

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIVECOR, INC.,
Petitioner,

v.

APPLE INC.,
Patent Owner

Case IPR2024-00095
Patent 10,568,533

**PATENT OWNER'S
PRELIMINARY RESPONSE**

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RELEVANT CLAIM LANGUAGE

Claim Elements	Claim Limitations
[20.pre]	A non-transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a first electronic device with a display and one or more input devices including a biometric sensor, the one or more programs including instructions for:
[20.a]	displaying, on the display, a first user interface indicating that the first electronic device is ready to detect biometric information;
[20.b]	detecting a first input with the biometric sensor that satisfies first criteria;
[20.c.1]	in response to detecting the first input with the biometric sensor: starting to record biometric information detected by the biometric sensor;
[20.c.2]	displaying, on the display, a second user interface that is different from the first user interface, wherein the second user interface includes an indication of progress in recording the biometric information;

[20.d]	after recording at least a portion of the biometric information, detecting, via the one or more input devices, that the first criteria are no longer met;
[20.e]	in response to detecting that the first criteria are no longer met for a first period of time, resetting the indication of progress in recording the biometric information and maintaining display of the second user interface;
[20.f]	in response to detecting that the first criteria are no longer met for a second period of time that is longer than the first period of time, replacing display of the second user interface with the first user interface.

I. INTRODUCTION

Patent Owner, Apple Inc. (“Apple”), submits this preliminary response to Petitioner, AliveCor Inc.’s (“AliveCor”) Petition for *inter partes* review of U.S. Pat. No. 10,568,533 (“the ’533 Patent”) in IPR2024-00095. The Petition challenges the patentability of claims 20-22, 24, 29, and 37 (the “Challenged Claims”) of the ’533 Patent based on obviousness in view of two key prior art combinations. The first combination includes AHIT (Ex-1006), Hooper (Ex-1007), and Cho (Ex-1008). The second combination includes Petterson (Ex-1009), Albert (Ex-1010), and Nakada (Ex-1011). For the reasons discussed below, AliveCor has not shown that the Challenged Claims are unpatentable.

AliveCor’s invalidity grounds based on these prior art combinations are deficient in two ways. First, the Petition fails to establish a reasonable likelihood of demonstrating that the asserted prior art renders obvious the requirement of independent claim 20 to “replac[e] display of [a] second user interface with [a] first user interface,” where the “first user interface” indicates “that the first electronic device is ready to detect biometric information.” *See* §III.A, *infra*. This deficiency is present in all grounds advanced in the Petition and thereby warrants denial of institution.

Second, each of AliveCor’s prior art combinations is itself legally insufficient as based on impermissible hindsight. Specifically, AliveCor proposes

combinations that use the “replacing” limitation as a roadmap to combine teachings of the asserted prior art. In the first combination (AHIT, Hooper, Cho), AliveCor proposes incorporating teachings from Hooper that are entirely unrelated to health monitoring into AHIT’s wearable device. In the second combination (Pettersen, Albert, Nakada), AliveCor similarly proposes incorporating teachings unrelated to health monitoring—a modified version of Nakada’s error detection technique to provide the capability to reset a user interface in Pettersen. *See* §III.B, *infra*. Notably, however, none of the asserted prior art references actually teaches what AliveCor purports is provided by the combinations—the capability to transition between user interfaces—revealing that the proposed combinations rely on impermissible hindsight. AliveCor’s motivations to combine are thus deficient.

Because AliveCor fails to demonstrate a reasonable likelihood of establishing unpatentability of any of the Challenged Claims, the Board should deny institution.

II. THE ’533 PATENT

A. Description

The ’533 Patent is focused on addressing “problems relating to a user’s ability to manage health monitoring using electronic devices.” Ex-1001, 4:35-60. Specifically, the ’533 Patent recognizes that prior art techniques for managing health monitoring electronic devices are “generally cumbersome and inefficient,”

and sometimes involve use of a “complex and time-consuming user interface, which may include multiple key presses or keystrokes.” Ex-1001, 1:45-52. To address these deficiencies, the ’533 Patent discloses novel techniques that “provide[] electronic devices with faster, more efficient methods and interfaces for managing health monitoring.” *Id.*, 1:53-67. For example, the claimed interfaces may “reduce the cognitive burden on a user and produce a more efficient human-machine interface” in a manner that “enable[s] a user to quickly and easily capture health information....” *Id.*

B. Claims

The claims of the ’533 Patent require specific types of user interfaces to record biometric information. *See, e.g.*, Ex-1001, 102:12-40 (claim 20). The problem addressed by the claims is interrupted recordings while biometric input is recorded on a device. *Id.* This is a unique problem arising in automatic biometric sensing systems since interrupted recordings often result in deficient sample sizes for accurate evaluations of the biometric input by certain computing algorithms. *Id.*, 34:28–42. The ’533 Patent describes efficient ways to ensure that a user’s sample size is sufficient. *Id.* The ’533 Patent also deals with other computing issues and addresses problems in the prior art that had no solution, such as handling device inactivity while collecting biometric input and reducing the

cognitive burden on a user during such collection. *See, e.g., id.*, 1:45-67, 11:41-56, 102:12-40 (claim 20).

C. Relevant Challenged Claim Features

Claim 20 is the only independent challenged in the Petition. Claim 20 is directed to a “non-transitory computer-readable storage medium storing one or more programs configured to be executed by one or more processors of a first electronic device.” The “one or more programs” in claim 20 include “instructions” for at least the following requirements¹:

[20.a]: displaying, on [a] display, a *first user interface* indicating that the first electronic device is ready to detect biometric information;

...

[20.c.2]: displaying, on the display, *a second user interface that is different from the first user interface*, wherein the second user interface includes an indication of progress in recording the biometric information; [and]

...

[20.f]: in response to detecting that [] first criteria are no longer met for a second period of time that is longer than [a] first period of time, *replacing display of the second user interface with the first user interface*.

¹ This Preliminary Response adopts the numbering convention used in the Petition.

See Ex-1001 at 102:12-40 (emphasis added). Through antecedent basis, the “replacing” requirement of [20.f] requires a specific type of “replac[ement]” under plain meaning—replacing display of a “second user interface” that “includes an indication of progress in recording the biometric information” (per [20.c.2]) with a “first user interface indicating that [a] first electronic device is ready to detect biometric information” (per [20.a]).² Thus, the “replacing” requirement specifically requires replacing a user interface containing the “indication of progress” with a different user interface that ‘indicat[es] that [a] first electronic device is ready to detect biometric information.’”

As discussed below, the Petition ignores this aspect of the claim language, and in doing so, fails to identify, with particularity, how the asserted prior art discloses or renders obvious at least the “replacing” requirement of [20.f]. AliveCor therefore fails to establish a reasonable likelihood that the Challenged Claims are obvious based on the asserted prior art.

² AliveCor does not propose any express constructions of any claim term and states that “[t]he tems should receive their respective *plain and ordinary meaning* as understood by a person of ordinary skill in the art....” Pet., 5.

III. ALIVECOR FAILS TO MEET ITS BURDEN OF SHOWING THAT THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. AliveCor Fails to Establish a *Prima Facie* Case That the Asserted Prior Art Satisfies the “Replacing” Requirement of Independent Claim 20

1. *Grounds 1 and 2 Are Deficient Because Neither AHIT nor Hooper Replaces Display of a User Interface that Indicates Progress in Recording Biometric Information with a User Interface Ready to Detect Biometric Information*

As discussed above, while [20.f] includes express language requiring a “replac[ement]” of a second user interface with a first user interface, AliveCor’s proposed mapping lacks any meaningful discussion of user interface transitions. Indeed, AliveCor admits that AHIT “does not explicitly teach replacing a display in response to detecting that the first criteria are no longer met for a second period of time.” Pet., 33. Despite alleging this limitation is obvious, the Petition only provides the following conclusory analysis:

..., although such a change in the display would have been obvious to a POSITA in view of AHIT’s explicit goal of *promptly* notifying the user and saving wearable device resources.

Pet., 33 (emphasis added)

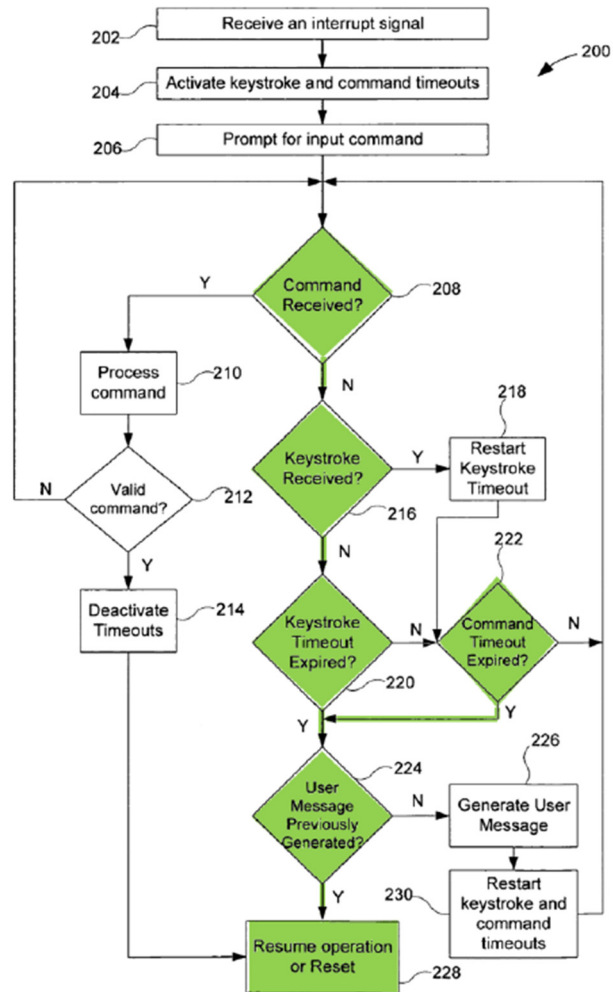
But this statement fails to explain why a POSITA would have replaced “the second user interface” *with the* “first user interface” or otherwise address why replacing one interface with another would save wearable device resources. It also

presumes, without explanation or evidence, that the time that it takes for a user to correct inputs on AHIT's device would have necessarily consumed significant wearable device resources.³ AliveCor's expert (Dr. Craig Rosenberg) merely parrots the same analysis in the Petition nearly word-for-word, without any further reasoning or corroborating evidence. Thus, AliveCor's position is not supported by substantial evidence, and does not establish a reasonable likelihood of success. *See* Ex-1003, ¶248.

Additionally, AliveCor fails to demonstrate how the teachings of AHIT and Hooper—even if properly combined (which, as discussed in §III.B, *infra*, they are not)—sufficiently address the requirement of [20.f] to “*replac[e]* display of the second user interface *with the first user interface*.” AliveCor refers to Hooper's Figure 2 (reproduced below) and states that Hooper's “resuming initialization or resetting the data processing device would replace the display.” Pet., 34-35.

³ This statement also conflates AHIT's disclosure of allowing a user to “promptly” correct his/her inputs and its use of “prompts” to display information. AHIT's use of “promptly” focuses on enabling a user to “learn whether his/her operations are correct,” rather than limiting the time period for a user to provide input, as characterized by AliveCor. *See* Pet., 9-10; Ex-1006, [0039].

Ex. 1007, Fig. 2 (annotated)



Pet., 35 (citing Ex-1007, FIG. 2; annotations in original)

But merely replacing of a display is insufficient to satisfy the “replacing” requirement of [20.f]. As discussed above in §II.C, the “replacing” requirement of [20.f] specifically requires that the “second user interface” is replaced by a “first user interface” that “indicat[es] that the first electronic device is ready to detect biometric information.” AliveCor’s mapping of the claim language to Hooper fails

to address at least this requirement because the Petition does not address how either of Hooper's initialization or resetting of a data processing device results in a display of the user interface that AliveCor contends is the "first user interface" recited in [20.a]. *See* Pet., 33-35.⁴

For the "first user interface" in [20.a], AliveCor identifies two alleged interfaces: (1) AHIT's "preset icon" and (2) Hooper's "prompt for a command." *See* Pet., 19-21. Neither of these interfaces, however, is displayed when the device resumes initialization or is reset, as described in Hooper. AHIT's "preset icon" is only displayed "when collecting ECG data" after a "trigger action" performed by a user has been detected. Ex-1006, ¶¶[0038]-[0039]. The "preset icon" is not displayed when AHIT's device is initialized or reset. And nothing in AHIT suggests that the "preset icon" is displayed and continues collecting ECG data when an error condition has persisted for a threshold period of time. In fact, AHIT repeatedly confirms what that when an error condition has been detected, it

⁴ Notably, in Ground 1, the Petition advances no combination with Cho in its mapping to [20.f]. The Petition instead contends that "*AHIT* and *Hooper* render obvious [20.f]." Pet., 33. AliveCor's mapping to Cho for the "second user interface" recited in [20.c.2] is therefore left unaddressed in the mapping to [20.f]. *See id.*, 26-27 (citing Ex-1008, ¶125, FIG. 3B).

“**stop[s]** collecting the current ECG data, store[s] the collected ECG data, and **end[s] the operation.**” Ex-1006, ¶¶[0053]; Fig. 3, S304. Even assuming that the “preset icon” meets the requirements of the “first user interface” under [20a], nowhere does AHIT suggest that its device replaces any interface with AHIT’s “preset icon” or otherwise displays the “preset icon” upon resuming initialization or resetting.

Hooper similarly fails to describe or suggest replacing any interface with its “prompt for a command.” Hooper is clear that its “prompt for a command” is displayed only “upon receipt of an interrupt signal.” Ex-1007, 3:40-42; Fig. 2. It is not displayed during an uninterrupted initialization, or resetting. And a POSITA would have had no reason to return to Hooper’s “prompt for a command” after expiration of its second timer. In fact, returning to an interface with the “prompt for a command” stemming from an interrupt signal would defeat the purpose of Hooper’s timers, and in fact teaches away from limitation [20f]’s “replacing” requirement. As Hooper explains, its timers help prevent a system from waiting and failing to initialize indefinitely in response to a spurious or unintentional interrupt signal. Ex-1007, 1:46-64. Instead of waiting indefinitely for a command after receiving an interrupt signal, Hooper’s timers cause the system to resume initialization or reset when a command has not been received for a threshold period of time. *Id.*, 2:41-55. In doing so, Hooper’s system **stops** prompting for a

command and resumes or restarts its normal boot/initialization process. If Hooper's system would return its interface to the "prompt for a command" after expiration of its second timer, it would continue to wait for user input and would remain stuck indefinitely. Pet., 21, *see* Ex-1007, 1:55-59 ("If no such valid user command is provided, the initialization process will not resume and the associated device will not complete the initialization process").

Moreover, Hooper confirms that the "initialization" or "reset" processes would not have involved replacing a current display with one that indicates that a electronic device is "ready to detect biometric information," as recited in [20.a]. Indeed, as Hooper recognized in its Background section, "[w]hen a data processing device is reset or initially powered-on, an initialization, or boot process begins[.]" which involves "the BIOS generally provid[ing] instructions for the tasks that the device performs at start-up[.]" including "hardware initialization, Power-On Self Test (POST), and booting an operating system." Ex-1007, 1:28-35. Hooper thereby acknowledges scenarios in which, subsequent to a device resuming initialization or being reset in block 228 of its Figure 2 process, a display of the device does not prompt for an interrupt command, much less provide a user interface in which the device is ready to detect biometric information.

The Petition again makes a cursory attempt to allege that a POSITA would have found the limitation obvious, offering only the following sentence:

“A POSITA would have found it obvious, in view of AHIT’s disclosure of saving wearable device resources and the well-known desire to save on battery power, to revert to the first user interface after the first input was no longer detected for a second period of time.”

Pet., 35.

Here, again, AliveCor fails to provide evidence or any explanation as to why reverting to the first user interface would save wearable device resources and battery power, as compared to AHIT’s technique of stopping collection of ECG data and ending the operation. Nor does AliveCor explain why a POSITA would have replaced the second user interface *with the first user interface* that indicates that the electronic device is “ready to detect biometric information,” or otherwise address why replacing one interface with another would save wearable device resources. And AliveCor does not address the reasons discussed above for why a POSITA would not have found it obvious to revert to AHIT’s “preset icon” or Hooper’s “prompt for a command.” Here too, Dr. Rosenberg parrots the same analysis in the Petition nearly word-for-word, without any further reasoning or corroborating evidence. *See* Ex-1003, ¶250.

Simply put, AliveCor has not provided any prior art reference that describes or suggests *replacing display of a second user interface* that indicates progress in recording biometric information *with the first user interface* indicating that the

first electronic device is ready to detect biometric information. For these reasons, AliveCor's Grounds 1 and 2 based on AHIT and Hooper fail.

2. *Ground 3 Is Similarly Deficient Because AliveCor's Mapping to Nakada's Contact Condition Determination Routine Would Not Have Replaced a User Interface And Therefore Fails to Cure Deficiencies in Petterson*

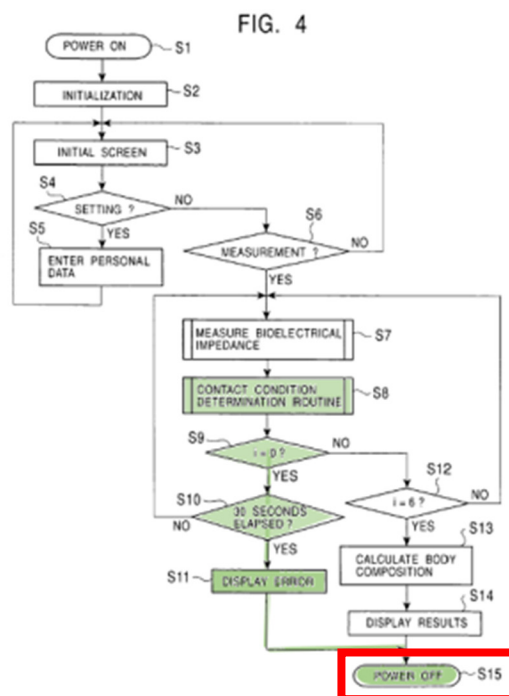
AliveCor's secondary ground is similarly deficient with respect to the "replacing" requirement of claim 20. First, AliveCor relies on Petterson alone, initially positing that a POSITA "would have understood that resetting the user interface at least because of lack of interaction is suggestive that the user wants to start over." Pet., 68-69. This reasoning is conclusory because it presumes, without evidentiary support, that a lack of interaction on a user interface necessarily reflects a user desire to restart physiological monitoring.⁵ Notably, neither the Petition nor the corresponding portion of the Rosenberg Declaration cited by the Petition identifies any disclosure from the asserted prior art or any evidence to support this position. *Id.* The Rosenberg Declaration merely includes the same conclusory statements as the Petition without additional support. Ex-

⁵ Notably, because AliveCor states a POSITA would have "understood" the referenced proposition, its contention is based on anticipation and not obviousness.

1003, ¶1379. AliveCor's position is therefore not supported by any substantial evidence.

Second, AliveCor fails to demonstrate how the teachings of Petterson, Albert, and Nakada—even if properly combined (which, as discussed in §III.B.2, *infra*, they are not)—sufficiently address the requirement of [20.f] to “*replac[e]* display of the second user interface with the first user interface.” AliveCor refers to Nakada’s Figure 4 (reproduced below) and characterizes this disclosure as teaching “resetting the user interface” such that “the system is returned back to the beginning state of the routine, which in the case of Petterson would be FIG. 2B.” Pet., 70-71.

Ex. 1011, Fig. 4 (annotated)



Pet., 70 (citing Ex-1011, FIG. 4; green annotations in original, red box added)

But even this additional position—that Nakada’s FIG. 4 disclosure would have rendered obvious a configuration involving “resetting the user interface”—is flawed. First, it relies on the same conclusory reasoning discussed above (for AliveCor’s position for Petterson alone) that the “lack of interaction is suggestive that the user wants to start over.”⁶ Pet., 68-69. Second, it is unsupported by the disclosures of either Petterson or Nakada, which AliveCor acquiesces by failing to cite to any specific teachings from either reference to support the purported configuration of “resetting the user interface.” *See* Pet., 70-71.

Worse, AliveCor’s position plainly contradicts Nakada’s clear and unequivocal disclosure. AliveCor states “*Nakada confirms that **after 30 seconds have elapsed** an error is displayed and then **the system is returned to the beginning state of the routine.***” Pet., 71 (emphasis added). AliveCor is wrong—Nakada does not disclose returning to the beginning state of the routine. Rather, Nakada describes that, after thirty seconds have elapsed (in STEP S10), the system

⁶ Notably, the conclusory nature of AliveCor’s allegations is underscored by its use of the same word-for-word statements in addressing each of the respective disclosures of Petterson and Nakada. *Compare* Pet., 68-69 (addressing Petterson), *and* 70-71 (addressing Petterson in combination with Nakada).

displays an error (in STEP S11), and then powers off in STEP S15. *See* Ex-1011, 9:40-10:7.

Specifically, Nakada describes that, “[a]fter a bioelectrical impedance is measured, a contact condition determination routine which determines from the measured value if the living body is in proper contact with the electrodes is executed (STEP S8).” Ex-1008, 9:40-44. Further, “[i]n the contact condition determination routine, the value of the number *i* of normal contacts is checked to check whether the contact condition is normal (STEP S9).” *Id.*, 9:45-57. “If the contact condition is not normal, the microcomputer 3 checks from the timer installed therein whether 30 seconds have elapsed from the start of the bioelectrical impedance measuring mode (STEPS10).” *Id.* Additionally, “if 30 seconds have already elapsed, the microcomputer 3 determines that an accurate measurement could not be made at this time and ***displays an error on the display section 4*** (STEP S11).” *Id.*, 9:45-57. Further, “[u]pon passage of a [given] time after ***display of the error in STEP S11*** and display of the measurement result in STEP S14, ***the display is shut down, and the power of the body fat meter is also turned off automatically*** (STEP S15).” *Id.*, 10:4-7 (emphasis added).

Indeed, Nakada is clear that its process displays an error, shuts down the display, and turns off the body fat meter. *Id.* Nowhere does Nakada disclose, teach, or suggest “return[ing] to the beginning state of the routine,” much less

disclose, teach, or suggest replacing a second user interface that includes an indication of progress with a first user interface indicating that the device is ready to detect biometric information. *See* Pet., 71. Thus, unlike the claimed “replacing” operation of [20.f], where a user interface that is “ready to detect biometric information” is displayed, Nakada’s Figure 4 process results in *both* a display and an associated biological sensor being shut off, and, thus, being unable to replace or otherwise display a user interface that is “ready to detect biometric information,” as required by [20.a] for the “first user interface.”

Similar to Grounds 1 and 2, AliveCor has not provided any prior art reference that describes or suggests *replacing display of a second user interface* that indicates progress in recording biometric information *with the first user interface* indicating that the first electronic device is ready to detect biometric information. For these reasons, AliveCor’s Ground 3 involving Petterson and Nakada fails.

B. AliveCor’s Proposed Prior Art Combinations are Legally Deficient

1. AliveCor Relies on Improper Hindsight in Combining the Asserted Prior Art

Beyond the substantive defects in its prior art mappings (*see* §III.A, *supra*), each of AliveCor’s proposed prior art combinations represents an improper hindsight reconstruction in an attempt to reach the “replacing” requirement recited

in [20f]. *See, e.g., Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 36 (1966) (warning against “the temptation to reach into the prior art the teachings of the invention in issue.”); *Grain Processing Corp. v. Am. Maize-Products*, 840 F.2d 902, 907 (Fed. Cir. 1988) (“Care must be taken to avoid hindsight reconstruction by using the patent in suit as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.”).

Rather than identifying predictable problems to support its proposed combinations, AliveCor instead offers contrived reasons based on the ’533 Patent itself for a POSITA to consider extremely different references together and look beyond their actual disclosures. For example, in Ground 1, AliveCor posits that, in reviewing AHIT, “a POSITA would have turned to Hooper” for its teaching of “displaying a prompt for the user to perform an action to proceed once an interruption has occurred and a countdown.” Pet., 9-10. But AHIT never expresses a desire for handling interruptions, and its description of “promptly” correcting user input mistakes is based on improving user learning and unrelated to Hooper’s user prompting. Ex-1006, [0039]. Similarly, in Ground 3, AliveCor states in conclusory fashion that a POSITA reviewing Petterson “would have looked to the various displays of Nakada to ensure the user was informed as to the progress of the test.” Pet., 46-47. But Petterson already describes user interface

displays that AliveCor argues a POSITA would have looked to find in Nakada. *See id.*, 51-54, 59. Nakada’s displays, on the other hand, relate to body fat monitoring, and thus, are less pertinent to the Challenged Claims. These arguments are fraught with hindsight bias. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (“A patent composed of several elements is not proved obvious by merely demonstrating that each of its elements was, independently, known in the prior art.”); *see also Innogenetics, N.V. v. Abbott Labs.*, 512 F.3d 1363, 1373-74 (Fed. Cir. 2008).

As discussed above, none of the asserted prior art references independently satisfies the requirements of the “replacing” limitation in in [20.f]. Attempting to address this specific defect within the prior art, AliveCor proposes combinations that purportedly provide functionality that it argues would have motivated the combinations. But because the functionality *is rooted* in the claim language—and not the prior art disclosures—it is the product of hindsight.

Notably, each of AliveCor’s motivations to combine focuses on various periods of time for a user to respond to monitoring even though this aspect is not a key focus of either AHIT or Petterson. *See, e.g., Pet.*, 11 (“As a result, the POSITA would have combined these references so as to provide the user of AHIT with *a first duration of time to correct a fault*, such as by displaying the instructions of Cho and resetting after a *second duration...*”) (emphasis added);

id., 49 (“The POSITA would have known that the use of ***time periods*** would ensure a user could achieve a full data collection process if so desired, and that waiting indefinitely to send a congratulatory message to a user may not lead to a user taking better care of themselves”) (emphasis added). Rather, this functionality referenced in these statements is not in the prior art, and is instead in claim 20 of the ’533 Patent itself, which expressly recite a “first period of time” and a “second period of time” in [20.e] and [20.f], respectively. Using the patent as a roadmap to combine references is textbook impermissible hindsight. *In re Wesslau*, 353 F.2d 238, 241 (CCPA 1965) (“It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art”); *see also Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 796 F.2d 443, 449-49 (Fed. Cir. 1986) (holding that the district court, by failing to consider a prior art reference in its entirety, ignored portions of the reference that led away from obviousness).

Finally, as to Ground 3, AliveCor contends that “implementing Nakada’s ***resetting*** an indication of progress and time periods in Petterson would have led to predictable result of an ECG test that included the suggested prompts and time limits taught by Petterson.” Pet., 50 (emphasis added). But, as discussed in

§III.A.2, *supra*, Nakada’s Figure 4 does not include any “reset” steps. Thus, reset functionality does not result in a “predictable result,” as posited by AliveCor. Pet., 17. The combination of Petterson and Nakada must instead be the product of impermissible hindsight. Pet., 17.

2. *AliveCor Also Fails to Support its Combinations with Sufficient Motivations to Combine*

a) The Combination of AHIT and Hooper Involves Non-Analogous Art

For Grounds 1 and 2, AliveCor’s alleged motivation to combine AHIT and Hooper fails to establish that a POSITA looking to implement AHIT would have been motivated to look to the teachings of Hooper. While AliveCor superficially attempts to demonstrate that Hooper is analogous to the ’533 Patent, its attempt is misguided—Hooper does not suffice. *See generally* Pet., 8-9 (fn 1).

“[A] reference qualifies as prior art for an obviousness determination under § 103 only when it is analogous to the claimed invention.” *Inventio AG v. Otis Elevator Co.*, 497 Fed. Appx. 37, 41 (Fed. Cir. 2012) citing *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011). “In deciding whether a reference is from a relevant art, it is key to first determine whether the reference is within the inventor’s field of endeavor, and if not, ‘whether the reference is reasonably pertinent to the particular problem confronting the inventor.’” *Chemours Co. FC, LLC v. Daikin*

Indus., 4 F.4 1370, 1376 (Fed. Cir. 2021) quoting *In re GPAC Inc.*, 57 F.3d 1573, 1578 (Fed. Cir. 1995) (citation omitted).

Despite AliveCor’s superficial statements to the contrary, Hooper’s express disclosures confirm that it is neither in the same field of endeavor as the ’533 Patent nor reasonably pertinent to the problem solved by the ’533 Patent.

AliveCor broadly contends that AHIT, Hooper, and Cho are “in the same field of electronic device design.” Pet., 8. AliveCor further characterizes Hooper as being “directed to a ‘data processing device’ that detects and handles input received from a user.” *Id.* (citing Ex-1007, 2:15-41). In contrast, AliveCor proposes the level of ordinary skill in the art as including “working knowledge of ***physiological monitoring technologies*** and human interface design.” *Id.*, 7 (emphasis added). Thus, while AliveCor’s POSITA definition broadly acknowledges the field of the ’533 Patent,⁷ the Petition otherwise fails to show how or why Hooper’s disclosure related to data processing is sufficiently relevant to physiological monitoring technologies.

⁷ As discussed in §III.A.2(b), *infra*, AliveCor identifies the problem being solved by the ’533 Patent as “relating to a user’s ability to manage ***health monitoring*** using electronic device.” Pet., 2 (citing Ex-1001, 4:35-60) (emphasis added).

These broad and imprecise characterizations ignore express disclosures in Hooper and the '533 Patent, and are also an insufficient showing of obviousness for AliveCor's proposed combination of AHIT and Hooper. *See* IPR2018-00827, Pap. 9, 10 (PTAB 2018) (citing *Securus Techs., Inc. v. Global Tel*Link Corp.*, 701 F. App'x 971, 977 (Fed. Cir. 2017) ("a broad characterization of [prior art references] as both falling within the same alleged field . . . without more, is not enough for [Petitioner] to meet its burden of presenting a sufficient rationale to support an obviousness conclusion") (informative); *see also* IPR2022-00676, Pap. 10, 16 (PTAB 2022).

Further, the field of endeavor test examines whether the structure and function of the prior art is such that it would be considered by a POSITA because of the similarity to the structure and function of the claimed invention. *Netflix Inc., et al. v. DIVX, LLC*, 2021 Pat. App. LEXIS 5469, *20 (PTAB 2021) (citing *In Re Alberto Lee Bigio*, 381 F.3d 1320, 1325-27 (Fed. Cir. 2004)). Hooper bears no resemblance to the '533 Patent in either structure or function.

Specifically, unlike the physiological monitoring and wearable device technologies AliveCor recognizes are disclosed in the '533 Patent, Hooper is not focused on either wearable devices or physiological monitoring. Hooper instead describes "data processing devices, such as personal computer and server systems [that] are well known in the art." Ex-1007, 1:20-27. Hooper also identifies

examples of the “data processing device” as a “personal computer, a server computer, or a node of a server cluster in a data storage system.” *Id.*, 2:56-57. There is no disclosure of the “data processing device” performing any type of physiological monitoring or otherwise managing health. *See* Pet., 1 (fn 1).

Hooper is additionally distinguishable from the ’533 Patent because its disclosure is not reasonably pertinent to the problems AliveCor identifies as being solved by ’533 Patent—“managing health monitoring.” Pet., 2; *see id.*, 8-9 (fn 1) (citing Ex-1001, 1:41-42). Its characterization of Hooper providing “efficiency by detecting and handling interrupts so as to avoid a situation where the device is indefinitely suspended” also does not cure this subject matter gap. *Airbus S.A.S. v. Firepass*, 941 F.3d 1374, 1382 (Fed. Cir. 2019) (“A reference outside an inventor’s field of endeavor is ‘reasonably pertinent’ only if its subject matter logically would have commended itself to an inventor’s attention in considering his problem.”)

Indeed, there is no logical connection between the problems sought to be solved by Hooper and those solved by the ’533 Patent. Hooper sought to provide techniques to improve the detection and handling of spurious inputs to prevent impairment of system operation relating to preventing indefinite suspension of system operation, e.g., during hardware initialization. *See* Ex-1007, 1:20-2:18. As discussed in §II.A, *supra*, the ’533 Patent is instead focused on techniques that “provide[] electronic devices with faster, more efficient methods and interfaces for

managing health monitoring.” Ex-1001, 1:53-67. Other than generic human-computer interactions, there is no relationship between the problem or purpose addressed in Hooper and that of the ’533 Patent. For this reason, Hooper is not reasonably pertinent to the ’533 Patent. *Donner Tech. LLC v. Pro Stage Gear, LLC*, 979 F.3d 1353, 1359 (Fed. Cir. 2020) (reasonable pertinence “ultimately rests on the extent to which the reference of interest and the claimed invention relate to a similar problem or purpose”).

Because Hooper is not analogous art to the ’533 Patent, its disclosure cannot support Grounds 1 and 2 of the Petition. In addition, AliveCor’s attempt to pull unrelated teachings from Hooper’s BIOS interrupt technology and prompting for interrupt commands into AHIT’s ECG monitoring device (which does not relate to BIOS interrupts or receive the types of commands received by Hooper) is riddled with hindsight. For these reasons, AliveCor has not sufficiently demonstrated that a POSITA would have combined AHIT with Hooper.

b) The Combination of Petterson and Nakada Requires a Modification of Nakada’s Teaching That Contradicts AliveCor’s Motivation to Combine

AliveCor’s modification of Nakada in the Petterson-Nakada combination is logically inconsistent with its attempt to justify the combination. AliveCor argues that a “POSITA would have understood that *Petterson* could have been modified to include the **change of the display** as in Nakada.” Pet., 49-50. However, this

modification is at odds with AliveCor's statement that, in the combination, Nakada's "error condition" monitoring helps "maintain battery life of the device." *Id.* In Nakada's unmodified configuration, STEP S15 "shut[s] down" a display of the device and also turns off the "power of the body fat meter." Ex-1011, 10:4-7. Thus, modifying Nakada's Figure 4 process to "reset a user interface," as AliveCor proposes, would have required the device to remain powered on, thereby consuming greater battery power relative to what Nakada actually teaches. *See id.* This is contrary to Nakada's express disclosure.

AliveCor's proposed modification to Nakada (to reset a user interface) would also render redundant and/or obsolete other teachings of Nakada's Figure 4 process, such as STEPS S10 and S12, which already provide ways to reset the bioelectric impedance measurement process at S7. *See* Ex-1011, 9:45-10:3. This confirms the deficiencies in AliveCor's proposed combination of Petterson and Nakada. *See, e.g., Chemours Co. FC, LLC v. Daikin Indus.*, 4 F.4th 1370, (Fed. Cir. 2021) (reversing obviousness where a proposed modification would necessarily involve altering the inventive concept of prior art); *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (finding no motivation to modify the prior art where doing so "would destroy the basic objective" of the prior art).

IV. CONCLUSION

For the reasons set forth above, AliveCor fails to establish a reasonable likelihood of prevailing with respect to at least one claim of the '533 Patent.

Accordingly, Apple respectfully requests the Board to deny institution of *inter partes* review of the Petition against the '533 Patent.

Respectfully submitted,

Date: February 16, 2024

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CERTIFICATION UNDER 37 CFR § 42.24(d)

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Patent Owner's Response to Petition totals 5,501, which is less than the 14,000 allowed under 37 CFR § 42.24(b)(1).

Respectfully submitted,

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), the undersigned certifies that on February 16, 2024, a complete and entire copy of this Patent Owner's Preliminary Response was provided by email, to the Petitioner by serving the email correspondence addresses of record as follows:

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