

Filed: May 6, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,

Petitioner,

v.

CHIAN CHIU LI,

Patent Owner.

Case No. IPR2023-00560

Patent No. 11,016,564 B2

PATENT OWNER'S PRELIMINARY RESPONSE

PURSUANT TO 37 C.F.R. § 42.107

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I. INTRODUCTION

On February 7, 2023, Apple Inc. (“Petitioner”) submitted a petition (“Petition”) for *inter partes* review (IPR) of U.S. Patent No. 11,016,564 B2 (Ex. 1001, “the ’564 Patent”), challenging claims 1-6, 8-12, 14-16, and 18-20 (“the Challenged Claims”). The Petition should be denied because it is not reasonably likely to succeed on any of its grounds of unpatentability.

Ground 1 of the Petition relies on a combination of U.S. Patent No. 10,540,013 (Ex. 1004, “Ryu”) and U.S. Patent Publication No. 2010/0079508 (Ex. 1005, “Hodge”). Ground 2 of the Petition relies on a combination of Ryu, Hodge, and U.S. Patent No. 8,331,992 (Ex. 1006, “Stallings”).

Petitioner has failed to meet the burden under 37 C.F.R. § 42.104(b)(4) to “specify where each element of the claim is found in the prior art patents or printed publications relied upon.” Specifically, the Petition fails to show where the following limitation is found in the prior art: “Performing (or perform) gaze detection only after detecting (or sensing) the act”. As such, Petitioner fails to demonstrate that the limitation (i.e., one element of the Challenged Claims) is disclosed in the cited art.

Accordingly, the Petition should be denied in its entirety.

II. THE '564 PATENT

U.S. Patent No. 11,016,564, titled “System and Method for Providing Information,” illustrates methods for presenting information to a user at a mobile device such as a smartphone or tablet. (Ex. 1001 at 2:29-41.) In some embodiments, a user’s gaze direction is ascertained to determine when to present information. (*Id.* at 2:16-18.) With gaze detection, it provides an easy, simple, and secure method to unlock a standby device and display information. (*Id.* at FIG. 6, 6:61-7:2.) As disclosed in the '564 Patent, gaze detection may be performed in three different scenarios as described below:

1. Gaze detection is performed continuously without a trigger act (which may be referred to as Scenario #1). (*Id.* at FIG. 2, 2:33-36, 4:31-38);

2. Gaze detection is performed after an act of a user is detected, wherein the act includes the user approaches a device or moves the device (e.g., shaking the device) (which may be referred to as Scenario #2). (*Id.* at 6:32-37, 6:58-66, FIG. 6.) For example, “[w]hen a user approaches a device, sensor 20 may detect it and then the system may activate sensor 10 to detect the user's gaze direction []” and “a circuitry may be configured such that shaking may activate a gaze sensing system.” (*Id.*); and

3. Gaze detection is performed **only after** a given act that involves physical contact with or physical movement of a device (“Given Act”) is detected (which

may be referred to as Scenario #3). (*Id.* at 7:10-12.) Note that the “Given Act” does not include a user's approaching to a device. Here, “the scheme saves energy as a gaze sensing system may be off most of the time **unless** getting activated upon receiving shaking signals.” (*Id.*)

In Scenario #1, gaze detection is performed continuously. However, such gaze detection not only consumes more power but also brings privacy concerns, since an unintended (or accidental) gaze may cause display of private information, exposing the information to other people nearby.

In Scenario #2, gaze detection is performed when a user approaches a device *or* moves the device. That is, Scenario #2 includes two parts: A gaze-detecting-when-user-approaches part and a gaze-detecting-when-user-moves-device part. However, approaching a device does not mean a user wants to view content displayed on the device. Besides consuming more power, approaching a device plus an unintended gaze may also cause accidental display of private information, which becomes privacy issues when other people are nearby.

In Scenario #3, gaze detection is performed **only after** the Given Act is detected. The Given Act only involves touching or physical movement of a device by a user, which more accurately indicates the user's intention to view content at a device and a gaze (or a glance) at the device further confirms the intention. Because gaze detection is performed **only after** the Given Act is detected, the risk

of accidental display of confidential information on a device by Scenario #1 (i.e., continuous gaze detection) or Scenario #2 (i.e., performing gaze detection when a user approaches) is prevented. Further, because gaze detection is performed **only after** the Given Act is detected, unnecessary gaze detection is avoided and less power is consumed. Hence, by performing gaze detection **only after** detecting the Given Act, Scenario #3 excludes both Scenario #1 and Scenario #2, and ensures better privacy protection and lower power consumption.

The Challenged Claims are based upon Scenario #3, respectively. Among them, claims 1, 8, and 14 are independent claims. Claims 2-6, 9-12, and 15-16 and 18-20 depend from independent claims 1, 8, and 14, respectively.

Independent claims 1, 8, and 14 have the limitation: Performing (or perform) gaze detection **only after** detecting (or sensing) the act.

Claim 1 recites:

“1) detecting an act made by a user involving physical contact with the electronic device or physical movement of the electronic device when a display of the electronic device has an idle screen or a screen in standby mode, inactive mode, or screen-saver mode;

2) performing gaze detection **only after** detecting the act; [...]”

Claim 8 recites:

“1) monitoring the electronic device or physical movement of the electronic device to sense an act made by a user when a display of the electronic device has an idle screen or a screen in standby mode, inactive mode, or screen-saver mode;

2) performing gaze detection **only after** sensing the act; [...]”

Claim 14 recites:

“1) detect an act made by a user involving physical contact with the electronic device or physical movement of the electronic device when a display of the electronic device has an idle screen or a screen in standby mode, inactive mode, or screen-saver mode;

2) perform gaze detection **only after** detecting the act; [...]”

Dependent claims 2-6, 9-12, and 15-16 and 18-20 include the limitation of the independent claims, respectively. The Petition, however, fails to show that the Scenario #3-based limitation, i.e., performing (or perform) gaze detection only after detecting (or sensing) the act, is found in the cited art as asserted in Grounds 1 and 2.

III. RYU

U.S. Patent No. 10,540,013, titled “Method of Performing Function of Device and Device for Performing the Method” (“Ryu”), is directed to performing a function based on input information such as motion information obtained at a device. (Ex. 1004 at 1:36-38.) For example, rotating a standby device may cause

the device to show time information. (*Id.* at 10:1-10.) In addition, a user's gaze direction may be checked to decide whether to perform a function. (*Id.* at FIG. 7, 19:4-6.) "[I]f it is determined that the user looks at the device 100, the processor 103 controls the device 100 to perform a function[.]" (*Id.* at 19:30-34.) A user's gaze direction may be checked before performing a function in various operations, such as "[o]peration S1504 of FIG. 15, operations S1606 and S1607 of FIG. 16A, operation S1613 of FIG. 16B, operation S1907 of FIG. 19A, and operation S191[6] of FIG. 19B[.]" (*Id.* at 39:32-35.)

However, Ryu does not disclose when to start gaze detection or what event triggers gaze detection. In particular, Ryu does not disclose gaze detection is performed **only after** detecting the Given Act.

Ryu teaches a sensor 1102 and a camera 1104 at a device 1100. (*Id.* at FIG. 11, 21:38-40.) Sensor 1102 may be "in an active state in the standby mode and an active mode of the device 1100." (*Id.* at 22:20-21.) Sensor 1102 includes a movement sensor (or motion sensor) and a proximity sensor. (*Id.* at 22:30-31.) Sensor 1102 "sens[es] a location of the device 1100, whether there is any user contact, an orientation of the device 1100, an acceleration or deceleration of the device 1100, etc." (*Id.* at 22:27-30.) In addition, as sensor 1102 also contains the proximity sensor, it "detect[s] whether an object approaches a previously set detection surface or whether the object is present nearby by using a force of an

electromagnetic field or an infrared ray without any actual physical touch.” (*Id.* at 22:31-35.) As such, a person of ordinary skill in the art would have understood that the proximity sensor detects a user when the user approaches the device.

In operations S1301 and S1302, for example, sensor 1102 continuously collects sensing data and transmits it to a first processor 1111 “in a standby mode of the device 1100.” (*Id.* at 29:35-40.) As such, when device 1100 is on standby, device 1100 continuously acquires motion information from the movement sensor, and continuously acquires proximity information from the proximity sensor. When a user approaches device 1100, the proximity sensor detects and finds the user first, i.e., before the movement sensor detects any motion of device 1100, since the user is away from and not yet touches the device.

Device 1100 operates camera 1104 to do gaze detection. For example, camera 1104 is configured to track “movements of [the] user's eyes” (i.e., gaze detection). (*Id.* at 23:59-65.) As aforementioned, gaze detection is conducted before performing a function. (*Id.* at 19:4-6, 30-34.) Thus, a person of ordinary skill in the art would have understood that before device 1100 performs a function in response to obtaining proximity information from the proximity sensor indicating a user approaches, it conducts gaze detection via camera 1104 to check whether the user looks at device 1100. If the user looks at device 1100, the function would be performed. Otherwise, the function would not be performed.

Thus, Ryu discloses a scenario at device 1100: Gaze detection is performed when a user approaches the device, which is similar to a part of the above-described Scenario #2, the gaze-detecting-when-user-approaches part. Hence, Ryu discloses a scenario similar to part of Scenario #2.

Ryu teaches a sensor 101 of device 100 first, before teaching sensor 1102 of device 1100. And Ryu recites “sensor 1102 may be the same as described with reference to the sensor 101 of FIG. 1 and output a signal of sensing a movement of the device 1100 [,]” and “sensor 1102 may include the first through nth sensors 501_1~501_n like the sensor 101 of FIG. 5.” (*Id.* at 22:21-24, 22:43-45.) As such, a person of ordinary skill in the art would have understood that sensor 101, like sensor 1102, also has a proximity sensor. Further, like operations performed at device 1100, the proximity sensor of sensor 101 detects whether a user approaches, and device 100 performs gaze detection when detecting a user approaches. Such a scenario at device 100 is similar to a part of Scenario #2, the gaze-detecting-when-user-approaches part.

However, Ryu does not disclose any method that is similar to Scenario #3. That is, Ryu does not disclose performing gaze detection **only after** detecting the Given Act. The reasons are illustrated as follows.

First, Ryu does not disclose gaze detection is performed **after** detecting the Given Act. With respect to device 100, when the device is rotated by certain

degrees, “the processor 103 activates a function of a front camera 821[,]” and “[t]he processor 103 temporarily changes an operation mode of the device 100 to the active mode so as to execute an application related to the front camera 821 as shown by a screen 820.” (*Id.* at 19:52-59.) Then, as Ryu subsequently recites, “the processor 103 may output a black screen[.]” (*Id.* at 19:59-63.) However, Ryu does not disclose the nature or objective of the function of front camera 821, and does not disclose the nature or objective of the application related to front camera 821.

In another embodiment, Ryu uses an image 822, which is taken by front camera 821, to “determine whether a user looks at the device 100[.]” (*Id.* at 19:64-67.) However, Ryu does not disclose when image 822 is taken and when gaze detection is carried out. Thus, Ryu does not disclose gaze detection is performed **after** detecting the Given Act.

Second, even assuming gaze detection is conducted **after** detecting the Given Act at device 100, Ryu still does not disclose gaze detection is performed **only after** detecting the Given Act. Obviously, performing gaze detection **after** detecting the Given Act does not mean and is different from performing gaze detection **only after** detecting the Given Act.

Further, because device 100 also performs gaze detection when detecting a user approaches (as illustrated above), a person of ordinary skill in the art would have understood that the situation is similar to the above-described Scenario #2.

That is, gaze detection is performed when detecting a user approaches the device **or** detecting the Given Act (or the user moves the device). Hence, even if the above assumption is provided, Ryu just shows scenarios similar to Scenario #2, but still does not disclose any method similar to Scenario #3. That is, Ryu does not disclose performing gaze detection **only after** detecting the Given Act.

Additionally, Ryu does not disclose ignoring or discarding any proximity information (e.g., information acquired via the proximity sensor). As such, a person of ordinary skill in the art would have understood that Ryu utilizes the proximity information, including performing gaze detection when it is detected that a user approaches a device via the proximity information. However, if gaze detection is performed when detecting a user approaches a device, more power is consumed and private information may be displayed at the wrong time when other people are also nearby.

In summary, with or without the above-mentioned assumption, Ryu does not disclose performing gaze detection **only after** detecting the Given Act. Ryu's methods have consequences of higher power consumption and privacy issues.

IV. HODGE

U.S. Patent Publication No. 2010/0079508, titled "Electronic Devices with Gaze Detection Capabilities" ("Hodge"), is directed to operating a device based on results of gaze detection. (Ex. 1005 at ¶¶9, 10.) Similar to Scenario #1 illustrated

above, gaze detection is performed continuously when a device is in a standby mode. (*Id.* at ¶¶71, 83) For example, “[i]f desired, device 10 may continue to perform gaze detection operations when operating in standby mode 104. As illustrated by dashed line 105, device 10 may switch from standby mode 104 to active mode 94 when device 10 detects that a user's gaze is directed towards display 16.” (*Id.* at ¶97.)

Similar to the above-described Scenario #2, gaze detection is also performed based on measurements using a proximity sensor and a motion sensor. (*Id.* at ¶13.) For example, “the electronic device may use readings from sensors such as proximity sensors, ambient light sensors, and motion sensors such as accelerometers to determine whether or not to perform gaze detection operations.” (*Id.*)

“A proximity sensor may be used to detect when device 10 is close to a user's head or other object.” (*Id.* at ¶35.) “Input-output devices 38 may be used to allow data to be supplied to device 10 [.]” and “[i]nput-output device 38 may include sensors such as proximity sensors[.]” (*Id.* at ¶41.) The use of a proximity sensor “to determine whether or not to perform gaze detection operations [.]” is further illustrated in paragraph 0113 and FIG. 9. (*Id.* at ¶113 and FIG. 9.) As the proximity sensor detects whether a user approaches, a person of ordinary skill in the art would have understood that detecting a user approaches is used to decide

whether to perform gaze detection. That is, gaze detection is performed when a user approaches a device.

Hodge uses an accelerometer as the motion sensor. (*Id.* at ¶13.) Gaze detection is also performed when a movement of a device is detected through the motion sensor. (*Id.* at ¶111.) “For example, when device 10 detects motion above a threshold level with an accelerometer, device 10 may activate gaze detection operations to determine if a user is looking at the device.” (*Id.*)

As such, with the proximity sensor and motion sensor, Hodge discloses a scenario that is similar to the above-described Scenario #2, i.e., gaze detection is performed when a user approaches a device or moves the device. As just mentioned, Hodge also discloses a scenario similar to Scenario #1, i.e., gaze detection is performed continuously without a trigger act.

Thus Hodge discloses methods similar to Scenarios #1 and #2, but fails to disclose any method similar to the above-described Scenario #3. That is, Hodge fails to disclose performing gaze detection **only after** detecting the Given Act. As illustrated above, Scenarios #1 and #2 consume more power and cause privacy issues, since gaze detection is executed continuously and unnecessarily, and private information is displayed by an accidental glance when other people are nearby.

V. STALLINGS

U.S. Patent No. 8,331,992, titled “Interactive Locked State Mobile Communication Device” (“Stallings”), is directed to interacting with a locked device and displaying information at the device. (Ex. 1006 at 2:1-20.) However, Stallings does not disclose any method that performs gaze detection after detecting the Given Act, let alone disclosing performing gaze detection **only after** detecting the Given Act.

VI. THE PROPOSED GROUNDS OF CHALLENGE FAIL

A. Ground 1 Fails

The Petition cites Ground 1 of unpatentability, which states claims 1-5, 8-9, 11-12, 14-16, 18, and 20 are obvious under 35 U.S.C. § 103 over Ryu in view of Hodge. (Pet. p. 5.)

The Petition tries to show that Ryu discloses performing gaze detection only after detecting the Given Act, but fails to demonstrate it. Petitioner’s main arguments are provided under subtitles “[1(b)] performing gaze detection only after detecting the act” (i.e., aiming at claim 1), “[8(b)] performing gaze detection only after sensing the act” (i.e., aiming at claim 8), and “[14(b)] perform gaze detection only after detecting the act” (i.e., aiming at claim 14), respectively. (Pet. p. 20-24, 43, 48.)

As aforementioned, Ryu teaches a movement sensor and a proximity sensor. However, the Petition only cites the movement sensor. In particular, the Petition

ignores the proximity sensor and excludes scenarios using the proximity sensor when Ryu's methods are reviewed and analyzed, which makes the Petition defective and results in a wrong conclusion as illustrated below.

Petitioner's conclusion (about performing gaze detection only after detecting the Given Act) is mainly based on a statement. The statement recites "Ryu teaches in response to sensing rotation of the device 100, the processor 103 activates a function of the front camera *to obtain an image of the user (i.e., performs gaze detection after detecting the act)*, and then *determines whether the user is looking at the device 100[.]*" (Pet. p.24.) However, sentence parts "*to obtain an image of the user*" and "*determines whether the user is looking at the device 100*" are added by Petitioner without proper reasons and cannot be found in Ryu's disclosure.

As mentioned above, the Petition cites the movement sensor only. The Petition is defective, because, without providing any reasons, the Petition does not mention Ryu's proximity sensor, ignores that the proximity sensor can detect a user, and excludes scenarios that perform gaze detection when detecting a user approaches device 100, when Ryu's methods are reviewed and analyzed.

Just based on the above-mentioned statement that is not found in Ryu's disclosure with regard to device 100, the Petition makes a conclusion "a PHOSITA would have understood that Ryu teaches that gaze detection is performed **only after** detecting the act as claimed." (*Id.*) The Petition's conclusion does not have

proper reasons, because Petitioner does not explain how the conclusion, especially the term “*only after*”, can be made from the statement.

In fact, no matter whether the statement is appropriate or not, it does not support the term “only after”. Firstly, the statement has no words that support the term “only after”. Secondly, as explained above, there are two scenarios at device 100. The statement recites one scenario at device 100 (i.e., the gaze-detecting-when-user-moves-device part of Scenario #2), while the other scenario at device 100 (i.e., the gaze-detecting-when-user-approaches part) is missing and completely ignored by the Petition. As there are two scenarios at device 100, and no selection is made between the scenarios, the term “only after” cannot be derived from the statement. Thus, the conclusion is defective and wrong.

Besides the above-mentioned statement, Petitioner also provides other arguments that are not found in Ryu and do not support the term “only after”. In an overview, the Petition states “(u)pon sensing this motion, the device’s processor activates a front camera *to determine if a user is looking at the device prior to performing a function.*” (Pet. p.7.) However, the sentence part “*to determine if a user is looking at the device prior to performing a function*” is added by Petitioner without proper reasons. As described above, upon sensing a motion, the device’s processor merely activates an undisclosed function of the front camera, executes an undisclosed application, and outputs a black screen. (Ex. 1004 at 19:52-59, 19:59-

63.) Hence, in its overview, the Petition fails to show where Ryu discloses activating a front camera to determine if a user is looking at the device upon sensing a motion. Further, even with the added sentence part, the argument just describes one of the two scenarios at device 100 like the statement. The argument provides no words that indicate the term “only after”. In addition, no selection is made between the scenarios. Thus, this argument does not support the term “only after”.

In another section, the Petition states “after the electronic device 100 has sensed a user’s movement of said device, the device 100 will temporarily change its operating mode to an active mode[,]” and “upon changing the operating mode of the device 100 to an active mode, the device 100 will execute an application related to a front camera *to capture an image for the purpose of determining if a user looks (i.e., gazes) at the device 100.*” (Pet. p.22 and 23.) However, Ryu just recites “execute an application related to the front camera 821 as shown by a screen 820.” (Ex. 1004, 19:56-63.) The sentence part “*to capture an image for the purpose of determining if a user looks (i.e., gazes) at the device 100*” is again added by Petitioner without proper reasons and cannot be found in Ryu’s disclosure. Further, even with the added sentence part, the argument, like the statement, just once again describes one of the two scenarios at device 100. The argument contains no words that indicate the term “only after”. In addition, no

selection is made between the scenarios. This argument does not support the term “only after” either.

Hence, the Petition’s conclusion “a PHOSITA would have understood that Ryu teaches that gaze detection is performed *only after* detecting the act as claimed” is defective and wrong, because there is no support for the term “only after” and the Petition expressly excludes scenarios using proximity information at device 100. For the same reason, Petitioner’s arguments under the subtitles “[1(b)] performing gaze detection only after detecting the act”, “[8(b)] performing gaze detection only after sensing the act”, and “[14(b)] perform gaze detection only after detecting the act” are also defective and wrong. Therefore, the Petition fails to demonstrate that performing gaze detection **only after** detecting the Given Act is found in Ryu’s disclosure.

When the Petition combines Ryu and Hodge, the Petition uses Hodge’s method for recognizing a user. (Pet. p.28.) The Petition does not state that Hodge discloses performing gaze detection only after detecting the Given Act.

As illustrated above, Ryu discloses methods similar to part of Scenario #2, while Hodge discloses methods similar to Scenarios #1 and #2. But neither Ryu nor Hodge discloses any method that is similar to Scenario #3.

Therefore, even when Ryu and Hodge are combined as suggested, the combination may create scenarios similar to Scenarios #1 and #2, respectively. But

the combination still fails to produce any method that is similar to Scenario #3.

Hence, Ryu and Hodge do not disclose performing gaze detection **only after** detecting the Given Act, either alone or in combination.

In summary, the Petition is defective because, for no reasons, it completely ignores Ryu's proximity sensor, and expressly excludes scenarios that use the proximity sensor at device 100. The Petition's conclusion is wrong because there is no support for the term "only after" and no selection is made between different scenarios. Thus, the Petition does not show that performing gaze detection **only after** detecting the Given Act is found in Ryu, and a combination of Ryu and Hodge.

Therefore, Ground 1 fails to show that the limitation of the Challenged Claims, i.e., "performing (or perform) gaze detection only after detecting (or sensing) the act", is disclosed in the cited art.

B. Ground 2 Fails

The Petition cites Ground 2 of unpatentability, which states claims 1, 6, 8, 10, 14, and 19 are obvious under 35 U.S.C. § 103 over Ryu in view of Hodge, in further view of Stallings. (Pet. p. 52).

When the Petition combines Ryu, Hodge, and Stallings, the Petition uses Stallings's method for displaying Really Simple Syndication (RSS) windows. (Pet.

p.58-59.) The Petition does not state that Stallings discloses performing gaze detection only after detecting the Given Act.

Thus like Ground 1, even when Ryu, Hodge, and Stallings are combined as suggested, the combination may create scenarios similar to Scenarios #1 and #2.

However, such a combination still fails to produce any method that is similar to Scenario #3. Hence, Ryu, Hodge, and Stallings do not disclose performing gaze detection **only after** detecting the Given Act, either alone or in combination.

Further, the Petition does not demonstrate that performing gaze detection **only after** detecting the Given Act is found in Ryu, Hodge, and Stallings, either alone or in combination.

Therefore, Ground 2 also fails to show that the limitation of the Challenged Claims, i.e., “performing (or perform) gaze detection only after detecting (or sensing) the act”, is disclosed in the cited art.

VII. CONCLUSION

Because the Petition fails to explain how the prior art discloses the claim limitation, Petitioner has failed to meet its burden to show it has a reasonable likelihood of prevailing on Grounds 1 and 2 of unpatentability. Accordingly, the Board should not institute IPR and the Petition should be denied.

Date: May 6, 2023

Respectfully submitted,

/ Chian Chiu Li /

Chian Chiu Li

Patent Owner

CERTIFICATE OF COMPLIANCE

Pursuant to §42.24(d), the undersigned certifies that this paper contains no more than 14,000 words. According to the word-processing system used to prepare this paper, the paper contains 4,620 words.

Date: May 6, 2023

Respectfully submitted,

/ Chian Chiu Li /

Chian Chiu Li

Patent Owner

CERTIFICATE OF SERVICE

A true and correct copy of PATENT OWNER'S PRELIMINARY
RESPONSE PURSUANT TO 37 C.F.R. § 42.107 has been served on Petitioner's
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