patent’s specification. For example, Figures 2, 5A, 5B, 6A, 6B, and 8 all disclose such grids such that “[w]hen the user's finger contacts with the touch panel, capacitance of the sensor 4 changes and the sensor 4 outputs a signal according to the change.” EX1001, 3:17-20.

68. A capacitive sensing grid is capable of detecting fingerprint information, including but not limited to the presence of a fingerprint. When the ridges of a user's fingerprint come into contact with capacitive sensors, they change the capacitance of those sensors as a result. By contrast, a fingerprint's valleys between ridges do not contact the capacitive sensors, leaving the capacitance in those areas unchanged or changed less. This is the key principle behind the operation of a capacitive fingerprint sensor. Consistent with this principle, the '086 Patent specifically discloses a capacitive sensor that "outputs a signal" according to the detection of a change in capacitance based on contact by a user's finger. EX1001, 3:17-20, 3:30-35, 5:4-6.

69. These opinions are supported by, for example, the *Handbook of Fingerprint Recognition (2nd ed.)* (hereinafter, "the Handbook") (EX2006). There is disclosure in the Handbook that makes it clear that a POSITA at the time of the invention would understand that capacitive sensors of the kind disclosed in the '086 Patent would be capable of detecting a fingerprint. For example, as excerpted below, the Handbook describes capacitive sensors for detecting fingerprints:

needed. Four main technologies have been proposed to convert the fingerprint pattern into electrical signals: capacitive, thermal, electric field, and piezoelectric.

- *Capacitive*: this is the most common method used today within the silicon-based sensor arena (Tsikos (1982); Edwards (1984); Knapp (1994); Inglis et al. (1998); Setlak (1999); Lee et al. (1999); Dickinson et al. (2000); Morimura, Shigematsu, and Machida (2000); Hashido et al. (2003)). A capacitive sensor is a two-dimensional array of micro-capacitor plates embedded in a chip (see Figure 2.10).

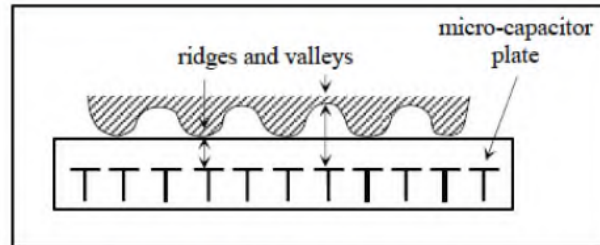


Figure 2.10. Capacitive sensing.

The other plate of each micro-capacitor is the finger skin itself. Small electrical charges are created between the surface of the finger and each of the silicon plates when a finger is placed on the chip. The magnitude of these electrical charges depends on the distance between the fingerprint surface and the capacitance plates (Tartagni and Guerrieri, 1998). Thus fingerprint ridges and valleys result in different capacitance patterns across the plates. An accurate capacitance measurement is quite

See EX2006 (Handbook, p. 67) (highlights added).

70. The '086 Patent discloses identification information in the context of letters, figures, and symbols. See EX1001, Abstract, 1:44-48, 7:66-67.

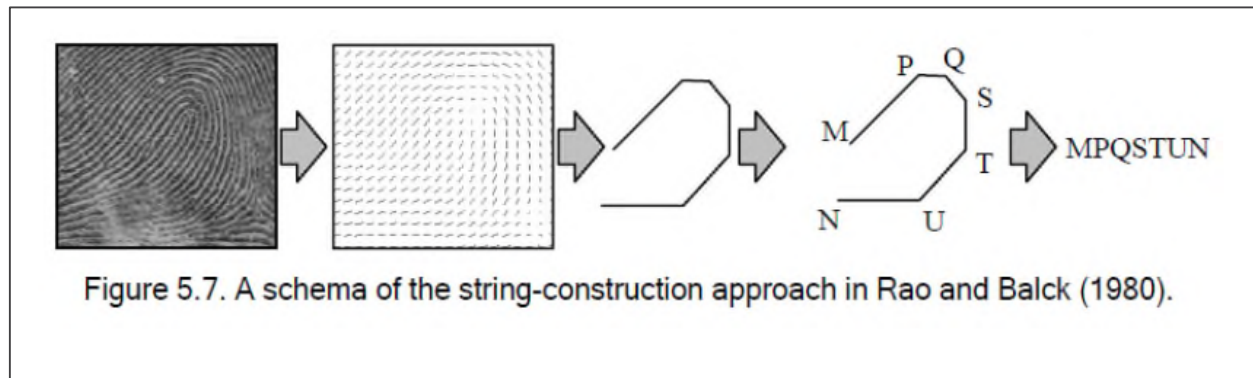
71. Identification information from a fingerprint can be and has been, in fact, encoded in letters, figures, or symbols. When fingerprint information is extracted from a capacitive sensing grid, such as that shown in Figure 2 of the '086 Patent, it is encoded in symbolic form. For example, the Handbook offers this example of a “syntactic approach” to fingerprint representation, saying, “A syntactic method describes patterns by means of *terminal symbols*...” (EX2006, p. 244,

Maxell, Ltd.

Ex. 2005

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emphasis added.) A diagram is offered that clearly shows “letters, figures, and symbols” as fingerprint information:



EX2006 (Handbook, p. 245).

72. The Handbook also describes comparing a fingerprint **I** to a fingerprint **T** by treating them each as symbolic strings, further showing that fingerprint information can be represented as letters, figures, or symbols:

1. Each minutia in **T** and **I** is converted to a polar coordinate system with respect to the reference minutia in its set (the reference minutia is the one associated with the ridge selected during pre-alignment).
 2. Both **T** and **I** are transformed into symbolic strings by concatenating each minutia in the increasing order of radial angle.
- The two strings are matched with a dynamic programming technique (Cormen, Leiserson, and Rivest, 1990) to find their *edit distance*. The edit distance between two strings is the minimum cost of transformations (symbol insertion, symbol deletion, symbol exchange) necessary to make the two strings coincident (Bunke, 1993). Matching minutiae representations by their edit distance tolerates missing and spurious minutiae as these are dealt with as symbol insertion and deletion. Radial and angular minutiae errors are handled by defining the cost of sym-

EX2006 (Handbook, p. 191) (highlights added).

73. Thus, reading the specification of the '086 Patent, a POSITA would not limit the disclosed “letters, figures, and symbols” (EX1001, Abstract, 1:44-48, 7:66-67) corresponding to “identification information” (EX1001, Abstract, 1:44-62) to

information not including fingerprint information. In fact, within the context of the specification, a POSITA would understand fingerprint information to be an example of such letters, figures, and symbols as reflected by the examples above.

74. Moreover, the first and second information of the '086 Patent *must* inherently contain information about a user's fingerprint. Any contrary reading of the '086 Patent would have to exclude even the change in capacitance caused by a user's touch, a concept that is explicitly disclosed in the '086 Patent. EX1001, at 3:17-20, 3:30-35, and 5:4-6. As I explained above, when the ridges of a fingerprint come into contact with capacitive sensors, they change the capacitance on those sensors as a result. By contrast, the valleys between ridges fail to contact the capacitive sensors, leaving the capacitance in those areas unchanged or changed less. Therefore, information about a user's fingerprint is inherently present in the capacitance readings from the user's touch.

75. Thus, the inventors of the '086 Patent clearly disclosed capacitive sensors that a POSITA would understand as sufficient structure for detecting fingerprints.

D. Level of Ordinary Skill in the Art

76. I understand that patent claims are to be interpreted from the viewpoint of one of ordinary skill in the relevant art. To determine the level of skill that would be "ordinary," I understand that a person of ordinary skill must generally have the

capability of understanding the general principles that are applicable to the pertinent art. In the case of the '086 Patent, the relevant field of art for the '086 Patent is computing devices with touch interfaces.

77. For the '086 Patent, a person of ordinary skill in the art at the time the first priority application to the '086 Patent was filed (on or around February 9, 2011) would have at least a Bachelor's degree in electrical engineering, computer engineering, computer science, or a related field, with at least one to two years of experience in the field of computing devices with touch interfaces. Additional education or experience might substitute for the above requirements.

78. I at least met this definition of a person of ordinary skill in the art at the time of the inventions of the '086 Patent (no later than February 2011).

E. Claims of the '086 Patent At Issue

79. I understand that the following claims of the '086 Patent are at issue:

'086 Patent Claim Element Number	Claim Text
[1pre]	1. 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;

'086 Patent Claim Element Number	Claim Text
[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 a first descriptive text associated with the first registering mode and a second descriptive text associated with the second registering mode.
[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.

'086 Patent Claim Element Number	Claim Text
[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.
[12.a]	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
[12.b]	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 two established two contacts.
[13.a]	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 their finger while maintaining contact for a first time period, and
[13.b]	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.
[14]	The information processing apparatus according to claim 1, wherein the touch panel comprises a display screen displaying a plurality of icons corresponding to application being executed on the information processing apparatus, and the information processing apparatus is configured to execute

'086 Patent Claim Element Number	Claim Text
	an operation that requires contact by a finger for a predetermined period of time.

VI. CLAIM CONSTRUCTION FOR THE '086 PATENT

80. For any terms not specifically construed, I have applied the ordinary and customary meaning that these terms would have had to a person of ordinary skill in the art at the time of the invention (around February 2011) in view of the patent's specification. In other words, I have interpreted the remaining terms in accordance with the "plain and ordinary" meaning

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

81. I understand that Petitioners proposed that two terms—"first information necessary for identification of the user" and "second information relating to the identification of the user"—should both exclude "information about a user's fingerprint." Petition at 7, 8. Petitioners' arguments were based on an assertion that prosecution disclaimer applied. *See id.* However, in the related District Court Litigation, the court there found that disclaimer did not apply, and that the terms should be given their plain and ordinary meanings. EX2007 at 26-27. Accordingly, for consistency with the concurrent litigation, including my opinions

offered therein and those expressed above in Section V.C, I submit that the first and second information terms should be given their plain and ordinary meaning.

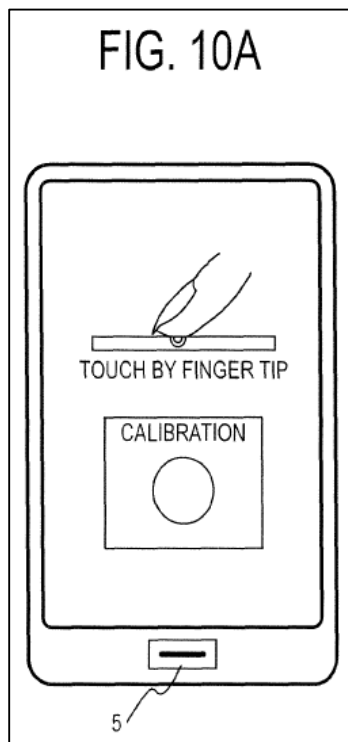
B. “first registering mode for inputting input information by a pad of the finger” and “second registering mode for inputting input information by an end of the finger”

82. Due to the Petitioners’ inconsistent and incorrect understanding of these claim terms (as I describe throughout this declaration), I submit that the term “first registering mode for inputting input information by a pad of the finger” as appearing in the claims would be understood by a POSITA as “a first operational state for registering in which information is input by a pad of the finger.” Likewise, the term “second registering mode for inputting input information by an end of the finger” as appearing in the claims would be understood by a POSITA as “a second operational state for registering in which information is input by an end of the finger, the first registering mode and the second registering mode being different operational states.”

83. This consistent application of what a mode is applies to the terms “identification mode” (element [1c]), “registering mode” (element [1c]), “first registering mode” (element [1f]), and “second registering mode” (element [1f]), as well as Claims 5 and 7. The claims of the ’086 Patent explicitly refer to identification mode and registering mode as “two operating modes.” EX1001, 8:43-46 (claim 1). Therefore, where the claims describe that the first and second registering modes “are

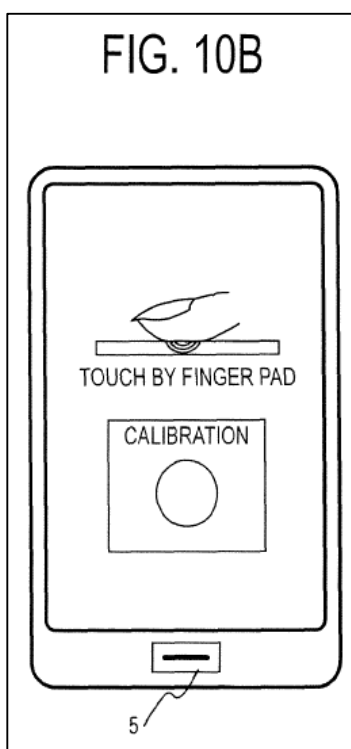
provided” “in said registering mode” (EX1001, 8:54 (claim 1)), the first and second registering modes are also operating modes of the system.

84. Furthermore, the specification of the '086 Patent supports this understanding. In describing the “process for password registration,” *i.e.*, the claimed “registering mode,” the specification also describes steps in the registering process. See EX1001, 6:28-36. For example, referring to Figures 10A and 10B, the specification discloses that in the registering mode, an image “is displayed to prompt the user to make a finger tip contact” and “control unit 3 records the contact range of the finger tip input.” EX1001, 6:31-33; FIG. 10A. This disclosure is an example of the claimed second registering mode or “a second operational state for registering in which information is input by an end of the finger.”



EX,1001 FIG. 10A.

85. As an example of the claimed first registering mode, in the registering mode, an image is “displayed to prompt the user to make a finger pad contact” and “control unit 3 records the contact range of the finger pad input.” Id., 6:34-36; FIG. 10B. The separate step during the registering process underscores that the first and second registering modes are different operational states of the system.



EX1004, FIG. 10B. Accordingly, as described in the specification, the first and second registering modes are first and second operational states for registering.

86. Such a construction would also be consistent with the file history of the '086 Patent, specifically the reexamination of the '086 Patent. For example, during the reexamination of the '086 Patent, for element [1c], the examiner issued a

rejection based on the reference (U.S. Patent No. 8,941,466 (“Bayram”)) disclosing an “authentication phase” corresponding to the claimed identification mode and a “registration phase” corresponding to the claimed registering mode. See EX1004 at 86. For element [1f], the examiner pointed to a “signature” that may include “finger touch information that includes an area of the finger touch, a shape of the finger touch, an orientation of the finger touch, [and] characteristics of the finger touch.” *Id.* at 88.⁵

87. An interview was conducted with the examiner (where I was a participant), during which it was agreed that “the combination did not have 2 registration modes, one for the finger tip and one for the finger pad.” EX1004 at 8. Further, as described by the applicant:

During the interview, Patent Owner’s representatives explained the differences between the cited art and the limitations of claim 1, in particular the “first registering mode for inputting information by a pad of the finger, and a second registering mode for inputting input information by an end of the finger.” Specifically, Patent Owner’s representatives explained that neither Bayram nor Rosenberg (nor the two in combination) taught these features of claim 1, as outlined in more detail herein. Patent Owner’s representatives also responded to the examiners’ questions regarding the now-settled litigation involving the ’086 Patent, as well as support in the specification for the limitations discussed.

EX1004 at 75.

⁵ As in the Petition, the examiner admitted that Bayram did not explicitly disclose that “fingertips and finger pads produce different sizes, shapes, and orientations” and thus relied on the disclosures in Rosenberg. EX1004 at 89.

More particularly, neither Bayram nor Rosenberg nor Chin (nor the combination of these references) teach “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” (emphasis added). Instead, as discussed during the interview in this proceeding, Bayram at best describes real-time input and signature recognition but does not describe separate registering modes.

EX1004 at 75. In response to the examiner interview and the excerpted arguments above, the reexamination certificate was issued. See EX1004.

88. To reiterate, the understanding applied by the examiner—a POSITA—to the claimed modes, was based on the same understanding put forth by the Patent Owner with my support during the reexamination and as stated above. Indeed, in describing a “mode,” as used in the claims, I offered the following explanation:

A POSITA would understand that the concept of a mode is a setting *S* such that the same action *A* has different results or effects based on the current value of *S*. Put differently, when *S* equals mode *M1*, then action *A* leads to result *B1*. But when *S* equals mode *M2*, then same action *A* leads to result *B2*. For example, with caps lock “off”, the action of hitting the “W” key is to produce a lower-case “w”. But with caps lock “on”, the same action of hitting the “W” key is to produce an upper-case “W”. The same action *A* produces different results (*B1*, *B2*) because of the current mode setting *S*.

In the '086 Patent, touching the screen, the action *A*, registers values for a fingertip (Figure 10A) in one

registering mode *M1*. The same action *A*, touching the screen, registers values for a finger pad (Figure 10B) in another registering mode *M2*. So, in Figures 10A and 10B, the two registering modes have the same action resulting in different outcomes, namely the values registered for finger tips and pads, respectively.

EX1004 at 29 (Decl. of Jacob Wobbrock, ¶¶ 68-69).

89. Petitioners and their expert largely ignore the intrinsic record and now seek to impose their own twist to the term “mode”. *See* Pet. at 5 (acknowledging the reexamination in a single paragraph); EX1003 at ¶ 52 (a near-identical paragraph); EX2009, 38:21-39:5 (“there was nothing in there that caught my eye”), 68:20-69:3 (“...part of the complication here is the way the claim language is awkwardly **using mode for two different concepts**”).

90. Moreover, such a construction is consistent with the understanding of the Petitioners’ expert, Dr. Seth Nielson. For example, in the District Court Litigation, Dr. Nielson asserted that “I think the way that a [POSITA] sees **a mode could be interpreted as a state. A state of the system is -- is a mode of the system.**” EX2013 at 3 (emphasis added). Similarly, Dr. Nielson apparently agrees that registering mode and identification mode are separate: “I mean, it seems kind of self-apparent to me that they’re different modes.” EX2009, 55:12-13, EX2013 at 2 (“Well, clearly the modes are different or the first registering mode is different

from the second registering mode. So in order to have a first mode and a second mode, **there would have to be a distinction between them** so the pad is different from tip in order for there to be -- or end, just to follow the claim language -- in order to have **two separate modes.**") (emphases added).

91. Finally, extrinsic evidence further demonstrates that a POSITA would understand that the first and second registering modes are operational states of the system or device. For example, PCMag describes "mode" as an "**operational state** that a system has been switched to." EX2011 at 1. Similarly, another dictionary provides a computer science definition for mode: "One of several **alternative conditions** or methods of operation of a device." EX2012 at 3. As another example, "different contexts that change the interpretation of commands are called *modes*." EX2010 at 5. Therefore, these examples demonstrate that construction expressed above for a first registering mode and a second registering mode is consistent with the understanding of a POSITA.

92. Thus, expressly construing the term "mode" in this proceeding is consistent with the terms usage in the claims of the '086 Patent and specification, as well as opinions expressed by myself, Patent Owner, Petitioners, and Dr. Nielson in the related District Court Litigation.

VII. SUMMARY OF PETITIONERS' PROPOSED GROUNDS

93. The Petition raises four grounds of alleged obviousness based on the following four references:

- U.S. Patent No. 8,683,582 (“Rogers”) (EX1006),
- U.S. Patent Publication No. 2007/0097096 (“Rosenberg”) (EX1007),
- U.S. Patent No. 8,633,909 (“Miyazawa”) (EX1008), and
- U.S. Patent No. 8,477,115 (“Rekimoto”) (EX1010).

Ground	'086 Patent Claim(s)	Type of Challenge	Primary Reference	Secondary Reference(s)
1	1, 2, 4-7	§ 103	Rogers	Rosenberg
2	9-14	§ 103	Rogers	(1) Rosenberg (2) Miyazawa
3	1, 2, 4-7	§ 103	Rogers	Rekimoto
4	9-14	§ 103	Rogers	(1) Rekimoto (2) Miyazawa

A. Rogers (EX1006)

94. Rogers, titled “Method and System for Graphical Passcode Security,” issued on March 25, 2014 based on a June 16, 2008 filing date. Rogers describes a method and system for electronic access security that uses touches and movements on a touch-sensitive surface to determine graphical passcodes that are used in a

manner similar to passwords. Graphical passcodes comprise various combinations of swipes, taps or drags on a touchscreen surface as defined by a user. A user's selected graphical passcode is stored in memory for comparison to subsequent entries of graphical passcode in order to authenticate that user. An envelope may be generated to define a range of acceptable pressure, speed, coordinate positions or other parameters, as a function of time or position, required for passcode authentication. In essence, the envelope is a tolerance range around parameter values to allow some forgiveness since a user's input will not be precisely identical every time. The envelope may be stored in a computer memory and is used to authenticate a user by determining whether an entered graphical passcode falls within the envelope. EX1006, Abstract.

B. Rosenberg (EX1005)

95. Rosenberg, titled "Bimodal User Interface Paradigm for Touch Screen Devices," is a U.S. Patent Application published on May 3, 2007 based on a January 23, 2007 filing. Rosenberg discloses a touch screen device that provides bi-modal user interaction. The touch screen device includes (a) a touch screen interface, (b) a detector to detect an area of finger interaction with the touch screen surface, and (c) a processor. The processor determines, based on at least one of a size, a shape, and an orientation of the detected area of finger interaction, whether a current finger interaction is of one of: a finger-tip interaction type and a finger-pad interaction type.

The processor also selects and implements, based on a determined interaction type, one of two different targeting modes, including a first targeting mode selected and implemented in response to a determined finger-tip interaction type and a second targeting mode selected and implemented in response to a determined finger-pad interaction type. In a preferred embodiment, the first targeting mode is direct-targeting mode and the second targeting mode is an offset-targeting mode. EX1005, Abstract.

C. Miyazawa (EX1008)

96. Miyazawa, titled “Information Processing Apparatus, Input Operation Determination Method, and Input Operation Determination Program,” issued on January 21, 2014 based on a filing date of December 29, 2010. Miyazawa discloses an information processing apparatus that includes: a touch detection unit detecting touch of an instruction object on an operation surface; a proximity detection unit detecting proximity of the instruction object to the operation surface; and a control unit determining whether the touch of the instruction object is a predetermined input operation based on the detection result, which is obtained by the touch detection unit when the touch detection unit detects the touch of the instruction object, and at least one of the detection results, which are obtained by the proximity detection unit before and after the touch of the instruction object. EX1008, Abstract.

D. Rekimoto (EX1010)

97. Rekimoto, titled “Input Device, Information Processing Apparatus, Information Processing Method, and Program,” issued on July 2, 2013 based on a filing date of June 7, 2006. Rekimoto discloses an input device that includes: a contact detector configured to detect at least a size of contact area by detecting a physical contact with a control input section; a pressure detector configured to detect a pressure applied by the physical contact; and a controller configured to output signals in response to detection outputs from the contact detector and the pressure detector. The controller outputs a first signal carrying a value which varies in response to the pressure detected under a state of contact in which a contact detection result indicates that the detected contact area is equal to or smaller than a predetermined contact area, and outputs a second signal carrying a value which varies in response to the pressure detected under a state of contact in which the contact detection result indicates that the detected contact area is greater than the predetermined contact area. EX1009, Abstract.

VIII. GROUND 1: ROGERS IN VIEW OF ROSENBERG

A. Rogers in view of Rosenberg Fails to Disclose Limitation [1e]

98. It is my opinion that Rogers in view of Rosenberg does not disclose element [1e] of the '086 Patent, *i.e.*, Rogers in view of Rosenberg does not disclose the information processing apparatus comprising “a second controller configured to execute a specified process when said first information and said second information

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are coincident within said identification mode.” The Petition does not rely on Rosenberg as disclosing this element but rather relies on Rogers alone. *See* Pet. at 27-30; EX1003, ¶¶ 108-114; EX2009, 97:4-6 (“I don’t explicitly reference [Rosenberg] here.”); EX2009, 97:16-19. Nevertheless, even a Rogers-Rosenberg combination fails to disclose element [1e] as further explained below.

99. Specifically, the ’086 Patent discloses a second controller—the determination unit. In the ’086 Patent, the determination unit is the matcher, *i.e.*, it determines whether the first information and second information match one another.

information and a reference area range; a determination unit which determines whether the identification information detected by the detection unit matches the reference identification information stored in the storage unit and whether the area of the contact detected by the detection unit falls within the reference area range stored in the storage unit; and a control unit which performs particular processing when the determination unit determines that the identification information detected by the detection unit matches the reference identification information stored in the storage unit and the

See EX1001, 1:53-62. Thus, the determination unit is an example of a controller that controls the matching process. The determination unit in the ’086 Patent compares first and second information, telling the control unit when there is a match. The control unit then can do other things with that information. But it is the determination unit that does the matching, and one of its specified processes is to, for example, tell the control unit a match occurred.

100. Indeed, the same examiner that allowed the claims of the '086 Patent viewed the control unit and determination unit as distinctive components in allowing both the original claims of the parent '093 Patent. *See supra* Section V(B); *see also* EX1002 at 47. And a different examiner for the RE'830 reexamination proceeding equally found that the control unit and determination unit are distinctive components in allowing the claims with those limitations. *See* EX1004 at 87-88. A POSITA would similarly view the control unit and determination unit as separate units, *i.e.*, the first and second controllers, respectively.

101. Rogers does not disclose a second controller, as claimed. Petitioners admit that Rogers “expressly discloses that hardware such as processor 71”—which Petitioners already identified as the first controller—“can be processing elements (plural)” and cited to a boilerplate statement in Rogers as support:

The hardware used to implement the forgoing embodiments may be *processing elements* and memory elements configured to execute a set of instructions, wherein the set of instructions are for performing method steps corresponding to the above methods. Alternatively, some steps or methods may be performed by *circuitry that is specific to a given function*.

Pet. at 27, (citing EX1006, 13:21-27) (emphasis in Petition). I disagree that this passage establishes by a preponderance of evidence that Rogers discloses a second controller, let alone a second controller as claimed. Rogers is referring to “embodiments” (plural here), so in those multiple embodiments (plural), there are

“processing elements” (plural). As a plain matter of English grammar, the word “elements” (plural) used in this way does not mean that Rogers discloses a second controller in any one embodiment.

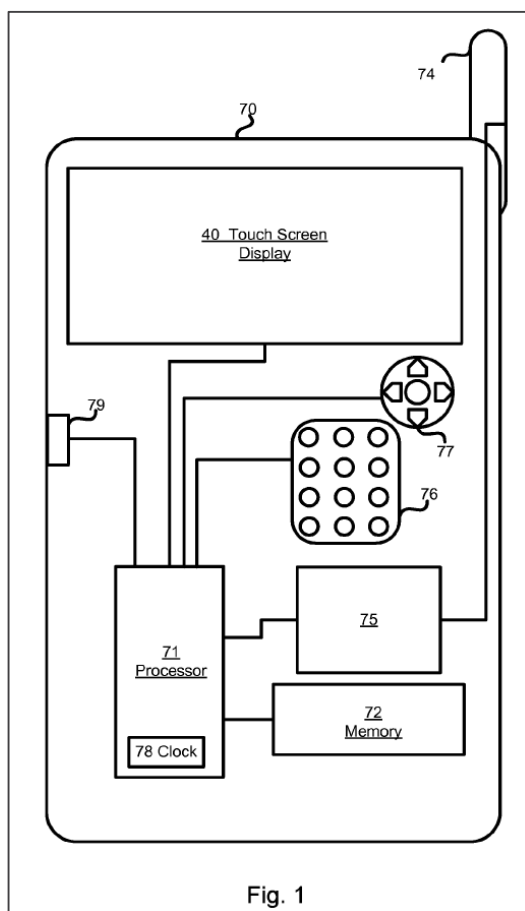
102. Petitioners then allege that “processor 71 can be hardware, software, or both,” citing another boilerplate paragraph as support:

Those of skill in the art would appreciate that the various illustrative logical blocks, modules, circuits, and algorithm steps described in connection with the embodiments disclosed herein *may be implemented as electronic hardware, computer software, or combinations of both....*

See Pet. at 28 (citing EX1006, 14:41-55). However, neither this generic passage nor 14:56-15:4 demonstrates that a POSITA would understand Rogers to include a second controller as claimed.

103. The Petition relies on boilerplate phrases, common in many patents, to support a hindsight-based reconstruction to attempt to fill the hole that Rogers does not expressly or inherently disclose a second controller as claimed. Neither would a POSITA come to a conclusion that Rogers has a second controller from an obviousness perspective reading Rogers, including the boilerplate statements above.

104. In fact, Rogers discloses a single processor 71 and a single memory 72 and a specific way of connecting all the components in its architecture:



EX1006, at FIG. 1.

105. A POSITA would recognize that expanding Rogers to add an additional controller/processor would require at least: (1) adding an additional powered hardware component; (2) rewriting source code routines such that some source code is executed on one controller and other source code is executed on another controller; (3) additional memory controllers/interfaces to allow both processors access to memory 72; (4) adding a means of communication between the extant processor 71 and the new controller; and (5) numerous additional changes to the hardware and software of the device. Making the change proposed by Petitioners would result in

an increase in costs of the device and would require additional power and circuitry to support a two processor structure versus a single processor structure. And there is no clear motivation a POSITA would have to make all of these modifications, since Rogers's functionality is already adequately supported by Rogers's own single processor 71.

106. I also note that "controller" is a well understood structure in electrical and computer engineering. At a minimum, a controller has processing, input/output (I/O), and memory, as described below. EX2008 at 18. A POSITA would understand that the claimed "first controller" and "second controller" can perform particular tasks by using a processor (*e.g.*, CPU) typically included in the known structures of a controller with different configurations or executing different instructions. For example, a POSITA would recognize that one example of a known structure corresponding to the claimed "controller" would be a microcontroller. My opinion is supported by the following textbook that confirms the understanding of a POSITA that a "controller" was a known structure at the time of the '086 Patent.



See EX2008 (*Microcontrollers: Fundamentals and Applications with PIC*) at 1.

107. Consistent with the understanding of a POSITA, this textbook describes the basic architecture of the known structure of a microcontroller explaining that “[m]icrocontrollers combine the fundamental resources available in a microcomputer such as the CPU, memory, and I/O resources in a single chip.” EX2008 at 18. In particular, the textbook explains that “the CPU is the brain of the microcontroller . . . [that] fetches the program instructions from their locations in memory one by one, interprets or decodes them, and executes them. The CPU also includes the ALU circuits for binary arithmetic and logic operations.” *Id.* Furthermore, this textbook provides the following exemplary block diagram of a known structure of a microcontroller:

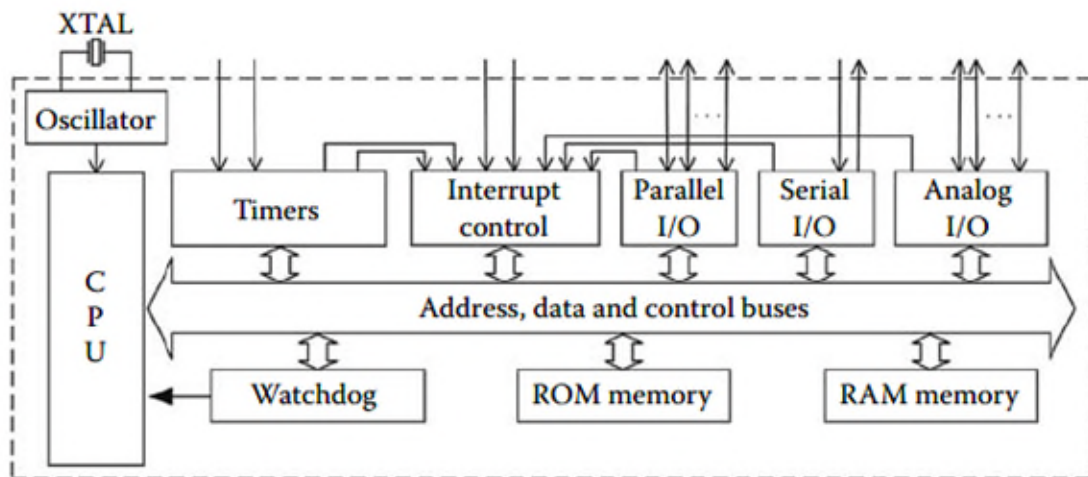


FIGURE 1.2
Basic block diagram of a microcontroller.

EX2008 at p. 19.

108. A POSITA would recognize that the control unit disclosed in the '086 Patent corresponds to, for example, a microcontroller as disclosed in this book. The description of a microcontroller is consistent with the structure of “control unit 3,” disclosed in the '086 Patent. Specifically, the '086 Patent discloses that “[t]he control unit 3 includes an arithmetic section, a counter, a determination unit which determines condition in accordance with input information into the control unit 3, and a storage unit which stores various types of data.” EX1001, 3:26-30. Similar to the textbook description, the '086 Patent is describing an example of a known structure, *i.e.*, a microcontroller (control unit 3) that includes a CPU (*e.g.*, one or more of arithmetic section, counter, and/or determination unit) for performing “arithmetic and logic operations,” as explicitly described in the textbook. *See id.* and compare with EX2008 at 18.

109. In addition, just like the textbook discloses that the known structure of a microcontroller includes a “program counter (PC) [that] is the CPU register where addresses of instructions are stored,” the '086 Patent discloses that control unit 3 includes a “counter.” *See* EX1001, 3:26-28 and compare with EX2008 at 19 (“program counter”). Furthermore, just like the textbook discloses the microcontroller including memory, the '086 Patent also describes that control unit 3 includes a “storage unit.” *See* EX1001, 3:29-30 and compare with EX2008 at 19-20 (“ROM Memory” and “RAM Memory”). Moreover, just like the textbook discloses

that the known structure of a microcontroller includes a “CPU [that] fetches the program instructions from their locations in memory . . . and executes them,” the ’086 Patent discloses that the control unit 3 “performs particular processing when the determination unit determines that the identification information detected by the detection unit matches the reference identification information.” *See* EX1001, 1:58-59 and compare with EX2008 at 18.

110. Having this knowledge, a POSITA would recognize that control unit 3 disclosed in the ’086 Patent with a determination unit would include, for example, a processor (CPU), memory (ROM and RAM), and input/output capabilities (I/O), and a program counter. These structures disclosed in the Microcontroller textbook are the same types of structures described in the ’086 Patent. EX1001, 3:24-30. The determination unit disclosed in the ’086 Patent that is disclosed as within the control unit does provide support for a separate controller even if it is within control unit 3 because, even if it runs on the same CPU, the memory it draws from and the code it executes are different than the first controller. Also, the input it receives—the first information—to perform matching with the second information stored in its memory is different. The determination unit relies on reference information from the storage unit and input information from the user (EX1001, 3:27-28), and performs the matching algorithm (EX1001, 1:53-64). Thus, in my opinion, the ’086 Patent discloses two separate controller structures, a control unit 3, and a determination

unit, and both are implemented in both hardware and software, utilizing the microcontroller's CPU, memory, I/O, and program code for their respective and distinct purposes. And just like the textbook discloses, the component would "fetch" instructions and execute different processes to provide separate structures. *See* EX2008 at 18.

111. In light of this understanding, Petitioners have not explained how the "processor" or "processing element" of Rogers corresponds to the claimed "first controller" and "second controller." Specifically, Petitioners just appear to provide a conclusory analysis equating the processor of Rogers to the claimed "first controller" and "second controller." *See* Pet. at 20. But a POSITA would not equate any type of processor to a controller. In particular, as explained above, controllers are different hardware components that include additional components (*e.g.*, CPU, memory, and I/O components).

112. Petitioners, however, provide no explanation reconciling the differences between "processor" (as recited by Rogers) and "controller" as required by the claims. For example, Dr. Nielson testified that "it is my opinion that the module is a controller that could be either software or hardware or a combination of both." EX2009, 79:13-15. However, this naked assertion (and any similar explanation offered in Dr. Nielson's declaration) fail to identify or explain a separate controller, let alone the first and second controller in claim 1. Nor do "separate

functions” alone demonstrate that Rogers is describing a separate controller, at least because “separate functions” do not include, at a minimum, processing, I/O, and memory. *See* EX2009, 82:16-22; EX2008 at 18. Thus, Petitioners have not proven by a preponderance of evidence that the “processor” of Rogers corresponds to the claimed “first controller” and “second controller.”

113. Second, Petitioners’ arguments regarding the action performed by the non-existent second controller in Rogers—the specified process—is pure hindsight. *See* Pet. at 28-29. Relying on the boilerplate statements above, Petitioners attempt to separate the processor 71 into another processor, opining that “a processing element of processor 71 (“a second controller”) unlocks the electronic device.” *Id.* But, as noted above, I disagree that a POSITA would read Rogers and conclude that a second controller is present; neither would a POSITA be motivated to modify Rogers’ single processor system to a dual controller system.

114. Petitioners claim that the conjured second controller—“a processing element of processor 71”—unlocks the device based on a matching of graphical passwords, and that this is the specified process; further, that this “a processing element of processor 71” “can be a different processing element than the processing element that performs the functions of limitation 1[c]” (*i.e.*, the first controller). *See* Pet. at 29. It is notable that Petitioners do not provide any support for such a conclusion other than a POSITA would understand Rogers to disclose such a result,

but this does not demonstrate that Rogers discloses the second controller as claimed for the reasons I note above.

115. Finally, Petitioners have not explained why it would be obvious to add an additional controller (*i.e.*, “simple substitution”) into Rogers in view of all the changes to the hardware/software of the system I note above. *See* Pet. at 29-30. For example, Rogers designed his system with a specific disclosed architecture. Other than hindsight, there is no reason to modify this to require two processors or controllers when doing so would require a significant redesign and increase costs. All Rogers’ system is doing is recording graphical passcodes in memory and then allowing users to access the device via subsequent touches by a stylus or fingers. Petitioners provide no reason why a POSITA would be motivated to change the designed single processor solution by Rogers into a dual-controller solution to perform the exact same storing and recognition of graphical passcodes.

116. As set forth above, Petitioners do not rely on Rosenberg to address the deficiencies in Rogers as to element [1e]. Nevertheless, even a Rogers-Rosenberg combination fails to disclose element [1e].

117. For example, Petitioners only identify Rosenberg’s reference to “a variety of methods for distinguishing between finger-tip interactions and finger-pad interactions” (Pet. at 36 (citing EX1007, ¶¶27, 28, 45); EX2009 at 97:4-15 (“The only difference we really get out of adding in Rosenberg is maybe an explicit

identification that that information could be used for a finger pad or fingertip, but it doesn't actually change the operation of Rogers.") and offer no discussion of the hardware used to implement the distinguishing. However, for at least the same reasons explained above that Rogers does not disclose a second controller, Rosenberg does not either because Petitioners do not identify a controller in Rosenberg, such as second or separate hardware components that include additional components (e.g., CPU, memory, and I/O components).

118. Thus, in my opinion, Petitioners have not shown by a preponderance of evidence that it would be obvious to a POSITA to modify the single-processor architecture of Rogers into a dual-processor architecture. Neither would it be obvious to modify a Rogers-Rosenberg combination to render element [1e] obvious.

119. Accordingly, it is my opinion that Petitioners have not shown by a preponderance of evidence that Rogers in view of Rosenberg discloses element [1e] expressly or inherently, nor have Petitioners demonstrated by a preponderance of evidence that a POSITA would have found it obvious to interpret and/or modify Rogers to disclose the second controller limitation as claimed.

B. Rogers in view of Rosenberg Fails to Disclose Limitation [1f]

120. It is my opinion that Petitioners have not proven by a preponderance of evidence that Rogers in view of Rosenberg discloses element [1f] of the '086 Patent, *i.e.*, a Rogers-Rosenberg combination does not disclose the information processing

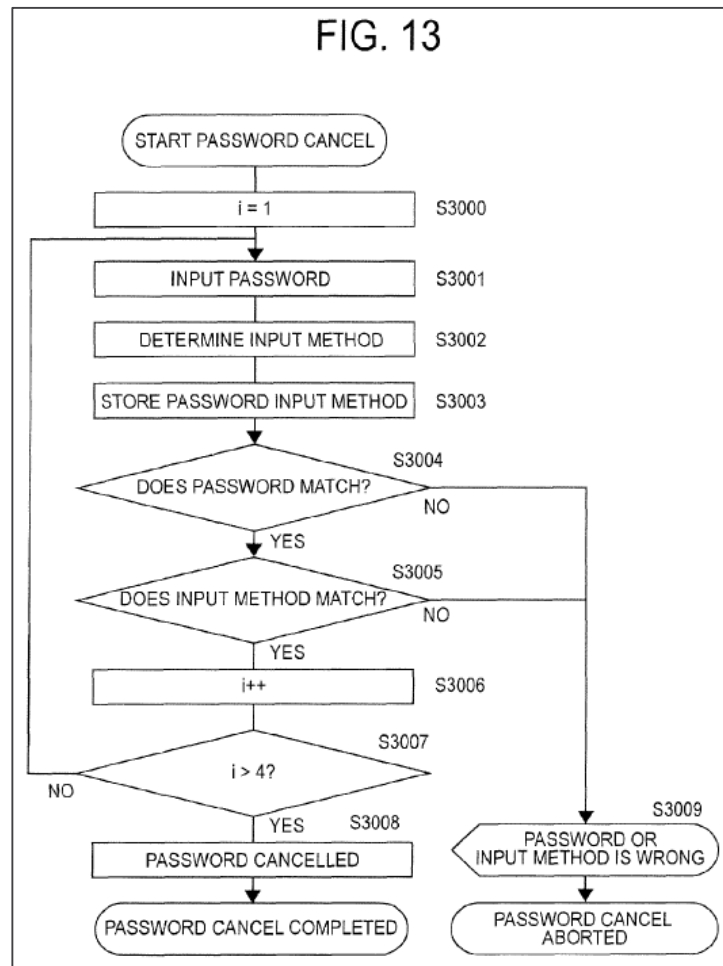
apparatus comprising a registering mode where “in said registering mode, there are provided a first registering mode for inputting input information by a pad of the finger, and a second registering mode for inputting input information by an end of the finger, and said second information relating to the identification of the user is produced upon basis of the input information, which is inputted at least in the first or second mode.”

121. Petitioners allege that Rogers discloses element [1f] based on distinguishing between inputting two different types of user input. *See* Pet. at 31; EX1003 at ¶¶ 116-124. Further, Petitioners allege that “Rogers discloses separate registering modes for entering different pieces of user information based on the size measured from the contacts area of the user’s touch.” Pet. at 33. I disagree.

122. While it is true that Rogers, for example, discusses “large fingertip” and a small stylus tip to provide input during the “training session,” these inputs are not treated as or disclose two separate registering modes as claim element [1f] requires for at least these reasons. Rogers discloses a single registering mode for creating a template for a single graphical passcode. *See* EX1006, 8:42-67; EX2009, 89:10-22 (“We have just **one registration mode** that is either going to have an identification that there’s finger pad or an identification that there’s fingertip and it’s one or the other and that’s it.”). In contrast, claim element [1f] requires multiple registering modes.

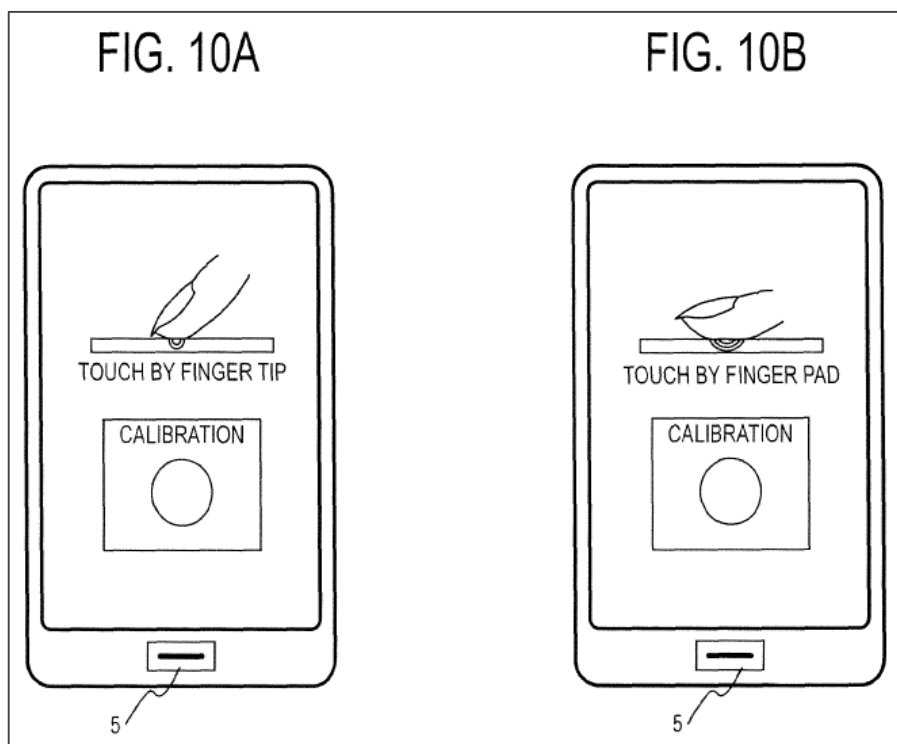
123. **First, scalar values for finger/stylus touch areas (or “contact area[s]” or “line width[s]” in Rogers) are not “modes.”** Rogers does not prompt the user for registering touches in two separate modes, nor does Rogers receive input such that it sets one mode or another. Rather, at most, Rogers allows for a “large fingertip” and a small stylus tip because Rogers allows for any fingertip/stylus size and shape information, but allowing for these size and shape scalar values (*i.e.*, real numbers) from fingertip/stylus touch areas is not the same thing (from either the user’s or system’s point of view) as multiple modes for registering a finger pad and finer end, like the ’086 Patent discloses and claim element [1f] requires.

124. **Second, the ’086 Patent supports two modes in its matching algorithm, Rogers does not.** In the ’086 Patent, the matching process can involve matching finger pads and finger ends (tips), among other information. This further supports the existence and operation of two registering modes in the ’086 Patent. But in Rogers, no such algorithmic treatment of these modes is provided, so Petitioners’ silence on this point is unsurprising. In Rogers, matching occurs simply by way of comparing scalar values within tolerance envelopes. By contrast, in the ’086 Patent, for example, Figure 13 considers input from the two modes in step S3005:



EX1001, FIG. 13, 7:13-37. It is my opinion that Rogers neither depicts algorithms that illustrate two registering modes nor contains any explanation regarding the two registering modes claimed in the '086 Patent.

125. **Third, the '086 Patent has two registering modes in its user interfaces, Rogers does not.** In the '086 Patent, there are separate user interfaces for registering touches regarding different portions of the finger. *See* EX1001, FIGs. 10A, 10B (displaying different UIs during registering).



EX1001, FIGs. 10A, 10B. No registration user interfaces with different UIs exist in Rogers where different portions of the finger are registered.

126. Petitioners allege that because Rogers discloses that “size or area of the fingertip measured by the screen can be used instead of or in addition to pressure, a POSITA would have understood that Rogers discloses the registration of a graphical passcode that can discriminate between smaller and larger contact areas of the user’s finger and different positions on the touch screen.” Pet. at 33 (citing EX1003, ¶121). Petitioners further suggest that “Rogers further discloses two registration modes because the ‘training session’ for developing the thresholds, ranges or envelopes, for the measured parameters such as line thickness. This involves repeated entry of the passcode to create thresholds for distinguishing between the different measured

parameters, such as line thickness or contact area, for the touch inputs that make up the desired passcodes.” *Id.* I disagree for the reasons stated above. Just because Rogers can receive input from objects of varying widths has nothing to do with it doing so in separate registering modes, let alone modes providing for registering finger pads and finger ends. For example, despite Petitioners’ use of the term “threshold,” Rogers does not once use this term. Rather, Rogers is primarily focused on parameter envelopes, which are acceptable value ranges for touch parameters. See EX1006, 8:49-54. These value ranges are also not the two claimed registering modes, but are scalar quantities that provide a range around a central (*i.e.*, mean, median, etc.) scalar quantity.

127. Petitioners and Dr. Nielson are consistently incorrect in their assertions that the claimed first registering mode and second registering mode would be understood by a POSITA as two different methods of inputting information, where one mode is the user presenting the pad of the finger and the second mode is the user presenting the end of the finger. See, *e.g.*, Pet. at 31 (“Rogers discloses two registering modes that distinguish between inputting two different types of user input.”), 33 (“Rogers discloses the registration of a graphical passcode that can discriminate between smaller and larger contact areas of the user’s finger...Rogers’ disclosure of registering a graphical passcode that distinguishes between small and large contact areas corresponds to the first and second registration modes.”), 34 (“a

training session that creates a threshold for a narrow line thickness or small area ... and a threshold for a wide line thickness or wide area ... correspond to the first and second registration modes”); EX1003, ¶116 (“Rogers discloses two registering modes that distinguish between inputting **two different types of user input.**”), ¶121 (“Rogers discloses that the registration of a graphical passcode that can discriminate [sic] between smaller and larger contact areas of the user’s finger...Rogers’ disclosure of registering a graphical passcode that distinguishes between small and large contact areas corresponds to the first and second registration modes.”), ¶123 (“Rogers discloses that finger touches are some of the **types of user input information**, among others, that the disclosed graphical template can distinguish between.”); EX2009, 52:20-53:2 (“So inputting by a pad or inputting by a tip are two different **modes of inputting information...**”); 53:16-17 (“You now compare **the mode of input.**”), 68:20-69:3 (“...part of the complication here is the way the claim language is awkwardly **using mode for two different concepts**”); 70:21-71:3 (“[Rogers] has an acceptable envelope of values that is used to identify these **modes that have been inputted.**”); 86:12-87:4 (“There’s two swipes, but one of those could be a finger pad and one could be a fingertip.”); 87:5-87:12 (Q: “... if one [swipe] was done clearly with a finger pad and one was done clearly with a fingertip ... that would be an example of the first registering mode and the second registering mode?” A: “Yes.”).

128. Petitioners and Dr. Nielson are further mistaken that the '086 Patent's description of "identifying finger pad input from finger tip input based on differences in measurement between a small contact range and a wider contact range" corresponds to the claimed first and second registering modes. *See* Pet. at 34 (citing EX1003, ¶124); EX2009, 58:3-13 ("...the same kind of analysis from what's described in the '086 patent, how big is the contact range to determine which **mode of input** is being used"). The '086 Patent does not refer to using a finger pad for input as a "mode of input." Nor does the '086 Patent describe using a finger end for input as a "mode of input." Instead, the '086 Patent describes "a finger tip contact" (EX1001, 6:31-32) and "a finger pad contact." The finger tip or finger pad contact are provided to the system as steps during the "process for password registration." EX1001, 6:12. Accordingly, the "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" are different operational states, not distinguishable methods or manners of inputting information. To reiterate, neither registering mode refers to an aspect of the user's anatomy. Rather, both registering modes are operational modes or states of the apparatus. *See* EX1001, 8:36-60 (claim 1).

129. Indeed, Petitioners admit that Rogers only discloses a single registration mode. *See* EX2009, 67:66:21-67:6 ("So it can be repeated in order to

identify a range of inputs that could represent **the same registration mode.**”); 87:19-12 (“I’ve got both a pad and a tip **in the same registration.**”).

130. Furthermore, the concept of a “mode” in user interfaces was well understood in the art at the time of the invention. A POSITA would understand that the concept of a mode is a system state S such that the same action A has different results or effects based on the current value of S . More formally, when S equals mode M_1 , then action A leads to outcome B_1 . But when S equals mode M_2 , the same action A leads to outcome B_2 . See EX2010 at 5 (Excerpts from Human-Computer Interaction, 3rd Ed., Dix et al. (2004)). For example, with caps lock “off”, the action of hitting the “W” key is to produce a lower-case “w”. But with caps lock “on,” the same action of hitting the “W” key is to produce an upper-case “W”. Thus, the same action produces different results precisely because of the mode state.

131. In the ’086 Patent, touching the screen, the action, registers values for a fingertip (Figure 10A) in that registering mode. The same action, touching the screen, registers values for a finger pad (Figure 10B) in that registering mode. So, in Figures 10A and 10B, the two registering modes for tips and pads have the same action resulting in different outcomes, namely the values that are registered for finger ends and finger pads.

132. In Rogers, by contrast, there is only one mode in which the user touches the screen to calibrate (the “‘initializing/training’ mode”) where at least one area is

recorded. *See* EX1006, 8:42-67. The user might touch repeatedly to create an envelope, or range, of touch area values. But there are not two registering modes. *See, e.g.*, EX1006, 7:7-16, 7:65-67.

133. Thus, under a plain reading of the claim terms, Rogers fails to disclose a first registering mode and a second registering mode, as claimed, because Rogers only discloses a single registering mode.

134. The gap between Rogers and the claims of the '086 Patent is more apparent under the proposed constructions. Clearly, Rogers does not disclose “a first operational state for registering in which information is input by a pad of the finger” and “a second operational state for registering in which information is input by an end of the finger, the first registering mode and the second registering mode being different operational states.” Petitioners’ reliance on Rogers distinguishing between “smaller and larger contact area of the user’s finger and different positions on the touch screen” (Pet. at 33) does not disclose two differing operational states of an apparatus. As analyzed above, the different input methods described in Rogers are not operational states and thus, cannot be understood as different operational states of the apparatus. Accordingly, applying the claim constructions offered herein, Rogers does not disclose element [1f].

135. Petitioners try to blur what is truly missing from Rogers—no two registering modes—with a bit of misdirection, focusing on the lack of an explicit

mention of a finger pad and finger tip. *See* Pet. at 36 (“To the extent PO argues that Rogers does not fully disclose limitation [1f] because Rogers does not explicitly recite the use of ‘finger pad’ and ‘finger tip’ inputs, Rogers in view of Rosenberg renders this limitation obvious.”). But restating that Rogers discloses “registration of a graphical passcode that can discriminate between smaller and later contact areas” and other mentions of the scalar values as noted above but in the context of what a POSITA could infer (*see id.*) does not solve the fundamental problem with Rogers—it does not have two registering modes and nothing in the Petition remedies this glaring deficiency. *See* Pet. at 34-35.

136. I understand that in the institution, the Board raised on its own support for the two registering modes in Rosenberg. *See* ID at 31-32. Petitioners does not rely on Rosenberg as disclosing a first and second registering mode. Pet. at 30-35. Instead, the Board determined that “Rosenberg teaches two modes—a first fingertip interaction mode and a second finger pad interaction mode.” ID at 32. However, a “fingertip interaction mode” and a “finger pad interaction mode” are not the claimed first and second registering modes. The claim language describes the registering mode and identification mode as “operating modes.” EX1001, claim 1. Accordingly, under a plain reading of the claims, an interaction mode cannot satisfy the claimed operating modes, including the first and second registering modes. This distinction

is further simplified by the proposed constructions that explicitly identify the first and second registering modes as operational states.

137. Furthermore, where Rosenberg discloses a first targeting mode and a second targeting mode, both modes refer to different responses or outcomes after distinguishing different input methods. See EX1007, Abstract; EX2009 at 99:17-19 (“So basically using the finger pad or fingertip, it will determine a direct-targeting mode or an offset-targeting mode as one possibility.”). Here, the “targeting modes” of Rosenberg align with Petitioners’ inaccurate reading of the claims (discussed above) that the first and second registering modes refer to the type (or mode) of input. However, labeling a user interaction as a “mode” is far from demonstrating the operation state of the apparatus, as the claims require. *See, e.g.*, EX1007 at ¶ [0027]. Instead, Rosenberg discloses a system that will respond differently to different inputs.

138. Furthermore, the different targeting modes in Rosenberg are not “a first registering mode” and “a second registering mode.” For example, detecting differences between “finger-tip interactions and finger-pad interactions” does not mean that Rosenberg offers two registering modes, one for finger pads and one for fingertips, as element [1f] requires. Touch area is a characteristic or parameter (i.e., a scalar quantity) captured as part of an input, and Rosenberg merely associates distinguishable touch areas (and other touch properties) to different functions.

Accordingly, the system of Rosenberg merely describes different outputs in response to different inputs discernable based on parameters of the inputs, and Rosenberg does not describe different outcomes based on the same inputs.

139. Moreover, Petitioners allege that “The claim limitation also requires that the second information related to identification of the user that is stored in advance, for example a passcode, must be produced by inputting information in ‘at least’ one of the first or second modes. That is, the second information must include at least a measurement of narrow contact range (fingertip input) or a wide contact range (finger pad input), but the claim language does not require that both.” Pet. at 35. While it is true that the second information does not require both finger pad and finger tip input to be used, element [1f] requires the information processing apparatus to comprise a registering mode, in which the first and second registering modes are provided. As I have previously explained, Rogers does not provide the first and second registering modes. Thus, because Rogers does not provide the two registering modes as required by element [1f], Rogers cannot teach the claimed second information. Said differently, there cannot be a second information as claimed unless the first and second registering modes in element [1f] are disclosed.

140. In an attempt to remedy the glaring deficiencies in Rogers as to element [1f], Petitioners combine Rogers with Rosenberg. See Pet. at 36 (“To the extent PO argues that Rogers does not fully disclose limitation [1f] because Rogers does not

explicitly recite the use of “finger pad” and “finger tip” inputs, Rogers in view of Rosenberg renders this limitations obvious.”). But just as with the flawed analysis for Rogers alone, Rosenberg does not disclose two registering modes. As such, I disagree that the combination of Rogers and Rosenberg discloses element [1f].

141. Additionally, Petitioners’ arguments with respect to Rosenberg are not new. During the reexamination of the ’086 Patent, Rosenberg was relied on by the examiner to attempt to cure the same deficiencies of the Bayram reference that was used as the basis for the rejection. *See* EX1004 at 89 (“Indeed, Bayram only refers to fingertips. Rosenberg teaches distinguishing fingertip touches from finger pad touches based on the same of the touch.”). As was the case then, where Bayram “does not describe separate registering modes” (EX1004 at 75), Rogers similarly does not describe separate registering modes and Rosenberg does not fill this gap.

142. As argued by Petitioners, “Rosenberg discloses inputting input information by a pad of the finger (“pad-pointing”) and inputting input information by an end of the finger (“tip-pointing”).” Pet. at 36 (citing EX1007, ¶ 30). However, just because Rosenberg can detect differences between “finger-tip interactions and finger-pad interactions” does not mean that Rosenberg offers two registering modes, one for finger pads and one for fingertips, as element [1f] requires. Touch area is a scalar quantity (as I explained in Rogers, above), and Rosenberg is just mapping touch areas (and other touch properties) to certain functions.

143. Indeed, Petitioners agree with this assessment. *See* Pet. at 38 (“The tip-pointing interaction (FIG. 8B) ‘is substantially smaller in size (both area and circumference,’ more eccentric in shape (i.e., less rounded), and is oriented such that the major axis MM’’’ is oriented closer to the reference screen horizontal.’ The pad-pointing context (FIG. 8A) ‘is substantially larger in size (both area and circumference), is less eccentric in shape (i.e., more rounded), and is oriented such that the minor axis LL’’ is oriented closer to the reference screen horizontal.’”). However, there are not two registering modes for a tip-pointing interaction or a pad-pointing interaction in Rosenberg merely because finger pads and tips produce different touch areas any more than there were two modes in Rogers (and two registering modes were not in Rogers).

144. Similarly, Petitioners rely on Rosenberg teaching size, shape, and/or orientation to distinguish between an “a tip-pointing interaction and a point-pointing interaction.” Pet. at 38. But these characteristics, like those in Rogers, neither have any bearing on, nor provide any evidence regarding, whether Rosenberg discloses a registering mode with two modes, one for finger pads and one for fingertips—and Rosenberg does not (nor do Petitioners identify the same).

145. Indeed, Rosenberg discloses “a variety of methods for distinguishing between finger-tip interactions and finger-pad interactions, including an assessment of the finger contact area size, shape, and/or orientation. EX1007, ¶ [0027].

Regardless of the method used to distinguish between input types, the disclosure in Rosenberg is related to runtime distinguishing, not a registering mode provision. Thus, Rosenberg's teachings on distinguishing touch sizes are irrelevant to the claimed two registering modes in element [1f].

146. Moreover, even though the combination of Rogers and Rosenberg does not disclose element [1f] for the reasons explained above, Petitioners do not provide any legitimate motivations to combine Rogers and Rosenberg.

147. Rogers already has its own solution to address inputs related to contact area/line width (*i.e.*, large fingertips or small stylus inputs by an object). For example, Rogers implements this solution in a single mode with a variety of taps, swipes, or touches. Thus, Rogers is specifically designed/programmed/constructed keeping in mind this solution. Petitioners have not explained why a POSITA would add the distinguishing of finger pads and fingertip input during runtime (also related to contact area input) from Rosenberg to solve a similar problem when Rogers already had its own mechanism to solve it. Incorporating the solution of Rosenberg would require, at a minimum, changing the operating system, but Petitioners never explain what these changes entail or how these changes will be implemented other than conclusory and hindsight-driven statements regarding purported "benefits" of Rosenberg. See Pet. at 11-15. In other words, Petitioners do not explain why a

POSITA would modify Rogers when it already comprises something similar to Rosenberg.

148. A POSITA would not know how to rectify the different device operations and touch screen operations disclosed in Rogers and Rosenberg to combine them into one functioning device. If combined with Rosenberg, Rogers' different touches (as disclosed) would start putting the device into different targeting modes as opposed to trying to register or authenticate the user. Rogers' device would not be able to complete its registration process because, if combined with Rosenberg, the system disclosed in Rosenberg will keep trying to respond with a different operation (*i.e.*, direct-targeting or offset-targeting) based on the determined input method. See EX1007, ¶¶ [0029], [0033]. Petitioners provide no guidance for how a POSITA would modify Rogers in view of Rosenberg to produce the system claimed in element [1f].

149. In sum, it is my opinion that Petitioners have not shown by a preponderance of evidence that Rogers in view of Rosenberg discloses element [1f] expressly or inherently, nor have Petitioners demonstrated by a preponderance of evidence that a POSITA would have found it obvious to interpret and/or modify Rogers (or Rogers-Rosenberg) to disclose the two registering modes as claimed.

C. Rogers in view of Rosenberg Fails to Disclose Limitation [1d]

150. It is my opinion that Petitioners have not shown by a preponderance of the evidence that Rogers in view of Rosenberg discloses element [1d] of the '086 Patent, *i.e.*, Rogers in view of Rosenberg does not disclose the information processing apparatus comprising a “memory that is configured to store second information relating to the identification of the user, which is stored in advance.”

151. I have applied the plain and ordinary meaning of “second information” for this limitation.

152. As explained herein, Rogers does not disclose second information. The reason for this is that Rogers fails to disclose element [1f], as discussed above. Although some information based on user input may be stored, Rogers fails to disclose the two-mode registering mode. And, since the claimed two-mode registering mode does not occur in Rogers as claimed in the '086 Patent—*i.e.*, the two-mode registering process itself was not completed as claimed—the information stored as a result of that input information cannot be the claimed second information.

153. Thus, for the same reasons that Rogers does not disclose element [1f], Rogers does not disclose the claimed second information in element [1d], expressly or inherently, nor would a POSITA find it obvious to conclude that Rogers discloses the second information.

154. Neither Petitioner nor Dr. Nielson does not rely on Rosenberg to address the deficiencies in Rogers as to element [1d]. However, for the reasons expressed above, even a Rogers-Rosenberg combination would fail to disclose element [1d].

155. In sum, it is my opinion that Petitioners have not proven by a preponderance of evidence that claim 1 of the '086 Patent is rendered obvious by the combination of Rogers and Rosenberg.

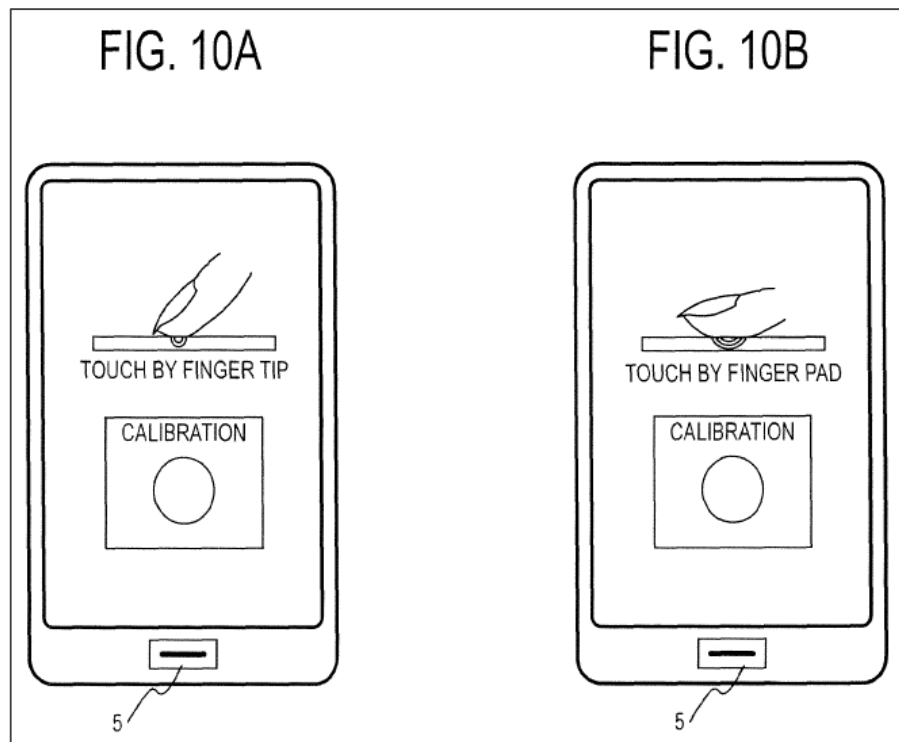
D. Rogers in view of Rosenberg Fails to Disclose Claims 2 and 4-7

156. For the same reasons as discussed above that Rogers in view of Rosenberg does not render obvious claim 1, Rogers in view of Rosenberg does not render obvious claims 2 and 4-7.

157. Additionally, neither Rogers nor Rosenberg (or the combination) discloses “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. Indeed, Petitioners rely on the physical components from Rogers and Rosenberg but import the knowledge of POSITA to describe the images and descriptions required by claim 5.

158. While Rogers includes some examples of a graphical password, Rogers offers no discussion of any particular graphical user interface implemented to register the graphical password. In comparison, the '086 Patent provides a clear

description and depiction of the claimed images and displayed text. For example, Figure 10A “**prompt[s] the user** to make a finger tip contact” and Figure 10B “**prompt[s] the user** to make a finger pad contact.” EX1001, 6:34-36; FIG. 10B.



EX1001, FIGs. 10A, 10B. No comparable discussion or figure is present in Rogers or Rosenberg where different portions of the finger are registered.

159. Moreover, based on Petitioners’ unsuitable interpretation of the first and second registering modes (*i.e.*, as input methods), their arguments for claim 5 are at odds with the arguments presented for claim [1f]. For example, for claim 5 Petitioners argue that “it would have been obvious to try as one of a few design choices (use of text and symbol guidance versus no guidance) for **both forms of input.**” Pet. at 43 (emphasis added). Absent from the Petition is an articulated reason

for why different forms of input would require different images and text *during a registration process*. Therefore, where Petitioners miss the mark in identifying a first and second registering mode, Petitioners cannot provide a sufficient explanation for finding it obvious to display an image and corresponding text for each registering mode.

160. For at least these additional reasons, the Rogers-Rosenberg combinations fails to render Claim 5 obvious.

IX. GROUND 2: ROGERS IN VIEW OF ROSENBERG AND MIYAZAWA

161. It is my opinion that Petitioners have not proven by a preponderance of evidence that claims 9-14 of the '086 Patent are rendered obvious by Rogers in view of Rosenberg further in combination with Miyazawa for at least the reasons explained above with respect to independent claim 1.

X. GROUND 3: ROGERS IN VIEW OF REKIMOTO

162. Ground 3 presents the same arguments as Ground 1, relying on Rekimoto to cure the deficiencies of Rogers (instead of Rosenberg). Therefore, Ground 3 suffers from the same inadequacies identified above with respect to Rogers that are not and cannot be cured by any disclosure in Rekimoto.

A. The Rogers-Rekimoto Combination Fails to Disclose Limitation [1e]

163. As discussed above in Section VIII(A), Rogers does not disclose the claimed second controller. In Ground 3, Petitioners rely on the same incorrect

arguments based on Rogers alone. *See* Pet. at 67 (referring to [1d] in Ground 1); EX1003 at ¶ 176 (referring to [1d] in Ground 1); EX2009, 103:14-16 (“Q: And you don’t rely on Rekimoto as disclosing a second processor, do you? A: No.”).

164. Accordingly, for the same reasons I provide with respect to Ground 1 (*see* Section VIII(A) *supra*), it is my opinion that Petitioners have not shown by a preponderance of evidence that the Rogers-Rekimoto teaches claim element [1e].

B. The Rogers-Rekimoto Combination Fails to Disclose Limitation [1f]

165. As discussed above in Section VIII(B), Rogers does not disclose the claimed first and second registering modes. In Ground 3, Petitioners refer back to the same incorrect arguments that “Rogers **alone** renders obvious [limitation [1f]].” *See* Pet. at 67-68; EX1003 at ¶ 177 (“Rogers **alone** renders obvious [limitation [1f]]”); EX2009, 104:1 (“The combination itself is very similar.”).

166. Accordingly, for at least the same reasons I provide with respect to Ground 1 (*see* Section VIII(B) *supra*), it is my opinion that Petitioners have not shown by a preponderance of evidence that the Rogers-Rekimoto teaches claim element [1f].

167. Furthermore, in an attempt to remedy the glaring deficiencies in Rogers as to element [1f], Petitioners combine Rogers with Rekimoto. *See* Pet. at 68 (“To the extent PO argues that Rogers does not fully disclose limitation [1f] because Rogers does not explicitly recite the use of “finger pad” and “finger tip” inputs,

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Rogers in view of Rekimoto renders this limitations obvious.”). But just as with the flawed analysis for Rogers alone, Rekimoto does not disclose two registering modes. As such, I disagree that the combination of Rogers and Rekimoto discloses element [1f].

168. As argued by Petitioners, “Rekimoto discloses inputting input information by a pad of the finger (“finger pad”) and inputting input information by an end of the finger (“fingertip”).” Pet. at 68 (citing EX1007, ¶ 178-181). However, just because Rekimoto can detect fingertip touches and finger pad touches does not mean that Rekimoto provides two registering modes for finger pads and fingertips, as element [1f] requires. Touch area is a scalar quantity (as I explained in Rogers, above), and Rekimoto is just mapping different contact areas of different touch inputs to different functions.

169. Indeed, Petitioners agree with this assessment:

During the input operation, the *contact area of the contact sensor section 2 occupied by the fingertip equals a small area S1...* The contact area of the contact sensor section 2 touched by the *finger pad equals a large area S2...* That is, compared with the area S1, which is an area of the contact sensor section 2 surface touched by the fingertip, the area S2 touched by the finger pad is larger (wider). *These areas S1, S2 can be clearly distinguished by using a threshold St of a specified area as a boundary.*

Pet. at 70 (citing EX1010, 5:18-31) (emphases in Petition). Petitioners further rely on Rekimoto's disclosing "that fingertip and finger pad touches can be used for different processing (zoom operations in the illustrated example)." Pet at 71; *see also* EX1010, 5:31-37. However, there are not two registering modes, one for fingertips and one for finger pads in Rekimoto merely because finger pads and tips produce different-sized contact areas any more than there were two registering modes in Rogers (and two registering modes were not in Rogers).

170. Moreover, even though the combination of Rogers and Rekimoto does not disclose element [1f] for the reasons explained above, Petitioners do not provide any legitimate motivations to combine Rogers and Rekimoto.

171. Rogers already has its own solution to address inputs related to contact area/line width (*i.e.*, large fingertips or small stylus inputs by an object). For example, Rogers implements this solution in a single registering mode with a variety of taps, swipes, or touches. Thus, Rogers is specifically designed/programmed/constructed keeping in mind this solution. Petitioners have not explained why a POSITA would add the distinguishing of finger pads and fingertip input during runtime (also related to contact area input) from Rekimoto to solve a similar problem when Rogers already has its own mechanism to solve it. Incorporating the solution of Rekimoto would require, at a minimum, changing the operating system, but Petitioners never explain what these changes entail or how these changes will be implemented other than conclusory and hindsight-driven statements regarding purported “benefits” of Rekimoto. *See* Pet. at 63-37. In other words, Petitioners do not explain why a POSITA would modify Rogers when it already comprises something similar to Rekimoto.

172. A POSITA would not know how to rectify the different device operations and touch screen operations disclosed in Rogers and Rekimoto to combine them into one functioning device. Rogers’ different touches (as disclosed) would start putting the device into different modes as opposed to trying to register the user if combined with Rekimoto. Rogers’ device would not be able to complete its registration process because, if combined with Rekimoto, the system disclosed in

Rekimoto will keep trying to respond with a different operation (*e.g.*, zooming in or out) based on the determined input method. See EX1010, 5:31-37. Petitioners provide no guidance for how a POSITA would modify Rogers in view of Rekimoto to produce the system claimed in element [1f].

173. In sum, it is my opinion that Petitioners have not shown by a preponderance of evidence that Rogers in view of Rekimoto renders element [1f] invalid as obvious.

C. The Rogers-Rekimoto Combination Fails to Disclose Limitation [1d]

174. In Section VIII(C), I explain that Rogers alone does not render obvious element [1d]. I incorporate by reference those opinions to this section herein.

175. Petitioners do not rely on Rekimoto to address the deficiencies in Rogers as to element [1d]. See Pet. at 67; EX1003 at ¶175.

176. As explained herein, Rogers does not disclose second information. The reason for this is that Rogers fails to disclose element [1f], as discussed above. Although some information based on user input may be stored, Rogers fails to disclose the two-mode registering mode. And, since the claimed two-mode registering mode does not occur in Rogers as claimed in the '086 Patent—*i.e.*, the two-mode registering process itself was not completed as claimed—the information stored as a result of that input information cannot be the claimed second information

177. Thus, for the same reasons in Section VIII(C), the combination of Rogers and Rekimoto does not disclose element [1d].

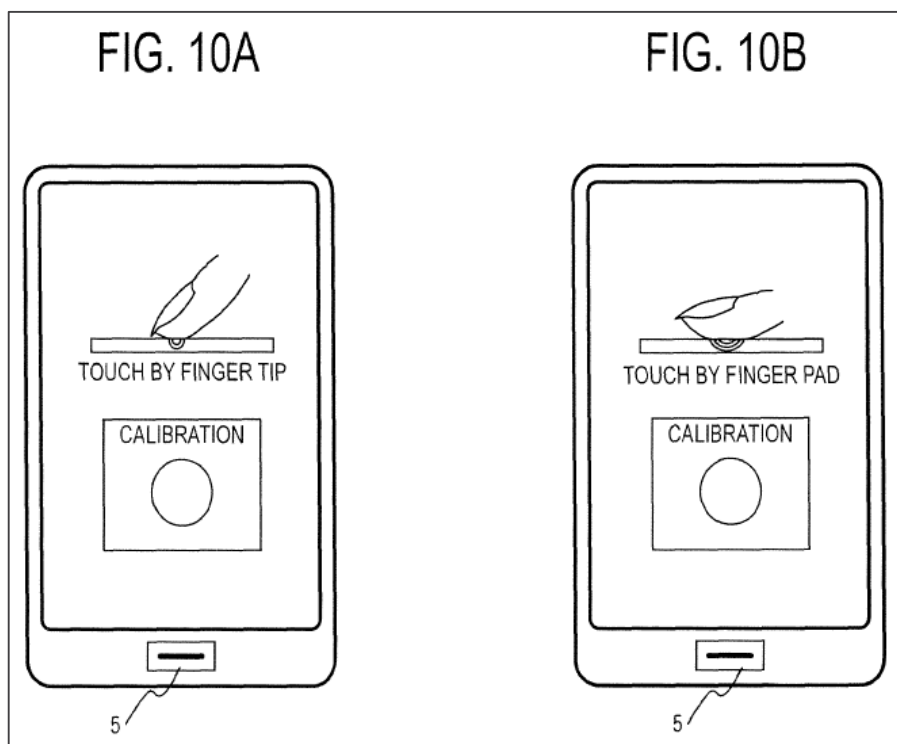
178. In sum, it is my opinion that Petitioners have not proven by a preponderance of evidence that claim 1 of the '086 Patent is rendered obvious by the combination of Rogers and Rekimoto.

D. The Rogers-Rekimoto Combination Fails to Disclose Claims 2 and 4-7

179. For the same reasons as discussed above that Rogers or the Rogers-Rekimoto combination do not anticipate or render obvious claim 1, the Rogers-Rekimoto does not anticipate or render obvious claims 2 and 4-7.

180. Additionally, neither Rogers nor Rekimoto (or the combination) discloses “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. Indeed, Petitioners rely on the knowledge of POSITA alone as describing the images and descriptions required by claim 5.

181. Where Rogers includes many examples of the graphical password, Rogers offers no discussion of any particular graphical user interface implemented to register the graphical password. In comparison, the '086 Patent provides a clear description and depiction of the claimed images and displayed text. For example, Figure 10A “**prompt[s] the user** to make a finger tip contact” and Figure 10B “**prompt[s] the user** to make a finger pad contact.” EX1001, 6:34-36; FIG. 10B.



EX1001, FIGs. 10A, 10B. No comparable discussion or figure is present in Rogers.

182. Moreover, based on their unsuitable interpretation of the first and second registering modes (*i.e.*, as input methods), Petitioners' arguments for claim 5 are at odds with the arguments presented for claim [1f]. For example, for claim 5 Petitioners argue that "it would have been obvious to try as one of a few design choices (use of text and symbol guidance versus no guidance) for **both forms of input.**" Pet. at 74-75 (emphasis added). Absent from the Petition is an articulated reason for why different forms of input would require different images and text *during a registration process*. Therefore, where Petitioners miss the mark in identifying a first and second registering mode, Petitioners cannot provide a

sufficient explanation for finding it obvious to display an image and corresponding text for each registering mode.

XI. GROUND 4: ROGERS IN VIEW OF REKIMOTO AND MIYAZAWA

183. It is my opinion that Petitioners have not proven by a preponderance of evidence that claims 9-14 of the '086 Patent are rendered obvious by Rogers alone or combined with Rekimoto further in combination with Miyazawa for at least the reasons explained above respect to independent claim 1.

XII. CONCLUSION

184. In addition to the opinions and evidence expressed herein, I reserve the right to rebut any arguments made or evidence presented in response to this report. I also reserve the right to supplement this report based on further investigation or analysis. I also plan to use graphic exhibits and/or demonstratives to help illustrate the facts and opinions I have expressed herein.