

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SONY COMPUTER ENTERTAINMENT AMERICA LLC,
Petitioner,

v.

APLIX IP HOLDINGS CORPORATION,
Patent Owner.

Case IPR2015-00729
Patent 7,280,097 B2

Before SALLY C. MEDLEY, BRYAN F. MOORE, and
JASON J. CHUNG, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
Inter Partes Review
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed herein, Petitioner has shown by a preponderance of the evidence that claims 1–14, 16–19, 21–32, and 34–38 of U.S. Patent No. 7,280,097 B2 are unpatentable.

A. Procedural History

Petitioner, Sony Computer Entertainment America LLC, filed a Corrected Petition requesting an *inter partes* review of claims 1–14, 16–19, 21–32, and 34–38 of U.S. Patent No. 7,280,097 B2 (Ex. 1001, “the ’097 patent”). Paper 4 (“Pet.”). Patent Owner, Aplix IP Holdings Corporation, filed a Preliminary Response. Paper 12 (“Prelim. Resp.”). Upon consideration of the Petition and Preliminary Response, on July 22, 2015, we instituted an *inter partes* review of claims 1–14, 16–19, 21–32, and 34–38, pursuant to 35 U.S.C. § 314. Paper 13 (“Dec.”).

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 21 (“PO Resp.”)) and Petitioner filed a Reply (Paper 26 (“Reply”)). Patent Owner filed a Motion for Observations (Paper 28) and Petitioner filed a Response to the Observations (Paper 32). An oral hearing was held on March 30, 2016, and a transcript of the hearing is included in the record (Paper 34 (“Tr.”)).

B. Related Proceedings

The ’097 patent is involved in the following lawsuit: *Aplix IP Holdings Corp. v. Sony Computer Entertainment, Inc.*, No. 1:14-cv-12745 (MLW) (D. Mass.). Pet. 59.

C. The ’097 Patent

The ’097 patent relates to hand-held input acceleration devices that interface with electronic devices, such as cell phones, personal digital assistants (“PDAs”), pocket personal computers, smart phones, hand-held game devices, bar-code readers, MP3 players and other similar input devices having a keypad or one or more input elements. Ex. 1001, 1:10–18. The

hand-held input acceleration device transfers data bi-directionally with a hand-held host device. *Id.* at Abstract.

D. Illustrative Claim

Claims 1, 16, and 27 are the only independent claims. Claims 2–14, 17–19, 21–26, 28–32, and 34–38 directly or indirectly depend from one of claims 1, 16, and 27.

Claim 1, reproduced below, is illustrative.

1. An input accelerator device for controlling a hand-held host device, the input accelerator device comprising:
 - a communication channel configured to interface with the hand-held host device;
 - an input assembly comprising a plurality of input elements, each input element being configured to be selectively mapped to one or more functions of a software application in order to minimize actuation required of at least one input element of the hand-held host device; and
 - an input controller communicatively coupled to the input assembly and the communication channel, the input controller being configured to generate an input signal upon actuation of at least one of the plurality of input elements and being further configured to relay the input signal to the communication channel for transmission to the hand-held host device to control execution of the one or more functions of the software application mapped to the actuated input element.

Ex. 1001, 20:32–50.

E. Grounds of Unpatentability

We instituted an *inter partes* review of claims 1–11 on the following grounds:

Claims	Basis	Reference(s)
1–4, 7, 8, 13, 14, 16–18, 21, 23–29, 31, and 34–38	§ 103(a)	Mollinari ¹ and Nishiumi ²
6, 22, and 32	§ 103(a)	Mollinari, Nishiumi, and Tu ³
5, 9, 19, and 30	§ 102(b)	Shima ⁴
10–12	§ 103(a)	Kerr ⁵ and Lum ⁶

II. ANALYSIS

A. Level of Skill of Person in the Art

We find that the level of ordinary skill in the art is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001); *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995).

¹ WO 2004/007041 A2; Jan. 22, 2004 (Ex. 1003, “Mollinari”).

² U.S. Patent No. 5,903,257; May 11, 1999, (Ex. 1004, “Nishiumi”).

³ U.S. Patent Application Publication No. 2004/0139254 A1; July 15, 2004 (Ex. 1005, “Tu”).

⁴ U.S. Patent Application Publication No. 2002/0198030 A1; Dec. 26, 2002 (Ex. 1006, “Shima”).

⁵ U.S. Patent Application Publication No. 2004/0137983 A1; July 15, 2004 (Ex. 1007, “Kerr”).

⁶ U.S. Patent Application Publication No. 2005/0221894 A1; Oct. 6, 2005 (Ex. 1008, “Lum”).

B. Claim Interpretation

In an *inter partes* review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see also In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015) (“We conclude that Congress implicitly approved the broadest reasonable interpretation standard in enacting the AIA”), *aff’d sub nom. Cuozzo Speed Techs., LLC v. Lee*, No. 15–446, 2016 WL 3369425, at *12 (U.S. June 20, 2016). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Also, we must be careful not to read a particular embodiment appearing in the written description into a claim if the claim language is broader than the embodiment. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (“[L]imitations are not to be read into the claims from the specification.”). However, an inventor may provide a meaning for a term that is different from its ordinary meaning by defining the term in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

input controller configured to generate an input signal . . . to control execution of the one or more functions of the software application

In our Decision to Institute, we determined that it was not necessary to construe any terms. Dec. 4–5. Patent Owner subsequently proposed a construction for the claim 1 term an “input controller configured to generate an input signal . . . to control execution of the one or more functions of the

software application” to be defined as an “‘input controller’ that can interpret input data and convert it to an input signal ready to be mapped to control functions of a software application.” PO Resp. 27–29.

Patent Owner argues that the aforementioned “input signal” must be more than raw, unstructured input data. *Id.* (citing Ex. 1001, 11:10–17, 13:3–5, 15:42–48). Moreover, Patent Owner argues raw, unstructured input data must undergo at least some additional interpretation before it can be mapped to an application function and used to control the function’s execution. *Id.* at 28 (citing Ex. 2009 ¶¶ 68–70). We are not persuaded to import this narrowing construction from the Specification based on the examples argued, because the Specification of the ’097 patent does not include a special definition or any disavowal. Rather, we agree with Petitioner’s argument that the plain language of claim 1, in light of the Specification of the ’097 patent, does not require the scope of the aforementioned claim 1 limitation to require the input controller to interpret or pre-map input signals to software functions. Reply 12–13 (citing Ex. 1001, 11:41–46). We, therefore, decline to adopt Patent Owner’s narrow construction. We, instead, decline to construe the aforementioned term.

hand-held host device

Patent Owner also proposed a construction for the term “hand-held host device.” PO Resp. 26–27. Patent Owner asserts that the term covers only devices designed to be used while held in a user’s hand, such as cell phones, PDAs, or tablets, but not devices that merely *can* be hand-carried, such as “laptop computers and other devices having a keyboard designed to be used with two-handed typing which the device is resting on a table or

lap.” *Id.* Patent Owner argues that the Specification reference to “similar input devices having a keypad” was intended to distinguish from devices with a keyboard. *Id.* at 27 (citing Ex. 1001, 1:10–18, 2:8–12).

In one embodiment, the input accelerator device may communicate “with a variety of hand-held devices such as a cellular phone, PDA, pocket PC, smart phone, laptop, or other similar devices” See Ex. 1001, 14:36–42. Additionally, claim 38 explicitly lists a laptop as a hand-held host device (which can be hand carried) by way of antecedent basis to claim 27. Reply 10–11. We, therefore, decline to adopt Patent Owner’s narrow construction. We, instead, decline to construe the aforementioned term.

input element . . . on [a] surface

Patent Owner also proposed a construction for the term “input element . . . on [a] surface.” PO Resp. 29–30. Patent Owner asserts that the phrase is most broadly understood as a control element “manipulatable by the user’s finger(s).” *Id.* (citing Ex. 1001, Abstract). Patent Owner argues that the Specification’s reference to “biomechanical effect of a human user’s opposing thumb and forefinger” was intended to limit the claims to input elements that the fingers actually touch. *Id.* However, certain claims specifically refer to “biomechanical effect of a human user’s opposing thumb and forefinger,” while others do not. We, therefore, decline to adopt Patent Owner’s narrowing interpretation. Finally, Patent Owner argues that claim 4 lists sixteen alternative embodiments of surface input elements, all of which involve direct manipulation by the fingers. *Id.* However, as Patent Owner acknowledges, these are merely “alternative embodiments” rather than a special definition, or a disavowal. *Id.* In addition, claim 4 is a

dependent claim and we decline to import a limitation of claim 4 into other claims.

Patent Owner has not cited to sufficient evidence from the Specification that the patentee intended to limit the claims to direct contact with the fingers or thumb. We, therefore, decline to adopt Patent Owner's narrow construction. We, instead, decline to construe the aforementioned term.

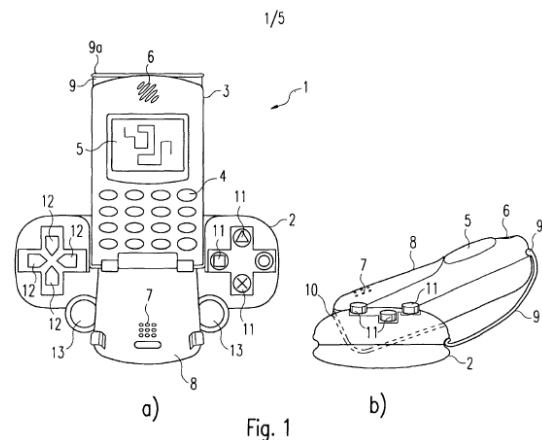
configured to optimize a biomechanical effect of the human user's opposing thumb and fingers

Patent Owner also proposed a construction for the term “configured to optimize a biomechanical effect of the human user's opposing thumb and fingers.” PO Resp. 30–31. Patent Owner states “A person of skill in the art would understand that input assemblies “configured to optimize a biomechanical effect of the human user's opposing thumb and fingers’ are those arranged to take advantage of the natural forces and movements achievable by human digits arranged in opposition to each other. *Id.* at 30. Patent Owner also emphasizes the ability to pinch and squeeze and pull apart that are part of the concept of “opposing,” but does not seek to limit the claims to pinching and squeezing. *Id.* Patent Owner's proposed construction primarily rearranges the words of the claim and provides an example without clarifying the meaning of any disputed word. Patent Owner, rather, emphasizes the use of the plain English word “opposing.” We determine that it is not necessary to construe this term for purposes of this decision.

C. Obviousness over Mollinari and Nishiumi

Petitioner contends that claims 1–4, 7, 8, 13, 14, 16–18, 21, 23–29, 31, and 34–38 are unpatentable under 35 U.S.C. § 103 based on Mollinari and Nishiumi. Pet. 7–27. To support its contentions, Petitioner provides a detailed showing, mapping limitations of claims 1–4, 7, 8, 13, 14, 16–18, 21, 23–29, 31, and 34–38 to structures taught by Mollinari and Nishiumi. *Id.* Petitioner also relies upon the Declaration of Dr. Gregory F. Welch (Ex. 1009) to support its position.⁷

Mollinari teaches a game controller holding a releasable mobile telecommunication terminal. Ex. 1003, Abstract. Figure 1 of Mollinari is reproduced below.



As shown in Figure 1 of Mollinari, the game controller includes inputs 11, 12, 13 on a front surface for user commands. Mollinari teaches a first set of keys 11 that are used to activate certain game functions, while a second set of keys 12 are used for navigational purposes. *Id.* at 6:30–33. Mollinari

⁷ Patent Owner argues that the Board should give Dr. Welch’s testimony little weight. PO Resp. 7–8, 35–36. We are not persuaded by the arguments. The evidence to which we are directed does not support the conclusion that Dr. Welch is not a credible witness. *See id*; Ex. 1039 ¶¶ 2–13.

teaches transmitting the user commands using data transmission means to and from mobile telecommunications terminal 3, 3a, 3b, 3c held by the game controller. *Id.* at Abstract. Mollinari teaches user commands as a user pressing buttons or moving a joy-stick to react to events of a game installed on their mobile phone and re-mapping the user commands into a scan code required by a game application. *Id.* at 7:4–12, 11:9–12:21. Mollinari's data transmission means may include an electromechanical connector, wireless infrared, wired infrared, other optical interfaces, or wireless short range radio data transmission such as Bluetooth. *Id.* at 6:25–26, 7:15–25, Fig. 9.

Nishiumi teaches a game controller having inputs on a front surface and a bottom surface. Ex. 1004, 7:1–5. Figures 7 and 8 of Nishiumi are reproduced below.

FIG. 7

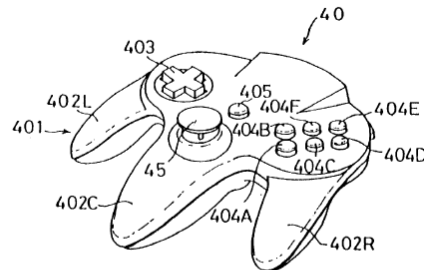
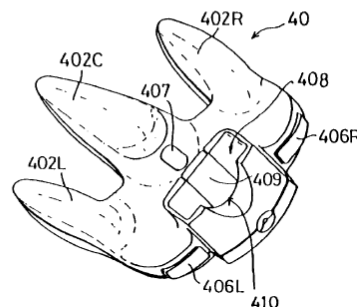


FIG. 8



As shown in Figure 7 of Nishiumi, there are numerous front surface inputs including designation switch 403, input keys 404A–F, and analog

joystick 45. *See also* Ex. 1004, 6:45–67. In addition, as shown in Figure 8 of Nishiumi, bottom surface switch 407 is formed approximately at the center of the game controller, and side surface switches 406L, 406R are located on the side of the game controller. *See also id.* at 6:45–7:1–5.

Nishiumi Is Analogous Art

Patent Owner argues that Nishiumi is not analogous art because it is neither in the same field of endeavor as the '097 patent nor reasonably pertinent to the particular problem addressed by the '097 inventors. PO Resp. 10–19, 32–33. We have considered Patent Owner's arguments, but do not find them persuasive.

The test for determining whether a prior art reference constitutes analogous art to the claimed invention is: (1) whether the prior art is from the same field of endeavor, regardless of the problem addressed, or (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *See In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004).

Patent Owner conflates the two prong analogous art test. In an attempt to define the field of invention of the '097 patent, Patent Owner looks to the problems solved by the inventors and argues that the '097 patent is concerned with streamlining interactions with hand-held host devices like PDAs and smart phones. PO Resp. 14–15. Such a showing is insufficient to establish the field of endeavor.

In determining the field of endeavor, we look to the '097 patent's written description and claims, including the structure and function of the invention. *Bigio*, 381 F.3d at 1326. And, we agree with Petitioner that in

defining the field of invention, and in determining the relevance of Nishiumi to the obviousness inquiry, here a broad approach should be taken. Reply 4–7. Indeed, the Supreme Court provided guidance in determining the applicability of a reference’s teachings in an obviousness inquiry. In *KSR Int’l Co. v. Teleflex Inc.*, the Court explained that if a feature has been used to improve one device, and a person of ordinary skill in the art would have recognized that it would improve a similar device in that field or another, implementing that feature on the similar device is likely obvious. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007).

Here, the appropriate scope of the field of endeavor is at least hand-held input devices for interfacing with electronic devices. Ex. 1001, 1:10–19, 5:48–54, 14:35–41. Patent Owner characterizes Nishiumi as being in the field of recalibrating joystick origin points to address joystick-manufacturing defects. PO Resp. 10–14. However, in arriving at that description, Patent Owner too narrowly characterizes the Nishiumi invention. Nishiumi is within the field of endeavor because it teaches hand-held input devices for interfacing with electronic devices. Ex. 1004, Abstract, 1:5–12, Figs. 7–8.

Because we find that Nishiumi is within the same field of endeavor as the claimed invention, we need not consider Patent Owner’s arguments regarding whether Nishiumi is reasonably pertinent to the particular problem with which the inventors are involved. PO Resp. 15–19.

*Claims 1, 13, 14, 16, 25–27, and 36–38*⁸

As to claims 1, 16, and 27, Petitioner argues that Mollinari teaches an input accelerator (game controller 2, 2a, 2b, 2c) with a communication

⁸ Patent Owner argues that we should not rely on Petitioner’s anticipation arguments to evaluate obviousness, but that we should observe that no

channel (data transmission means 57) to interface with a hand-held host device (mobile phone 3c). Pet. 10–22. Petitioner argues that Mollinari teaches mapping selectively one or more input elements (control elements 11 and/or 13 to its right and control elements 12 and/or 13 to its left) to one or more functions of a software application running (a game) on the hand-held host device to control the mapped one or more functions of the application in order to minimize actuation required of at least one input element of the hand-held host device (button/key and/or joystick). *Id.* Petitioner argues that Mollinari teaches an input controller (controller 42) communicatively coupled to the input assembly and communication channel, the input controller being configured to generate an input signal (commanded statement in AT-command format) upon actuation of at least one of the plurality of elements, and further configured to relay the input (scan code) to the communication channel for transmission to the hand held host device to control execution of the one or more functions of the software application mapped to the actuated input element. *Id.*

evidence has been presented about how any proposed combination of prior art references renders obvious claims 1, 13, 14, 16, 25–27, and 36–38. PO Resp. 5–7. We decline to do so. Although Petitioner alleges claims 1, 13, 14, 16, 25–27, and 36–38 are unpatentable as obvious, yet appears to present a case of anticipation, we determine that such a presentation is not a basis for dismissing the petition. It is axiomatic patent law that a disclosure that anticipates under 35 U.S.C. § 102 also may render the claim unpatentable under 35 U.S.C. § 103, because anticipation is the epitome of obviousness. *See In re McDaniel*, 293 F.3d 1379, 1385 (Fed. Cir. 2002) (“It is well settled that ‘anticipation is the epitome of obviousness.’”) (quoting *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983)).

As to claims 13, 14, 25, 26, 36, and 37, Petitioner argues Mollinari teaches a serial I/O port and a wireless Bluetooth connection. Pet. 16. As to claim 38, Petitioner argues that Mollinari teaches using mobile phones or personal digital assistants. Pet. 22.

Patent Owner argues that the combination of Mollinari and Nishiumi fails to teach the claim 1 limitation an “input controller [being] configured to generate an input signal . . . to control execution of the one or more functions of the software application.” PO Resp. 32, 37–40. Patent Owner explains Mollinari teaches merely “raw,” “unstructured” user input data rather than the “raw,” “unstructured” data additionally undergoing processing before it is ready to be used to control execution of the functions of a software application. *Id.* at 27, 32–35.

We disagree with Patent Owner that claim 1 requires “raw,” “unstructured” data undergoing additional data processing before it is ready to be used to control execution of the functions of a software application for the reasons discussed *supra* in Part II.B. Moreover, as discussed *supra* in Part II.B., we declined to construe the aforementioned claim 1 term to be limited as Patent Owner suggests.

Claims 16 and 27 contain essentially the same limitations as claim 1. Patent Owner does not argue claims 13, 14, 16, 25–27, and 36–38 separately. PO Resp. 10–40. We agree with Petitioner’s showing, as recited above, which we adopt as our own, that Mollinari in combination with Nishiumi would have rendered obvious claims 1, 13, 14, 16, 25–27, and 36–38.

Claims 2–4, 7, 8, 17, 18, 21, 23, 24, 28, 29, 31, 34, and 35

Petitioner argues that Nishiumi’s i) control elements 11 and/or 13 to its right and control elements 12 and/or 13 to its left, ii) bottom surface switch 407 and input keys 404A–F, iii) side surface switches 406L/406R, and iv) analog joystick 45, v) control element 12 (for navigation), vi) control element 11 (to activate a function in a game) meet the limitations of i) “first one of the plurality of input elements being located on a front surface” (claims 2, 17, and 28), ii) “second one of the plurality of input elements, the second one of the plurality of input elements being located on a rear surface” (claims 2, 17, and 28), iii) “a third one of the plurality of input elements, the third one of the plurality of input elements being located on a side surface” (claims 3, 18, and 29), iv) “a miniature analog thumb joystick,” (claims 4, 21, and 31), v) “the front input . . . configured to accelerate . . . navigational control” (claims 7, 23, and 34), and vi) the front input . . . configured to accelerate game play” (claims 8, 24, and 35) respectively. Pet. 24–28. Petitioner concludes that one of ordinary skill in the art would have recognized that Mollinari’s game controller could be modified to include elements on the side and rear surfaces, like Nishiumi’s analogous game controller with input elements, to enhance the user’s ability to control a game application running on the mobile telecommunications terminal. *Id.* at 22–24.

Claims 2–4, 7, 8, 17, 18, 21, 23, 24, 28, 29, 31, 34, and 35 directly or indirectly depend from claims 1, 16, and 27. Petitioner accounts for dependent claims 2–4, 7, 8, 17, 18, 21, 23, 24, 28, 29, 31, 34, and 35. Pet. 15–19. We agree with Petitioner’s showing, which we adopt as our own, that Mollinari in combination with Nishiumi teach the additional limitations

of claims 2–4, 6, and 7. Patent Owner does not argue claims 2–4, 7, 8, 17, 18, 21, 23, 24, 28, 29, 31, 34, and 35 separately. PO Resp. 28–35.

Mollinari and Nishiumi Can Be Combined

Patent Owner argues that Mollinari and Nishiumi cannot be combined because Petitioner relies on hindsight and failed to identify a sufficient basis to combine Mollinari and Nishiumi because Petitioner “cherry picks” parts of Nishiumi using hindsight to fit them together. PO Resp. 33–36. We disagree. As stated above, Petitioner asserts that one of ordinary skill in the art would have recognized that Mollinari’s game controller could be modified to include elements on the side and rear surfaces, like Nishiumi’s analogous game controller with input elements, to enhance the user’s ability to control a game application running on the mobile telecommunications terminal. *Id.* at 22–24. In addition, Dr. Welch explained that arranging inputs in this manner would result in “the ability to concurrently control additional aspects of a game running on the game controller of Mollinari without re-positioning one’s hand [and] would offer a significant advantage.” Reply 18 (citing Ex. 1009 ¶ 44). Thus, Petitioner provided articulated reasoning with rational underpinnings to support the motivation to combine the teachings of Mollinari and Nishiumi (*see In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

D. Obviousness over Mollinari, Nishiumi, and Tu

Petitioner contends that claims 6, 22, and 32 are unpatentable under 35 U.S.C. § 103 based on Mollinari, Nishiumi, and Tu. Pet. 28. To support its contentions, Petitioner provides a detailed showing, mapping limitations of claims 6, 22, and 32 to structures taught by Mollinari, Nishiumi, and Tu.

Id. at 28–30. Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1009) to support its position.

Tu teaches using efficiently an input device, such as a game controller, for alphanumeric character entry. Ex. 1006 ¶ 2. Figure 4 of Tu is reproduced below.

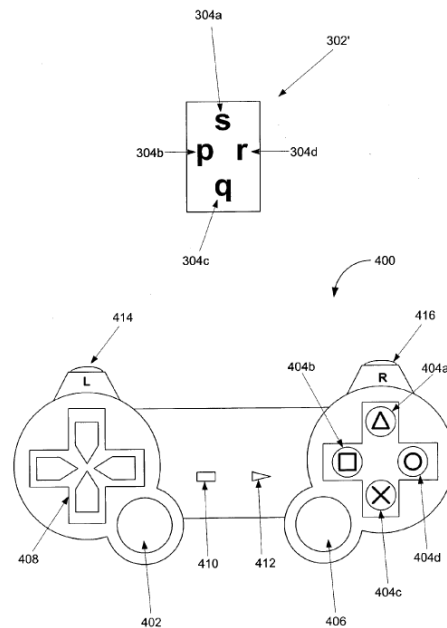


FIG. 4

As shown in Figure 4 of Tu, a user using a game controller enters data quickly and easily without needing to examine visually an entire list of characters. *See also* Ex. 1006 ¶¶ 14–17, 32–33.

Tu Is Analogous Art

Patent Owner argues that Tu is not analogous art because it is neither in the same field of endeavor as the '097 patent nor reasonably pertinent to the particular problem addressed by the '097 inventors. PO Resp. 20–24. We have considered Patent Owner's arguments, but do not find them persuasive.

As discussed *supra*, the two part test for analogous art is: (1) whether the prior art is from the same field of endeavor, regardless of the problem addressed, or (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

Patent Owner conflates the two prong analogous art test. In an attempt to define the field of invention of the '097 patent, Patent Owner looks to the improvements to the problems solved by the inventors and argues that the '097 patent is concerned with serving as a multi-purpose do-all that would improve how users interacted with a wide variety of hand-held devices. PO Resp. 21. Such a showing is insufficient to undermine that Tu is in the same field of endeavor as described in the '097 patent.

In determining the field of endeavor, we look to the '097 patent's written description and claims, including the structure and function of the invention. *Bigio*, 381 F.3d at 1326. And, we agree with Petitioner that in defining the field of invention, and in determining the relevance of Tu to the obviousness inquiry, here a broad approach should be taken. Reply 3–5, 7–9. Indeed, the Supreme Court provided guidance in determining the applicability of a reference's teachings in an obviousness inquiry. In *KSR*, the Court explained that if a feature has been used to improve one device, and a person of ordinary skill in the art would have recognized that it would improve a similar device in that field or another, implementing that feature on the similar device is likely obvious. *KSR*, 550 U.S. at 417.

Here, the appropriate scope of the field of endeavor is at least hand-held input devices for interfacing with electronic devices. Ex. 1001, 1:10–19, 5:48–54, 14:35–41. Patent Owner characterizes Tu as being in the field

of improving a stationary home videogame console having a software-user interface controlled by a game controller. PO Resp. 22. However, in arriving at that description, Patent Owner too narrowly characterizes the Tu invention. Tu is within the field of endeavor because it teaches a hand-held input devices for interfacing with electronic devices. Ex. 1006 ¶¶ 2, 33, 37–38, Figs. 3, 4, 8A–8B.

Because we find that Tu is within the same field of endeavor as the claimed invention, we need not consider Patent Owner’s arguments regarding whether Tu is reasonably pertinent to the particular problem with which the inventors are involved. PO Resp. 22–24.

Claims 6, 22, and 32

Claims 6, 22, and 32 indirectly depend from claims 1, 16, and 27 respectively. Claims 6, 22, and 32 recite “accelerate text[ual] input.” Petitioner relies on Tu’s description of a user using a game controller entering data quickly and easily without needing to examine visually an entire list of characters to meet the limitation of “accelerat[ing] text input.” Pet. 23–25. Petitioner concludes that one of ordinary skill in the art would have recognized that the hand-held device of Mollinari and Nishiumi’s game controller device could be modified with alphanumeric data inputting, like Tu’s game controller, to input rapidly alphanumeric data. *Id.*

Patent Owner argues that applying Tu’s text selection system to Mollinari would decelerate text entry because Mollinari already has a grid of keys available to the user in the native host interface device. PO Resp. 40–41 (citing Ex. 2009 ¶¶ 141–44). We disagree with Patent Owner’s argument because Tu teaches accelerating input on a phone with a keypad. Reply 20–21 (citing Ex. 1006 ¶¶ 11–14). In addition, Tu teaches that embodiments of

the invention could be used with cell phones. *Id.* (citing Ex. 1006 ¶ 33). Thus, Tu's text selection system would provide a benefit of accelerated input over using Mollinari's grid of keys.

Patent Owner also argues that Mollinari's host device provides a screen that is too small to be used comfortably with Tu's character-selection grid showing characters in a large font that works on displays such as a generous sized television screen. PO Resp. 41. We disagree with Patent Owner's argument because Tu teaches that embodiments of the invention could be used with cell phones, personal digital assistants, car navigation systems, audio/video players, CD players, MD players, and DVD players. Reply 21 (citing Ex. 1006 ¶ 33). In addition, nothing in Tu limits the teachings to television screens and nothing in the claims of the '097 patent require accelerated input on a host device with a large screen. *Id.* (citing Ex. 1009 ¶ 44).

We, therefore, agree with Petitioner's showing, and adopt it as our own, that Mollinari in combination with Nishiumi and Tu would have rendered obvious claims 6, 22, and 32.

E. Obviousness over Kerr and Lum

Petitioner contends that claims 10–12 are unpatentable under 35 U.S.C. § 103 based on Kerr and Lum. Pet. 43–59. To support its contentions, Petitioner provides a detailed showing mapping limitations of claims 10–12 to structures taught by Kerr and Lum. *Id.* Petitioner also relies upon the Declaration of Dr. Welch (Ex. 1009) to support its position.

Kerr teaches a gaming shell structure for receiving a handheld wireless device, such as wireless phone 100. Ex. 1007 ¶ 66. Figure 7 of Kerr is reproduced below.

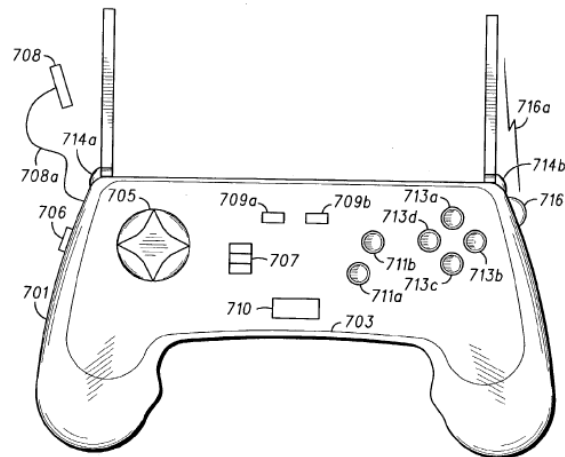


FIG. 7

As shown in Figure 7 of Kerr, the gaming shell includes interface connector 708a that connects to accessory port 115 of wireless device 100. *Id.* ¶ 72. Alternatively, Kerr also teaches the interface device may include a Universal Serial Bus, RS-232 Transceiver, Universal Asynchronous Receiver/Transmitter, microchip, or other circuitry to receive and transmit information such as infrared data. *Id.* ¶ 86. In addition, Kerr teaches mapping input elements 713a–d on the gaming shell structure to various gaming functions, such as launching a missile in a shooting game, jumping, kicking, punching, flipping in an action game. *Id.* ¶ 79. Further, Kerr teaches the user's data inputs are in the form of instructions and hardware memory processor 805 receives the instructions and acts on these instructions. *Id.* ¶¶ 86–88. Kerr teaches transferring the user's data inputs from the gaming shell to the wireless phone, and then the wireless phone performs an action on the gaming operation in response to the data. *Id.* ¶ 89.

Lum teaches a game controller having central processing unit 402, memory 404, 406, 408, and input elements 420/422. Ex. 1008 ¶¶ 46–47. Figure 4 of Lum is reproduced below.

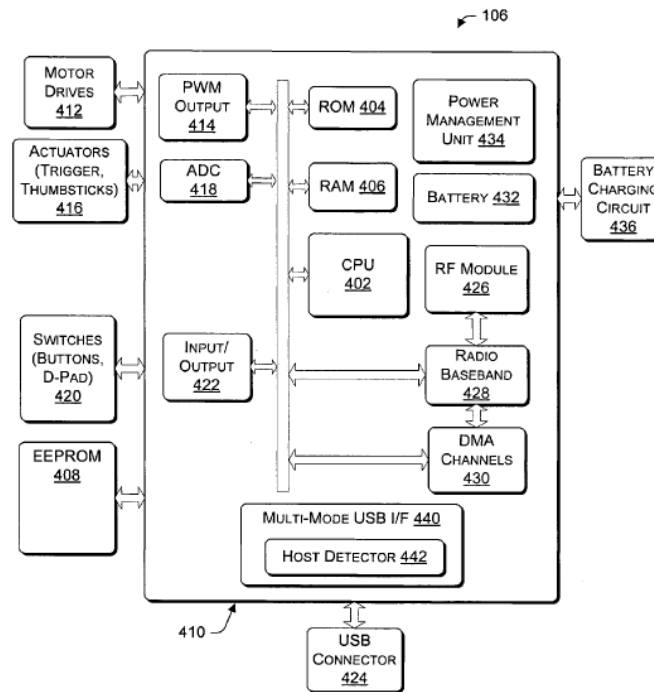


Fig. 4

As shown in Figure 4 of Lum, one or more bussing structures connect central processing unit 402, memory 404, 406, 408, and input elements 420/422 together. *See also* Ex. 1008 ¶¶ 46–47.

Claims 10–12⁹

Each of claims 10–12 ultimately depends from claim 1. Claim 10 recites a storage device storing one or more instructions. Claim 11 recites

⁹ Patent Owner argues that we should not rely on Petitioner’s anticipation arguments to evaluate obviousness, but that we should observe that no evidence has been presented about how any proposed combination of prior art references renders obvious claims 10 and 11. PO Resp. 5–7. We decline to do so. Although Petitioner alleges these claims are unpatentable as obvious, yet appears to present a case of anticipation, we determine that such a presentation is not a basis for dismissing the petition. It is axiomatic patent law that a disclosure that anticipates under 35 U.S.C. § 102 also may render the claim unpatentable under 35 U.S.C. § 103, because anticipation is the epitome of obviousness. *See McDaniel*, 293 F.3d at 1385 (“It is well settled

the one or more instructions comprising at least one of a text application, a mapping software, a firmware, a gaming application, or a scrolling application. Claim 12 recites a processor interpreting the input signal and executing the one or more instructions and a bus configured to direct communications to and from the processor.

Petitioner argues that Kerr teaches a gaming shell structure having input elements used to control game applications on handheld wireless devices such as cellular phones as required by claim 1. Pet. 46. Petitioner argues that Kerr's operating circuit 807 detects the operating state containing data of the input elements and transfers the data to wireless phone 100 as required by claim 1. *Id.* at 46–47. Petitioner argues that Kerr teaches a hardware processor that is also a storage device that stores and executes one or more instructions relating to firmware or a gaming application to meet the limitations of claims 10 and 11. *Id.* at 50–52.

Petitioner argues that Lum's one or more bussing structures connecting central processing unit 402, memory 404, 406, 408, and input elements 420/422 together meets the limitation of “a bus configured to direct communications to and from the processor” as recited in claim 12. Pet. 59. Petitioner concludes that one of ordinary skill in the art would have recognized that Kerr's game controller could be modified as a simple design choice to include well known bus components, like Lum's similar game controller with input elements, to enable the processor to communicate with other electronic components using a bus. Pet. 58 (citing Ex. 1009 ¶ 54).

that ‘anticipation is the epitome of obviousness.’”) (quoting *Connell*, 722 F.2d at 1548).

Patent Owner argues that Kerr fails to teach what kind of processing it might perform. PO Resp. 41–44. We are not persuaded by Patent Owner’s argument because claims 10 and 11 of the ’097 patent do not recite or require any particular kind of processing. Reply 21–22. Claim 12 recites “a processor configured to interpret the input signal and execute the one or more instructions,” which is what Kerr teaches. Specifically, Kerr teaches that “[p]rocessor 805 receives the instructions from interface device 803 and acts on the instructions.” *Id.* (citing Ex. 1007 ¶ 87).

Patent Owner argues that “nothing in Kerr discloses or suggests that Processor 805 ‘stores and executes one or more instructions relating to firmware or a gaming application’” as required by claim 10. PO Resp. 44. We disagree with Patent Owner’s argument because Kerr teaches that the processor “may be implemented as hardware,” which includes EEPROM, flash memory, and/or RAM. Reply 22–23 (citing Ex. 1007 ¶ 88). A person having ordinary skill in the art would have understood that in order to receive and act on instructions, a processor would need to store the instructions, which is why processors, like Kerr’s processor, included some type of memory. *Id.* at 22 (citing Ex. 1039 ¶¶ 46–47). Kerr teaches that “[t]he software program in processor 805 may include an algorithm for initiating a vibration mechanism,” which teaches the claim 11 limitations “instructions comprise at least one of . . . firmware” (software in the processor) and “instructions comprise at least one of . . . gaming application” (vibration of a game controller). *Id.* (citing Ex. 1007 ¶ 87).

Patent Owner argues that Kerr fails to teach the claimed “input controller” that generates an “input signal.” PO Resp. 44–45 n.14. As discussed *supra* in Part II.B., we declined to construe the aforementioned

claim 1 term to be limited as Patent Owner suggests. Kerr teaches monitoring operating states of gaming buttons and transferring that electrical data to a wireless phone. Reply 23 (citing Ex. 1007 ¶¶ 89, 121; Ex. 1039 ¶ 29).

We, therefore, agree with Petitioner's showing, and adopt it as our own, that the combination of Kerr and Lum renders obvious claims 10–12.

F. Anticipation by Shima

Petitioner asserts that claims 5, 9, 19, and 30 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Shima. Pet. 30. To support its contentions, Petitioner provides detailed explanations as to how the prior art meets each claim limitation. *Id.* at 30–43.

Patent Owner asserts that Petitioner relies “exclusively on attorney argument” regarding the Shima reference. PO Resp. 46. We are not persuaded by this argument. Patent Owner is correct that “[t]he Board expects that most petitions and motions will rely upon affidavits of experts.” Prelim. Resp. 4 (quoting Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,763 (Aug. 14, 2012)). Nevertheless, expert testimony is not a prerequisite to establish anticipation when “the references and the invention are easily understandable.” *See Wyers v. Master Lock Co.*, 616 F.3d 1231, 1242 (Fed. Cir. 2010). Where the factual inquiries underlying the patentability determination are not in material dispute, expert testimony, though it might be helpful, may not be indispensable. *Allergan, Inc. v. Barr Labs., Inc.*, 501 F. App'x 965, 972 (Fed. Cir. 2013) (nonprecedential). Here, there is no dispute as to how Shima operates, only as to whether Shima reads on the claims as properly construed. Therefore, we reject Patent Owner's suggestion that expert testimony is required on this point. Nevertheless, as

to claim construction issues relevant to the Shima challenge, Petitioner relies upon a Supplemental Declaration of Dr. Gregory F. Welch, who has been retained as an expert witness by Petitioner for the instant proceeding. Ex. 1039 ¶¶ 35–37.

Shima discloses a portable telephone set having input elements used to control cursor functions on a “portable type personal computer” such as a laptop, a notebook-sized personal computer, or a handheld personal computer. Ex. 1006 ¶¶ 1, 8, 30, Fig. 14. Specifically, the portable telephone set includes mouse input element 5 that selectively is mapped to cursor control or scrolling functions of a software application on the personal computer. *Id.* ¶¶ 32–33, 50, 65–66, Figs. 4, 5, 14, 15. Likewise, key switches 4 selectively may be mapped to character and numerical input functions. *Id.* ¶ 33. Shima discloses that the mouse input element on the portable telephone is to be used in lieu of a “mouse incorporated in a personal computer body” because of the poor operability in comparison with an external mouse. *Id.* ¶ 9. The portable telephone set also includes display section 8, control section 3 that is communicatively coupled to the input elements 4 and 5 and external interface 6. *Id.* ¶¶ 30–31, 59, Figs. 2, 3, 13. Control section 3 generates a transmission signal upon actuation of input elements such as the mouse input element 5 or selection/execution button. *Id.* ¶¶ 31–0032, 59, 61–62, Fig. 2. The control section 3 transmits the transmission signal to the personal computer through the external interface 6. *Id.* ¶¶ 64–66, Fig. 15. The transmission signal controls execution of

cursor and scrolling functions on application software running on the personal computer. *Id.*

Petitioner argues that Shima describes an input accelerator (portable telephone set) with a communication channel (external interface 6) to interface with a hand-held host device (portable computer). Pet. 32. Petitioner also argues that Shima describes selectively mapping one or more input elements (mouse type input section 5) to one or more functions of a software application (application including a “MENU”) running on the hand-held host device to control the mapped one or more functions (MENU function) of the application to minimize actuation of at least one input element of the hand-held host device. *Id.* at 32–34. Petitioner also argues that Shima describes an input controller as recited in claim 1 (control section 3). Pet. 34–36.

Claims 5, 9, 19, and 30

As to claims 5, 19, and 30, Petitioner argues Shima’s button on the front side of the main body of the portable telephone set that is to be manipulated by the user’s index or middle finger and key 33 on the side surface of the main body to be manipulated by the user’s thumb (Pet. 31, 36 (citing Ex. 1006 ¶¶ 38, 41, Fig. 5A)) meet the limitation of “the front input assembly, the rear input assembly, and the side input assembly are further configured to optimize a biomechanical effect of the human user’s opposing thumb and fingers.” Pet. 31, 36, 38, 40, 42. Petitioner relies on Shima’s display section 8 to meet the limitation of the input accelerator “comprising a display unit” as recited in claim 9. Pet. 39.

Patent Owner argues that Shima’s portable telephone set would not be combined with a hand-held device. PO Resp. 46–51. Patent Owner’s

argument is based on its construction of the term “hand-held device,” which excludes laptops. *Id.* We did not adopt that construction. Therefore, we are not persuaded by Patent Owner’s argument.

Patent Owner argues that Shima’s alleged rear surface, which contains a mouse-type input section is not an input because it does not receive direct contact from a finger or thumb. *Id.* at 52–53. We declined to adopt Patent Owner’s narrow construction requiring direct contact. Thus, we are not persuaded by this argument.

Patent Owner next argues that claims 5, 19, and 30’s recitation of “the front input assembly, the rear input assembly, and the side input assembly are further configured to optimize a biomechanical effect of the human user’s opposing thumb and fingers” requires all three surfaces each to optimize the effect of one’s opposing thumb and fingers by direct contact with the thumb or fingers. *Id.* We disagree.

We acknowledge that the first part of the claim phrase lists three surfaces using the conjunctive word “and.” Thus, all three surfaces are included in the group. Nevertheless, the claims go on to state that the three assemblies are configured to optimize the effect of one’s opposing thumb and fingers. Opposition involves two sides, not necessarily three. Patent Owner’s expert testifies that “[a] person of skill in the art would understand that input assemblies ‘configured to optimize a biomechanical effect of the human user’s thumb and fingers’ must be arranged to use the natural force and movement of the human hand, like pinching or squeezing.” Ex. 2009

(Lim Decl.) ¶ 74. Additionally, in discussing the term surface,¹⁰ as recited in claims 17 and 28, Patent Owner states “the ‘surfaces’ be sufficiently distinct that they can be configured to optimize a biomechanical effect of human fingers and thumbs in contact *with each*.” PO Resp. 31 (emphasis added). As to claims 5, 19, and 30, however, Patent Owner has not explained sufficiently how the three surfaces (front, side, and rear) each take advantage of the natural opposing force.

We recognize that, as to biomechanical effect, the Specification states, “[t]he input accelerator device may be configured to optimize a biomechanical effect of a human user’s opposing thumb and fingers by including, on one surface, one or more software configurable input elements manipulatable by the user’s thumb(s) or finger, and, on another surface, one or more software configurable selection elements manipulatable by a user’s finger(s).” Also, claims 5, 19 and 30 specifically recite a front and side assembly configured to optimize a biomechanical effect of a human user’s opposing thumb and fingers. We determine, as is depicted in the figures of the ’097 patent (though not explained in the Specification), having buttons on the side and on the front of a device takes advantage of the human ability to grasp and manipulate buttons on the side and front of a three dimensional object. *See* Ex. 1039; *see also* Reply 25 (“there can be no dispute that Shima discloses two separate surfaces, each with input elements manipulatable by a user’s thumb or fingers.”)

¹⁰ Patent Owner argues, in connection with claim 17 and 28, the claimed first, second, and third surface could be on the same side. Claims 5, 19, and 30, however, recite a front, side, and rear assembly.

Patent Owner also asserts, without citation to evidence, that having the top and side perpendicular to each other does not take advantage of the opposing fingers and thumbs. PO Resp. 54–56. Nevertheless, the claims explicitly contemplate front and side input assemblies. Neither Patent Owner, nor its declarant, explains sufficiently or cites to evidence in the Specification explaining sufficiently how the combination of a side and front button could take advantage of the opposing force in a way they say is required to meet the limitations for claims 5, 19, and 30. Also, all of the embodiments in the Specification disclose side buttons on a surface that is generally perpendicular to the front surface. Ex. 1001, Figs. 5a–d, 6, 7a–d; *see also Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1570 (Fed. Cir. 1997) (rejecting patentee’s arguments where the “patent itself does not disclose the level of detail that Lockwood would have us require of the prior art”). Therefore, we are not persuaded by this argument.

We, therefore, agree with Petitioner’s showing, and adopt it as our own, that Shima discloses the limitations claimed in claims 5, 9, 19, and 30.

Conclusion

Petitioner has proved, by a preponderance of the evidence that: claims 1–4, 7, 8, 13, 14, 16–18, 21, 23–29, 31, and 34–38 are unpatentable over the combination of Mollinari and Nishiumi; claims 6, 22, and 32 are unpatentable over the combination of Mollinari, Nishiumi, and Tu; claims 10–12 are unpatentable over the combination of Kerr and Lum; and claims 5, 9, 19, and 30 are unpatentable over Shima.

III. CONCLUSION

Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that claims 1–4, 7, 8, 13, 14, 16–18, 21, 23–

29, 31, and 34–38 of the '097 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Mollinari and Nishiumi; claims 6, 22, and 32 of the '097 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Mollinari, Nishiumi, and Tu; claims 10–12 of the '097 patent are unpatentable under 35 U.S.C. § 103(a) as obvious over Kerr and Lum; and claims 5, 9, 19, and 30 of the '097 patent are unpatentable under 35 U.S.C. § 102(a) as anticipated by Shima.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–14, 16–19, 21–32, and 34–38 of the '097 patent are held unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2015-00729
Patent 7,280,097 B2

For Petitioner:

Eric A. Buresh
Abran J. Kean
ERISE IP, P.A.
eric.buresh@eriseip.com
abran.kean@eriseip.com

For Patent Owner:

Michael Mauriel
Sherman Kahn
MAURIEL KAPOUYTIAN WOODS LLP
mmauriel@mkwllp.com
skahn@mkwllp.com

Robert J. Gilbertson
Sybil Dunlop
X. Kevin Zhao
GREENE ESPEL PLLP
bgilbertson@greeneespel.com
sdunlop@greeneespel.com
kzhao@greeneespel.com